

Master of Public Health
Integrative Learning Experience Report

***INTERPROFESSIONAL SKILLS DEVELOPMENT IN PUBLIC
HEALTH EDUCATION TO ADDRESS ONE HEALTH
PROBLEMS***

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Abstract

To investigate interprofessional practice (IPP) within the Kansas State University environment, I conducted analysis of surveys completed by undergraduate, professional, and graduate students, to better understand what communication skills—if any—were emphasized during the course of educational attainment. The study included the generation of a pre-test, IPP-related scenarios for analysis by participants, and creation of a post-test. The overall purpose was to understand if these skills are incorporated into public health, veterinary medicine, and One Health curricula at the graduate and professional levels and address potential gaps in this knowledge base in undergraduate contexts. With multiple disciplinary work being the way of the future, the skills provided within training modules like this are invaluable and should be underscored for all students, even in undergraduate educational attainment. Moreover, this study demonstrates the potential effectiveness of IPP work in an online, asynchronous format—further easing the possible time and location constraints typically associated with this kind of training.

Subject Keywords: Interprofessional practice, communication, education, One Health

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Chapter 1 - Literature Review

The term “interprofessional practice,” or IPP, emerged in the late 1960’s and early 70’s as a way to describe the relationships and communication skills needed between diverse healthcare professionals. One Health, or the interconnectivity between animal, environmental, and human health, is an even more recent addition to the public health field, becoming a widely adopted paradigm in the early 2000’s. Both of these practices significantly contribute to contemporary understanding of public health, communication, and research and both have roots in older disciplines.

In “Impact of Interprofessional Education on Subsequent Practice,” author Mark Spencer (1987) traces the varying meanings conveyed by the term IPP. Most often, IPP, within Spencer’s context, vaguely references some sort of integration of previously discordant fields of study into a new curriculum. While this can be achieved in various ways, he specifically examines the use of a single, interprofessional education course administered between 1975 and 1981 (Spencer, 1987). Survey responses were collected after the class from participants, all of whom were graduate or professional students (Spencer, 1987). Broadly, the research found that while the course itself was rarely referenced as of significant importance for participants in their later interprofessional interactions, students who had participated were still more likely to successfully engage in IPP-associated behaviors, such as collaborative practice (Spencer, 1987). Spencer tentatively frames the results within his temporal context (i.e. this is a burgeoning field and more research is needed before anything definitive can be said), but his findings are largely positive: specific, IPP training can help students later in their careers.

The years since Spencer’s publication have seen numerous papers published on the value of IPP training for healthcare professionals. Indeed, as the world has become more specialized and narrowly focused, one of the greatest lessons from the various studies of IPP has been how vital multisystem thinking and action is. In “Interprofessional Education in Community Health Contexts: Preparing a Collaborative and Practice-ready Workforce” (Suiter et al., 2012), the authors found that simply by increasing various professionals’ interactions with diverse communities, they could improve patient outcomes via better understanding of the social determinants of health and community resource acquisition. Similarly, Fifolt et al. (2019) utilized an experiential learning simulation to help a group of racially underrepresented college students interested in healthcare professions learn about proper personal protective equipment (PPE) use. While the primary focuses of this exercise were training students for biohazard response and introducing underrepresented students to a hands-on healthcare experience,

secondary level take-aways included participants' increased abilities to work on a diverse team (Fifolt et al., 2019). Additionally, it provides a valuable framework for future training scenarios.

One final example of recent IPP training in practice comes from Tanzania. "First Steps Towards Interprofessional Health Practice in Tanzania: An Educational Experiment in rural Bagamoyo District" (Leshabari et al., 2012) documents an integrative, educational experiment the authors conducted with healthcare-allied individuals in the country. For context, Tanzania has, at best, a disjointed and struggling healthcare system; with fewer than one physician per 1,000 people, high rates of HIV/AIDS and infectious diseases, as well as high rates of maternal and infant mortality, this country is a potential hotbed for medical disasters (*Africa: Tanzania—World Factbook*). Much of the country's healthcare relies upon non-clinician administrated care—creating the unavoidable reality that doctors in-country will, at some point in their careers, have to work with health-allied, non-professional caregivers.

In light of this healthcare patchwork, one of Tanzania's major medical degree-granting university, Muhimbili University of Health and Allied Sciences, makes interprofessional competence one of their foundational principles (Leshabari et al., 2012). Students cannot graduate without demonstrating the ability to effectively communicate with diverse populations, both as patients and coworkers (Leshabari et al., 2012). In a novel attempt to underscore these skills, the university began Interprofessional Day in which participants worked on teams to directly address IPP issues (Leshabari et al., 2012). By the end, all demonstrated an introductory understanding of IPP, with the authors making numerous suggestions for how it could be expanded and supported in the future (Leshabari et al., 2012).

IPP is clearly a central feature of healthcare practice across the globe. Its central tenets, though, and those of One Health—multisystem thinking, strong transdisciplinary communication, and collaborative practice—are more broadly utilized outside the medical and public health fields. Indeed, these practices are central to effective businesses and organizations everywhere and often involve the inclusion of a component key to IPP: intercultural competence. Within the scope of this project, culture, race, and ethnicity were not directly addressed; however, it would be remiss to talk about IPP without mentioning such important determinants of health and the broader applications of this interdisciplinary work.

In that vein, intercultural communication is used in various fields, from anthropology to ethnic studies to ethnobiology, much the same way that health-allied fields use IPP. It is a central framework for understanding how people communicate with one another based upon their respective cultural points of origin. It is an acknowledgement that an individual's history is carried with them into all their encounters and only via understanding one's own history as a

lens through which the world is viewed can one then have meaningful interactions with others. Communication is complex and can be studied from various perspectives, though as the authors of “Intercultural Communication as Applied Ethnology and Folklore” argue, it is an active process, making it akin to IPP (Roth and Roth, 1999). The entire purpose of conducting an ethnography is to figuratively enter another’s shoes by living amongst cultures entirely unlike one’s own (Roth and Roth, 1999). Oral histories are gathered, ways of life observed, and, invariably, most ethnographers become integrated (to some extent) into the culture which they observe; they are, quite literally, actively engaging in multisystem thinking as they blur the line between strict academic and person of study (Roth and Roth, 1999).

Entire books are dedicated to preparing academics for the potential stressors of completely immersing themselves in the systems, or cultures, of others. The books and articles, such as one by Eleanor Burton entitled “Intercultural Communication,” try to help such individuals navigate the intense emotional waves accompanying complete integration into another way of thinking (Burton, 1997). Burton argues that while certain feelings, like culture shock or the honeymoon phase, are universally felt, the experience itself will be unique to the individual, much in the same way Roth and Roth argued that communication is a complex dance between respective individuals’ histories (Burton, 1997). In this context, intercultural communication sounds entirely micro compared to IPP, but Burton also makes it clear that these types of experiences and cues occur on a macro level as well, providing the backdrop for the development of stereotypes and narratives, if used negatively (1997). Intercultural communication is an important aspect of IPP and profoundly impacts daily interactions.

Connecting these seemingly discordant fields is One Health which, while it was not the primary focus of this survey, was an underlying feature of the study. It is important to understand that, at its most basic level, One Health is about multi-system integration and relies upon the idea that no health or healthcare can exist in a silo. It is worth noting that while the term One Health is 21st century nomenclature, the concept of interdependency between human, planet, and animals, has long been accepted as fact by indigenous cultures across the globe. Regardless, the term and its implications became more broadly accepted, particularly in veterinary science, in the early 2000’s. Since then, it has expanded to become a teaching point within public health curriculum and is gradually making an entrance into the human health sector.

One Health enables a link between IPP, intercultural communication, and animal and environmental health practices in such articles as that by Quinlan and Quinlan (2016), entitled “Ethnobiology in One Health.” The authors make clear their precarious academic space at the

center of ethnology, biology, and One Health and the potential tensions this can cause due to their field's relative novelty (Quinlan and Quinlan, 2016). And yet they argue that their studies are no less powerful because of this newness, but rather, it is the answer to the extremely complex questions of the future, such as how to combat antibiotic resistance (Quinlan and Quinlan, 2016). Such issues can only be addressed through work collaboratively done in environmental, veterinary, medical, and public health fields, with necessary deference to varying cultural, racial, and ethnic attitudes towards these topics (Quinlan and Quinlan, 2016). In this sense, for Quinlan and Quinlan, One Health is the backdrop for all the health-related work of the future and must incorporate all aspects of the complex dynamics thereof to be successful (Quinlan and Quinlan, 2016).

The emerging SARS-CoV-2 pandemic has, undeniably, altered the Integrated Learning Experience (ILE) plans of MPH students throughout Kansas State's program. While the initial plan for my applied experience involved data analysis and an internship within the field of epidemiology, it became clear by late summer 2020 that those possibilities were not going to become actuality. Instead, the focus shifted in a more academically research-oriented direction, with the help of Dr. Ellyn Mulcahy and Dr. Paige Adams. The initial plan was to conduct this survey and training in-person but, due to continued COVID-related constraints, some reorganization needed to take place. The following ILE and accompanying Applied Practice Experience (APE) document are the results of that reorganization. Under the guidance of Dr. Mulcahy and Dr. Adams, I re-organized the in-person IPP training and made it accessible online via Qualtrics. I generated a pre-test, wrote IPP-related scenarios for analysis by participants, and created a post-test to circulate amongst Kansas State students, with the intent of helping incorporate these vital communication skills into MPH, DVM, and One Health contexts.

Chapter 2 - Learning Objectives and Project Description

In order to complete my degree requirements in time for a fall 2020 graduation amidst the COVID-19 pandemic, an innovative field experience was created under the supervision of Dr. Mulcahy and Dr. Adams. While IPP is the central focus of this ILE, other learning objectives included: employing epidemiological techniques in practice as well as engaging various mentors for perspective on IPP within their career fields; creating other outreach materials related to epidemiology and communication (see Appendices); and presenting Public Health-related material to undergraduates via in-class discussions centered on social determinants of health. Clearly, the project is multifaceted, much like IPP, One Health, and epidemiology in general.

Objectives:

- Explore and summarize IPP and epidemiology in education and practice;
- Learn about IPP from a wide array of public health practitioners; and
- Conduct a review of relevance of IPP in the literature for education and practice.

The bulk of this ILE and other products produced for my APE reflect efforts to better conceptualize IPP and, to an extent, epidemiology, as they are presented in education and daily practice. In order to better understand IPP within my future field of practice, I conducted interviews with various professors and other professionals around Kansas and New Mexico to learn what kind of interdisciplinary communication features strongly in their daily work. Finally, the aforementioned review reflects an examination of IPP within educational and public health-related literature.

Chapter 3 - Results

Initially, the study was intended to be conducted in-person via a short module, inserted into undergraduate, professional, and graduate classes. Over the summer of 2020, however, it became apparent that, as more classes moved online, this format would need to be reconsidered. In light of those developments, a survey was developed, and approval from the Kansas State University Internal Review Board (IRB) was sought. After receiving approval (IRB # 10234), the survey was distributed via K-State Today announcement and targeted emails to specific classes in early September, culminating in collection and analysis for this report and other projects in early October. Participants submitted surveys anonymously via Qualtrics.

To be considered eligible for inclusion in the study population, participants had to be actively enrolled at Kansas State during the fall semester as undergraduate, professional, or graduate students. As of 16 October, 66 completed responses have been collected (11 responses were incomplete and not included in this discussion); 17 from graduate and professional students and 49 from undergraduates. The graduate or professional student category registered 4 Veterinary Biomedical Science master's candidates, 6 MPH, 4 DVM, 2 joint DVM/MPH students, and 1 PhD candidate (see Figure 3.1). The undergraduate participants were far broader in the scope of their studies: 10 participants were in a pre-medical field (pre-nursing, pre-dentistry, pre-physician's assistant, or pre-surgeon); 9 were psychology; 4 education; 3 biology; 3 kinesiology; 3 animal science; 2 communications; 2 architecture; 2 business; 2 undecided/open option; 2 mechanical engineering; 1 biochemistry; 1 agriculture; 1 computer science; 1 political science; and 1 regional planning (see Table 3.1).

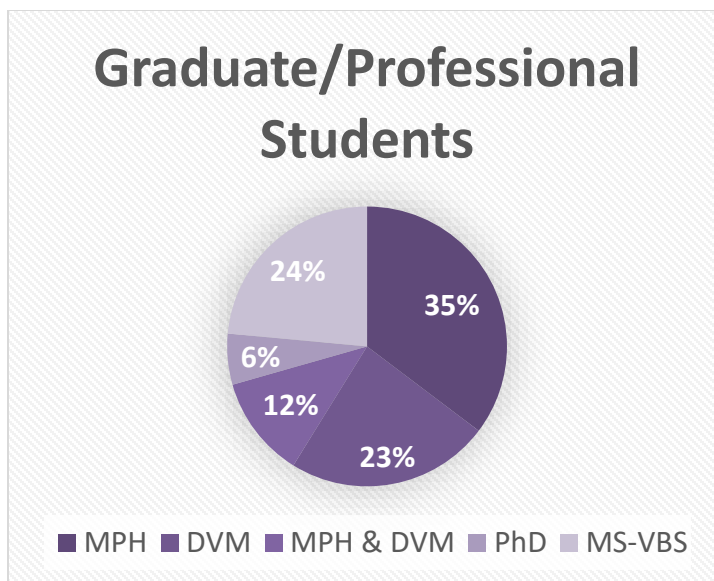


Figure 3.1 Student degrees and programs

Table 3.1 Undergraduate majors

Major	Number of Respondents
Pre-medical	10
Psychology	9
Education	4
Biology	3
Kinesiology	3
Animal science	3
Communications	2
Architecture	2
Business	2
Mathematics	2
Undecided/Open	2
Mechanical Engineering	2
Biochemistry	1
Agriculture	1
Computer science	1
Political science	1
Regional planning	1

After signing the initial Informed Consent document, students then completed a brief pre-test to assess their understanding of the term IPP and analyze, by Likert scale, their interpretations of various IPP-related sentences. Potential responses on the Likert scale were: “strongly disagree,” “somewhat disagree,” “neutral,” “somewhat agree,” and “strongly agree.” Through the pre- and post-test renderings of these questions, 16 total participants did not change their ratings for any question. While no analyses were performed on these responses due to their clustered nature and the few responses relative to parameters which would make the necessary model almost impossible to fit, the results are still interesting to view in graph form.

To the first statement, “I will not have to work collaboratively or creatively on a diverse team in my future profession,” 45 respondents selected “strongly disagree” in the pre-test, 12 “somewhat disagree,” 5 “neutral,” 2 “somewhat agree,” and 2 “strongly agree.” In the post-test repetition of this statement, 47 selected “strongly disagree,” 10 “somewhat disagree,” 4 “somewhat agree,” and 5 “strongly agree.” No respondents selected “neutral” in the post-test.

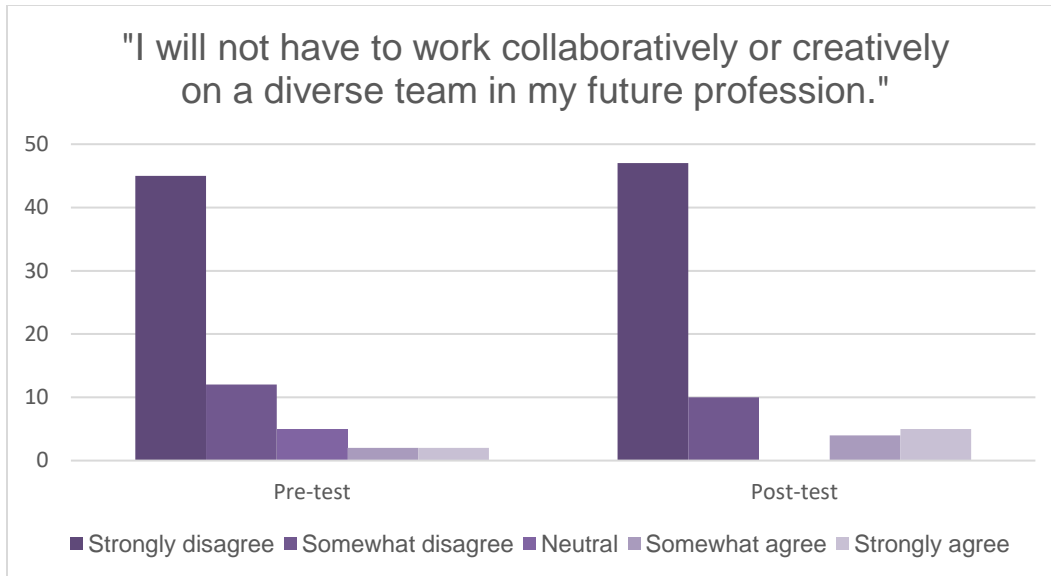


Figure 3.2 First Likert scale question

The second statement of the module was “healthcare has routinely demonstrated that teams with better interprofessional communication have patients with better long-term outcomes.” To this statement, participants in the pre-test selected “neutral” 5 times, “somewhat agree” 30 times, and “strongly agree” 31 times. No one selected “strongly disagree” or “somewhat disagree” in the pre-test for this statement. In the post-test, 2 respondents selected “strongly disagree,” 2 “somewhat disagree,” 4 “neutral,” 22 “somewhat agree,” and 36 “strongly agree.”

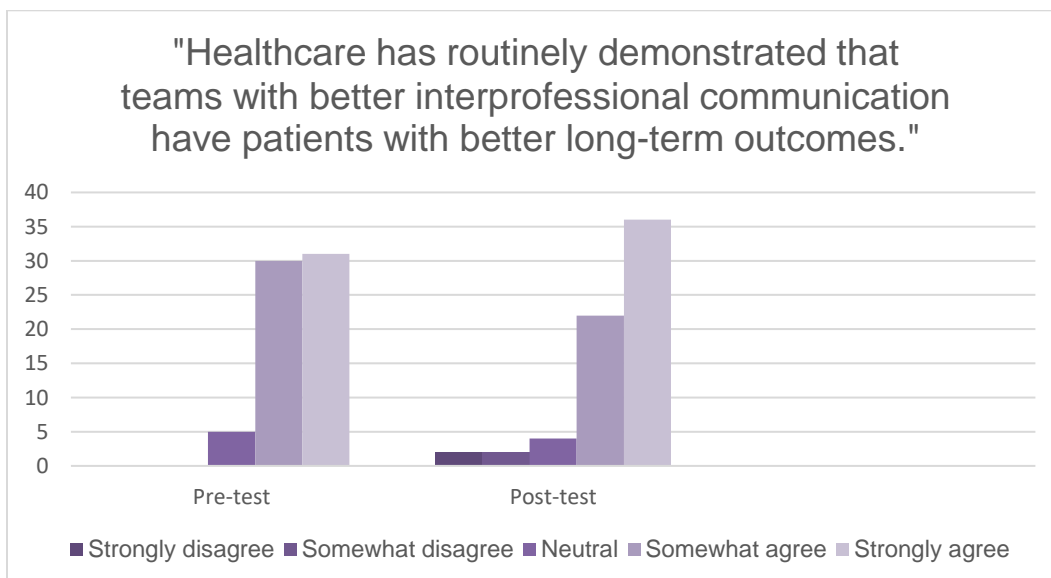


Figure 3.3 Second Likert scale question 1

In the third Likert scale question, participants responded to “interprofessional competency means that all members of a team must have the same knowledge and backgrounds to produce the best outcome from their work.” The pre-test saw 22 “strongly disagree” responses, 26 “somewhat disagree,” 7 “neutral,” 9 “somewhat agree,” and 2 “strongly agree.” The post-test registered 31 “strongly disagree” responses, 23 “somewhat disagree,” 5 “neutral,” 6 “somewhat agree,” and 1 “strongly agree.”

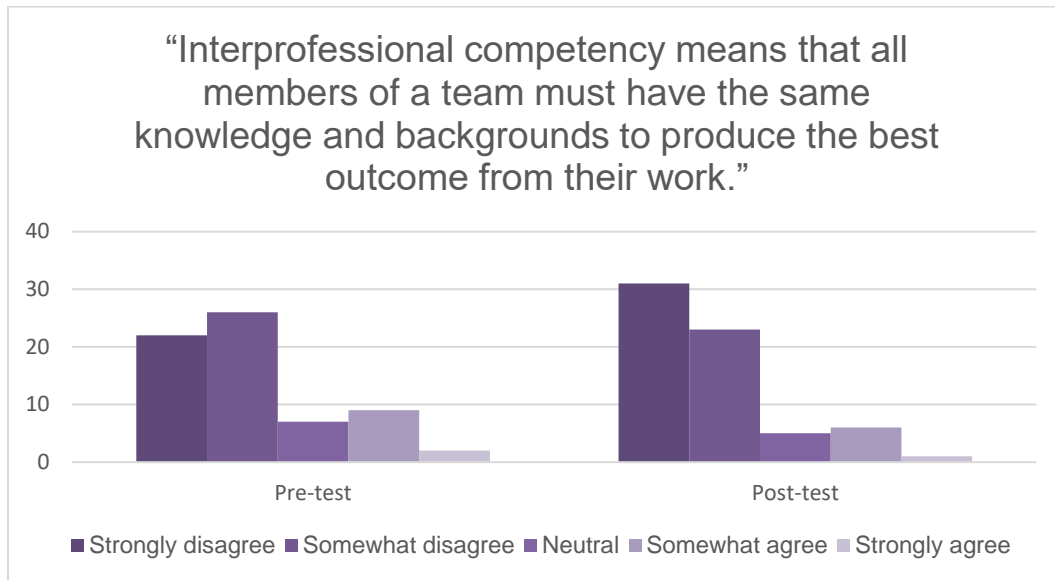


Figure 3.4 Third Likert scale question

The final statement was “conflict is completely avoidable on a well-functioning interprofessional team.” To this statement in the pre-test, 18 respondents selected “strongly disagree,” 29 “somewhat disagree,” 8 “neutral,” 6 “somewhat agree,” and 5 “strongly agree.” In the post-test, “strongly disagree” was selected by 21 respondents, “somewhat disagree” by 25, “neutral” by 9, “somewhat agree” by 7, and “strongly agree” by 4.

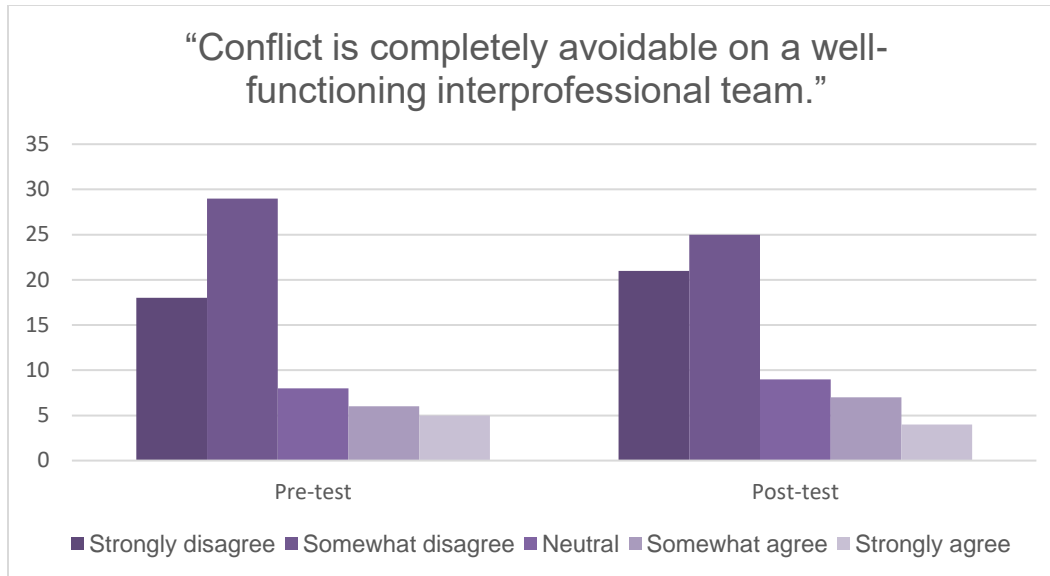


Figure 3.5 Fourth Likert scale question

Participants then moved to a short scenario, randomly assigned by Qualtrics. Six variations of the scenarios were generated and asked participants to embody the mindset of a professional (teacher, dietician, doctor, veterinarian, lawyer, or physical therapist) trying to coordinate care for an individual with complicated needs. After reading the scenario, participants moved to the post-test in which they were asked what their care plans would look like and what other allies they would need. The post-test re-addressed the Likert scale questions and concluded by asking what they understood IPP to mean now. At no point, beyond what was mentioned in the Informed Consent, was a formal definition of IPP provided.

The greatest differences were observed between the responses of undergraduate and graduate/professional students. Of the latter group, only two participants indicated a lack of understanding of IPP at the beginning of the survey compared to 26 undergraduate students who said such. Of these 28 total participants who indicated no understanding of IPP initially, only 4 repeated this lack of knowledge by the end of the survey (see Table 3.1). For those who left the post-test without an understanding of IPP, one was a psychology major, one kinesiology, one biology (this individual responded “a little better”), and one animal sciences.

Table 3.2 Ability to identify IPP

	Students who could not define IPP in pre-test	Students who could not define IPP by post-test
Undergraduates	26	4

Graduates/Professionals	2	0
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Participants were also asked in the post-test to identify characteristics or abilities that would be of greatest benefit to the individual described in their scenario. While two interpreted this within the context of their personal Clifton Strengths assessments, and specifically stated this, of those who maintained their “professional persona,” the most commonly identified traits were: empathy, strong communication, and coordination or leadership (*K-State Strengths, 2020*; see Figure 3.3). Each participant was only counted once per category (i.e. if they mentioned “communication” three times in the response, they were only counted as one respondent in the summary) but could contribute to multiple categories (i.e. they mentioned communication and empathy as two of their skills). All responses, for this question and others in the post-test, were hand coded. Participants were not provided any examples for these questions and typed their responses in textboxes in Qualtrics.

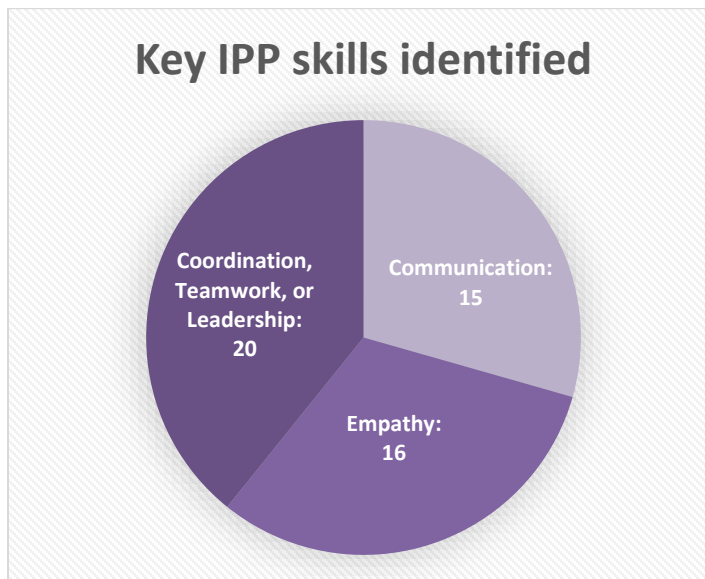


Figure 3.3 Most important skills

Finally, participants were also asked to identify challenges to the plan they intended to implement in their given scenarios. While many mentioned specifics of the scenario that they received as potential points of contention, there were many more participants who identified more general concerns. Twenty-two of the 66 total respondents (33%) mentioned getting buy-in from the central figure of their scenario as a potential issue. Twenty-two percent of respondents stated that underlying costs and resource investment would be of primary concern to them (of note, some participants specifically mentioned, either in the scenario response or list of

concerns, that they assumed unlimited budget, further indicating that most who took the survey recognized finite resources as being a barrier to IPP). Nine participants mentioned coordinating care for their individual as being potentially problematic.

Table 3.3 IPP Challenges

Challenge	Explanation	Number of Respondents
Engagement	Person in scenario may be unable or unwilling to accept the help of a care team.	22
Finite resources	Issues regarding government funding, budget and/or limited income possessed by the individual mentioned in the scenario.	15
Coordination	Complications related to working on a diverse team and ensuring the client/patient is still helped.	9

Chapter 4 - Communication as a Public Health Strategy

Somewhat unbeknownst to me, much of my work at K-State has centered on communication. Pre-dating my time here, this subject has always been in my peripheral; something of which I am aware as a central theme but upon which I never really acted. Communication features heavily in all my work, if not obviously. You would think, then, I would not find the task of writing about communication as a public health strategy entirely daunting when it was casually proposed. That assumption would be categorically incorrect. When I think of communication in an educational or public health context, I internally cringe. I think of the singular communications class I took and loathed as an undergraduate. I think of all the hokey public health informationals I have encountered. I think of all the anti-science verbiage I hear almost daily. All of those elements coalesce into something I find dry, boring, theory-based, and antithetical to what I want to tackle in this ILE. Ultimately, those are the very reasons why communication is so important, particularly for dealing with public health, IPP, One Health, and epidemiology.

Communication is one of the central features of being a living organism. Whether you are a plant, an invertebrate, or a dolphin, at various points throughout your existence on this planet, you will have to communicate with something other than yourself. Communication, in this sense, can look like pheromone or chemical releases, sonar, vocalizations, body language, or anything in between. It logically flows, then, that communication is one of the most nuanced acts in which humans, renowned as a species for our complex social customs, engage and can be broadly broken into two categories: what is said and how it is conveyed.

The first part of this, the “what,” is outwardly easy with public health. Almost any communication strategy development manual you look at relevant to public health, or science in general, urges you to stick with fact-based material (O’Sullivan et al, 2003; *Health Communication Methods; Health Communication Strategies*). While that is obviously important, the problem here is that most of those books do not go beyond these statements to unlock the underlying issues at play with “fact-based material.” This leaves the door wide open for issues down the line when implementing the “how” portion of communication. No, I did not arrive at the precipice of obtaining my degree and begin calling into question the foundational principles of science but rather it is important to remember that what is fact-based to one cohort is not fact-based to all. The baseline assumption of public health communication cannot be fact-based if it is to be successful; we cannot assume that everyone who is consuming what we communicate

agrees that facts are facts. Yes, this is an entirely thorny epistemological warren but it is a necessary layer of subtle distinction to communication that is vital to public health.

The hornet's nest of what is fact is often overlooked for the glossier, more complicated "how" of communication. Most manuals focus on strategies to, in essence, make friends and influence people (O'Sullivan et al, 2003; *Health Communication Methods; Health Communication Strategies*). That, these developers seem to think, is where the trouble lies, where campaigns go awry and the battle is won or lost. Unfortunately, if you are showing up to battle with one set of facts versus personal opinion or another set of semi-believable "facts," you have already lost the battle before you even pull out your brochures. Our brains are not hardwired for facts in the same way we are not pre-programmed to understand calculus. Such things take work and effort and experience. We are innately wired, though, for connection and trust, represented earliest as the mother-infant bond. And here is where the line begins to blur between the "what" and "how" of communication strategy (Larson, 2020).

While it is all and well to say that public health communication strategy must be fact-based, the reality is that if an inherent level of trust does not exist in what is being called "fact" and in the person or entity behind such statements, then no multimillion-dollar campaign will ever work (Brene, 2020). Trust is the backbone of communication and the ultimate determinant of success. Folded within trust are the public's comfort level with asking questions and feeling respected enough, as non-scientists, to still be treated intelligently (Larson, 2020). As an example, people are not vaccinating their children for a multitude of reasons, ranging from difficulty taking off work to meet rigorous shot schedules to genuine belief that big pharmaceutical companies are pumping their babies full of toxic chemicals. While someone who has any knowledge of immunology, public health, or vaccines knows, beyond a shadow of a doubt, that these are safe, to someone who only took science in their public high school and avoided it throughout college, the facts are less obvious (Larson, 2020). Therefore, when people in this latter group enter a forum and ask a genuine question, wrapped in fear for their child's wellbeing, and are greeted with two responses, one clinical and potentially antagonistic and another welcoming, warm, and kind—which inherently engenders trust—but rooted in fallacy, chances are, they are still going to believe the second (Larson, 2020). That warm response and validation of the question, the willingness to engage in conversation rather than lambast, those are the backbones of communication strategy that simply sticking to fact-based messaging overlooks (Larson, 2020).

It can seem like a convoluted distinction, then, to separate the "what" and "how" of communication. One cannot exist without the other, at least not for our species. Public health

cannot take for granted that our facts are facts and rest on those laurels, investing instead in new websites and outreach programs. No, the work has to begin in the nebulous underbelly of what links what we say and how we say it: trust. I feel like every podcast I listen to or article I read mentions trust or faith in public officials and institutions as being lost or dead (Brene, 2020; Fred Shlesinger, 2020). That can be blamed on any myriad of factors (I tend to point towards the de-prioritization of public education) but the end result is the same: nobody trusts scientists, politicians, public figures, etc. and, by proxy, what they have to say. For a species not built to understand calculus but rather connection, that is a huge problem for anyone striving to help people with facts.

How to fix this deficit is a complicated milieu of transdisciplinary work and micro-level interactions. To the first, I point to the entirety of my ILE and this study, as well as the literature included in my review. This is the kind of thinking we need, not only for the problems of the future but to build trust. The 22 students who identified getting buy-in from the person in their scenario as a significant challenge hit the nail on the head because, whether they were conscious of it or not, they identified a huge stumbling block to IPP and other transdisciplinary work. Little can be accomplished without rapport, as anyone who has ever worked in a service industry can attest. It is the foundation of trust and communication and deeply embedded in the idea of power to effect change, often alluded to in the Transtheoretical Model or Social Cognitive Theory for behavior change. This then floods into the micro, daily interactions public health professionals have with people outside our fields. In order to establish rapport and trust, we have to lean into innocuous questions and answer as humans, not as scientists. We have to actively listen to concerns, whether we think them legitimate or not, and remember that answering seemingly benign questions with respect is how we engender trust and ultimately move a public health agenda forward.

This has become less about strategy and more about an underlying philosophy of communication: what we say and how we say it matters very little if no one is listening and trusts us. Yet entire books are written on the strategies currently in place and the result lies before us in the COVID-19 pandemic response. We need a new approach and to remember that trust and communication are active, breathing processes that need to be fostered and constantly reimagined, much like IPP and One Health. In order to effectively communicate in public health contexts, we need to utilize a paradigm in which we build trust and self-efficacy with our target audiences first and foremost.

Communication featured heavily in the various projects I undertook during my time as a graduate student at K-State. I created various infographics regarding health and media as well

as epidemiology in the time of COVID and IPP in academia (see Appendix A). I wrote a couple articles for the *One Health Newsletter* that mentioned the importance of communication and one in which it centrally featured (the co-authored article entitled “Fighting the Spread of Disease with...Words?,” see Appendix B). Finally, the creation of the materials necessary for this study involved understanding communication with a wide audience base as well as the ability to share them with different groups for discussion (see Appendices C and D).

Chapter 5 - Discussion

Most undergraduate programs at Kansas State do not have an emphasis or requirement for IPP-related skills, instead focusing on the development of “intellectual exploration” via the *K-State 8 (General Education, 2020)*. As of 2018, over 150 majors and certificate programs were offered through K-State; only 4 are formally classified as “interdisciplinary” (*Undergraduate Degrees, 2018*). Similar to other universities across the country, all of these interdisciplinary offerings are purely related to the humanities and typically take a more “double major” appearance than true interprofessional work as defined for this study. This is reflected in the number of undergraduate respondents who did not know the term IPP upon starting the pre-test.

Moreover, introducing IPP and transdisciplinary topics in undergraduate education is a neglected subject within the literature; to date, few articles have been published on the matter (Fielden and Ledger, 2017). Instead, the focus has always been on building these skills for graduate and professional students later in their degree fields. While this is obviously effective, as the world continues to evolve at an unyielding pace and more people than ever before pursue advance degrees, the benefits of introducing these concepts earlier in the academic pipeline has potential benefits. In the same way that Spencer found that healthcare providers who took IPP courses in their medical training were more likely to display collaborative care tendencies in their own practices, undergraduate students who are introduced to these ideas have the potential to bridge previously discordant fields to solve the major issues of the future (1987).

Although the scope of this ILE only includes responses collected within a month-long period, the study indicates the promise of conducting IPP training in an online, asynchronous format. One of the biggest struggles with IPP-related education is being able to coordinate meeting times across disciplines for professionals to meet; this type of training is often considered to be time intensive and cost-prohibitive (Fielden and Ledger, 2017). The initial results here indicate the effectiveness of IPP training in this format. The time investment is relatively minimal (most respondents spent under 20 minutes on the entire survey) and little-to-no interdepartmental coordination was necessary to generate responses. While it is ideal to conduct IPP training in-person, it is promising that 86% of respondents who indicated no familiarity with the term in the pre-test phase, communicated clear understanding of the subject in the post-test. The survey can clearly be further refined (feedback from participants included the desire to be able to scroll back to the scenario for reference while answering the post-test

questions) but the underlying promise is there for this format as a cost-effective way of introducing IPP to large-scale audiences.

The effectiveness of this format for IPP training is further underscored by the skills participants identified as being important to their scenario as well as the potential challenges to implementing their plans they foresaw. Without being provided any formal definition of IPP outside of the Informed Consent document, participants were able to deduce skills and challenges commonly mentioned throughout the literature reviewed here. Everything from strong communication skills, to the ability to be empathetic, to the issues related to coordinating across disciplines, is supported and directly or indirectly mentioned in most IPP research. This further supports the possibility of such online work as being beneficial to promoting IPP and One Health.

There was one scenario, however, that merits particular discussion for the interesting responses it generated. Qualtrics randomly assigned the scenarios, giving 13 total respondents a situation in which they were a lawyer and Cynthia, an undocumented woman being abused by her boyfriend, was seeking their help (see Appendix C). Specifically, the scenario details that Cynthia has small children, limited income, community ties, and English-abilities, and that she is afraid of being deported. Finally, it is stated that while she is not legally in the country, any crime committed against her on US soil is still prosecutable under our laws. Of note, none of the respondents who expressed no understanding of IPP at the end of the module received this scenario.

Numerous points of interest came up regarding Cynthia and her care plan. This scenario is the only one in which participants (rightfully) acknowledged trepidation in working with other fields; some mentioned not wanting to contact police for fear of sealing Cynthia's deportation fate. A fair number of respondents focused on fixing her immigration status rather than expressing concern about the physical abuse to which she and her children were exposed. Six respondents expressed that they would do something for the children, though only one specifically mentioned the trauma they likely would have experienced and the need for therapy. One respondent—singular of the 66 completed surveys—expressed something akin to apathy in regards to Cynthia's situation. He or she stated that since Cynthia was likely in a better situation here than in her home country and that, due to her limited income, there was little that could be done for her, so she was probably better off staying with her abuser.

Similarly, the primary challenges identified relative to this scenario centered on Cynthia's immigration status rather than the specifics of the trauma she and her children were enduring. Few of the participants who received this scenario mentioned issues related to resource

coordination, cost, or Cynthia accepting their help. Instead, almost all the respondents were concerned about her being deported and being unable to prove her case in court, almost seeming to forget their professional persona as a lawyer.

All of these responses were somewhat revelatory. Prior to viewing these responses, it was never considered that one scenario would stand-out from the others and, were one to be problematic, it certainly did not seem like Cynthia would be it (if any, the veterinarian dealing with Foot and Mouth Disease seemed the more likely due to the background knowledge necessary). And yet Cynthia is who yielded the most divisive, difficult to categorize results in which underlying personal beliefs became most readily apparent. As someone who comes from a border state and used to work with undocumented women in domestic violence situations, I likely brought my own biases into the assessment of this situation. Initially, I felt that this scenario was something of a flop and would, perhaps, need to be reconsidered for future iterations of this study because it seemed to produce the least IPP-centered responses. Upon further reflection and some processing, however, I came to realize that Cynthia's case and the range of responses she generated were the most authentic expressions of real-world IPP. They sat at the confluence of politics, personal belief, and interdisciplinary work and represented the true, gritty, and complicated nature of real IPP work.

This study was reported for the American Public Health Association (APHA) virtual annual conference in October 2020. Findings were briefly presented, with potential implications for One Health. In addition, this study was also presented to the Introduction to American Ethnic Studies classes for which I am a teaching assistant. A future possible avenue for sharing this data includes the Kansas Public Health Association (KPHA) virtual annual conference in a similar format. A publication is also being considered; however, it has yet to be determined to which journal would be best suited for this kind of work. Finally, I intend to create at least two brochures or infographics, utilizing these findings to underscore the importance of IPP in academic and work-related contexts (see Appendix A). These have the potential to be useful for Riley County Health Department, the veterinary school, and undergraduate departments.

In summary, this study contributes to a larger body of work on IPP, One Health, and communication. It underscores the importance of transdisciplinary thinking and multisystem interaction. It brings to light certain gaps in current IPP education and presents a plausible solution to the usual issues mentioned for this type of training. More than anything, though, this ILE, study, and the entirety of my graduate work at K-State have underscored the importance of communication in health settings. We are nothing if we communicate into a vacuum and

without trust, we cannot communicate to begin with. In the end, this study demonstrated the fundamental assertion that humans require connection to accomplish great things.

Chapter 6 - Competencies

Student Attainment of MPH Foundational Competencies

The competency “select quantitative and qualitative data collection methods appropriate for a given public health context” is reflected in this ILE and the analysis used to generate the results and discussion of the survey responses (qualitative data). In order to address “discuss the means by which structural bias, social inequities, and racism undermine health and create challenges to achieving health equity at organizational, community, and societal levels,” I created and presented a lecture then led a discussion in an Introduction to American Ethnic Studies (AMETH 160) class in the spring of 2019. This class centered on breastfeeding initiation behaviors and sterilization policies within the US as examples of the long-lasting implications of racial/ethnic biases yielding differential health outcomes. In an article for the *One Health Newsletter* entitled “The Tripartite Guide,” I researched and addressed a global initiative to foster One Health coalitions in unique governmental settings. This addresses the competency “propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes.”

The competency “communicate audience-appropriate public health content, both in writing and through oral presentation” has been a central feature of my MPH work. Beginning with the aforementioned AMETH 160 presentation in my first semester and culminating with the generation of the IPP survey and presentation to the American Public Health Association (APHA) related to this study, much of my extracurricular work while at K-State has centered on communicating with diverse audiences. This is further underscored by the various articles I have written for the *One Health Newsletter* (one of which specifically focused on communication in public health crises) and the COVID-19 posters I generated, in English and Spanish, to make the concept of the “epidemiological triad” more layperson friendly. Finally, the competency of “perform effectively on interprofessional teams” was met during the creation and facilitation of this study and in the writing of “Fighting the Spread of Disease with...words?” which was collaboratively generated by a team of professors, graduate, and undergraduate individuals (see complete summary in Table 5.1 and Appendices for relevant work).

Table 5.1 MPH Foundational Competencies

Number and Competency		Description
2.	Select quantitative and qualitative data collection methods appropriate for a given public health context	Analysis of IPP
6.	Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels	Presented information about the social determinants of health in a 90-minute presentation and discussion within an AMETH 160 course. Spring 2019.
13.	Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	Article about the “Tripartite Guide”
19.	Communicate audience-appropriate public health content, both in writing and through oral presentation	AMETH 160 presentation, APHA presentation, IPP survey development, One Health articles, Epi Triad poster
21.	Perform effectively on interprofessional teams	IPP survey, One Health article on communication

Student Attainment of MPH Emphasis Area Competencies

My MPH infectious diseases and zoonoses competencies were met via various courses taken over the two years of my studies. “Pathogens/pathogenic mechanisms” were discussed in Emerging Infectious Diseases, Host-Pathogen Interactions, and Introduction to One Health. Similarly, “host response to pathogens/immunology” was addressed in Host-Pathogen Interactions as well as Vaccinology. Emerging Infectious Diseases and Environmental Health both heavily featured “environmental/ecological influences” related to health and disease dynamics. Finally, “disease surveillance” featured heavily in all of my epidemiology courses (intro, intermediate, and advanced; see Table 5.2 for summary).

Table 5.2 Emphasis Area Competencies

MPH Emphasis Area: Infectious Diseases and Zoonoses		
Number and Competency		Description
1	Pathogens/pathogenic mechanisms	DMP 770 (Emerging Infectious Diseases); BIOL 890 (Host-Pathogen Interactions); DMP 710 (Introduction to One Health)
2	Host response to pathogens/immunology	BIOL 890 (Host-Pathogen Interactions); DMP 895 (Vaccinology)
3	Environmental/ecological influences	DMP 770 (Emerging Infectious Diseases); MPH 802 (Environmental Health)
4	Disease surveillance	MPH 754 (Introduction to Epidemiology); DMP 854 (Intermediate Epidemiology); DMP 954 (Advanced Epidemiology)
5	Disease vectors	MPH 802 (Environmental Health); DMP 710 (Introduction to One Health)

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