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Adolescent Sexual Reproductive Health Course: A Mixed Media Intervention and Quality Improvement Project in a School-Based Setting

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Adolescent Sexual Reproductive Health Course: A Mixed Media Intervention and Quality
Improvement Project in a School-Based Setting

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Section I: Abstract

Problem: California's adolescents carry a significant burden of newly acquired sexually transmitted infections (STIs) and gaps in adolescent sexual and reproductive health (SRH) knowledge have led to poor adolescent health outcomes. (CDE, 2019). **Context:** The California Healthy Youth Act (AB 329) was enacted on January 1, 2016, calling all school districts to ensure that all pupils receive comprehensive sexual health education, and HIV prevention education (CDE, 2019). In a proactive motion, parents from a northern California middle school approached a university to provide a Doctor of Nursing Practice (DNP) student to instruct its sixth grade's SRH course. **Intervention:** A DNP student agreed to teach a SRH course with a mixed media method rather than a traditional lecture series to meet the requirements of this bill and the need of the community. **Measures:** This Quality Improvement (QI) project utilized a pre/post-test design to evaluate how effective the lessons are at influencing student SRH knowledge retention over five lessons in the spring school semester. **Results:** This teaching mixed media SRH course resulted in a 11.36% increase in adolescent SRH knowledge retention, built community bonds between the adolescent school and local university, and showcased that a DNP student is an ideal SHR instructor. **Conclusion:** To effectively engage adolescents and increase SRH knowledge retention, a mixed media teaching curriculum is effective. Additionally, a DNP student can help build knowledge within the community and improve adolescent health outcomes in community-based settings.

Table of Contents

Section I: Abstract..... 2

Section II: Introduction..... 5

Problem Description..... 5

Available Knowledge 8

Local Data 8

PICO(T) 9

Review of the Evidence 10

Rationale..... 15

Specific Aims..... 17

Section III: Methods 17

Context..... 17

Intervention..... 19

Gap Analysis..... 21

Gantt Chart..... 23

SWOT Analysis..... 23

Budget and Cost-Benefit Analysis..... 24

Cost-Benefit/Cost-Avoidance Analysis 25

Communication Matrix Plan..... 26

Study of the Interventions..... 26

Outcome Measures..... 27

Program Evaluation..... 28

Analysis..... 30

Ethical Considerations..... 31

Section IV: Results..... 32

Meeting SMART Objectives 32

Results..... 33

Modifications Made to the Intervention 36

Unexpected Data..... 37

Missing Data..... 39

Unintended Consequences 39

Section V: Discussion 40

Summary 40

Interpretations..... 41

Limitations 42

Conclusion 42

Section VI: Other Information 44

Funding..... 44

Section VII – References 45

Section VIII: Appendices..... 52

Appendix A – Non-Research Approval Documents 52

Appendix B - Letter of Support from Agency..... 54

Appendix C - Evidence Table - Literature Review Synthesis Table..... 55

Appendix D - National Teacher Preparation Standards for Sexuality Education 56

Appendix E- Gap Analysis 57

Appendix F - Gantt Chart 58

Appendix G - Work Breakdown Structure 59

Appendix H- Responsibility/Communication Matrix..... 60

Appendix I - SWOT Analysis..... 61

Appendix J - Cost/Avoidance/Benefit Analysis 62

Appendix K - Budget and Return on Investment Plan 64

Appendix L - CQI Methods 65

Appendix M - Data Collection & Evaluation Tools (Pre/Post Tests and Electronic Course Assessment)..... 66

Appendix N – All Materials Used for Implementation..... 67

Appendix O - Raw Data of Student Pre/Post Test Scores..... 76

Appendix P - Comparison of Pre/Post Test True and False Questions..... 77

Appendix Q - Pre-Test Quantitative Data 78

Appendix R - Pre-Test Qualitative Data..... 79

Appendix S - Post Test Quantitative Data 80

Appendix T - Post Test Qualitative Data 82

Appendix U- Post Course Follow Up Qualitative Response Form 84

Appendix V – Nola Pender’s Health Promotion Model..... 85

Section II: Introduction

Problem Description

Adolescents have the largest burden of sexually transmitted infections (STIs), human immunodeficiency (HIV) rates, and unplanned pregnancies in the United States (Maria, Markham, Crandall & Guilamo-Ramos, 2016). The U.S. has the highest teenage pregnancy rate amongst high income nations (NCSL, 2018). Adolescents accounted for roughly 22% of all new HIV cases, and nearly 10 million newly reported STIs in 2015 (Guttmacher, 2017; CDC, 2017). The Centers for Disease Control (CDC) recommends that school based sexual and reproductive health (SRH) education play a fundamental role in curtailing poor SRH outcomes (CDC, 2017). Sex education is the provision of information about bodily development, sex, sexuality, and relationships, along with skill-building to help young people communicate about and make informed decisions regarding sex and their sexual health (Bridges & Hauser, 2014). Access to youth friendly SRH information is vital for ensuring that adolescents SRH outcomes improve and do not worsen (Denno, Hoopes & Chandra-Mouli, 2015). Health education and associated activities offered in school settings empower adolescents to create habits, customs, and behaviors that promote healthy lifestyles (Lomba, Kroll, Apostolo, Gameiro, & Apostolo, 2016). However, empowering adolescents does not only consist of giving them the correct information (Lomba et. al, 2016). An effective and innovative curriculum for SRH education is required to meet the educational demands of adolescents (Haruna, Hu, Chu, Mellecker, Gabriel, & Ndeko, 2018).

National SRH Education

In its 2016 School Health Profiles Report, the CDC (2017) reports that the caliber of many school-based health curricula varies greatly in the U.S. and on the whole are generally considered to be insufficient in many areas. The Future of Sex Education (FoSE) Initiative was

launched in 2010 as a partnership between Advocates for Youth, Answer, and the Sexuality Information and Education Council of the U.S. (SIECUS) to create a national dialogue about the future of SRH education in the U.S. (FoSE, 2010). The committee members of FoSE provided their expertise in sexuality education content and curriculum and drafted *The National Teacher Preparation Standards for Sexuality Education*, which established seven standards that aimed to ensure that adolescents get high-quality SRH education that is developmentally, culturally and age appropriate (FoSE, 2014). The full list of standards is included as Appendix D. FoSE spoke to teaching methods in its Standard 6: Implementation, which called for SRH educators to create classroom environments that encourage open and respectful conversations in classroom settings while using strategic methods that engage learners appropriately (FoSE, 2014).

SRH education is most commonly taught within the health and/or physical education curriculum at the middle and high school levels (FoSE, 2010). Traditional methods of instructing sexuality education to adolescents are outlined in the classic piece by Hammonds & Schultz, (1984): instructional techniques most often utilized by teachers include large group discussion, guest speakers, case study, lecture, small group work, and role play. While many of SRH methods and curricula include information that is biologically accurate, there is a need for strategies and methods to address emotional, social, and legal aspects of unhealthy adolescent relationships (Butler, Sorace, & Beach, 2018; FoSE, 2014; C.S. Mott Children's Hospital, 2011; Shapiro & Brown, 2018). Furthermore, while most parents and adolescents agree that formal school-based programs are an important source of SRH education, ideally, education methods should account for learning that happens conjointly in the home and in the school (Grossman, Tracy, Charmaraman, Ceder, & Erkut, 2014; Breuner & Mattson, 2016). Additionally, the use of information technology (IT), online media content, and additional sources in educational settings

have been found to be an effective behavior change and knowledge acquisition tool (Haruna et al., 2018).

Most SRH education classroom guidelines, while they may encourage critical thinking skills, do not provide an effective method that can encompass all aspects of sexual and reproductive health that is required by today's adolescent population, which pushes SRH educators to often revert to lecturing and memorization/rote learning to deliver SRH materials (Haberland & Rogow, 2015). State and school district policies, state education standards, funding from state and federal sources, and individual teacher comfort, knowledge, and skills shape the content and delivery of sexuality education (Breuner & Mattson, 2016). However, effective methods that enable behavioral change, knowledge acquisition, and engage learners within the context allowed by local policy and community stakeholders, should be developed and investigated (Haruna et al., 2018; FoSE, 2014; Brewin, Koren, Morgan, Shipley, & Hardy, 2014).

California SRH Education

In 2003, the California State Senate passed the California Comprehensive Sexual Health and HIV/AIDS Prevention Education Act (Senate Bill [SB] 71). The vast majority of California's adolescents attend school, where research indicates that most students receive some form of SRH education, however, the type of SRH education received varies considerably (Combellick & Brindis, 2011). Prior to the passage of SB 71, a survey was conducted to assess the quality of sexual education courses being offered in California schools (Combellick & Brindis, 2011). After collecting data via structured interviews with representatives from 153 unified school districts in California, approximately 47% of the state's unified districts, the responses revealed that schools were generally not in compliance with Education Code sections

governing sexuality and HIV/AIDS education (Combellick & Brindis, 2011). Respondents described only having access to outdated curricula and/or adapting existing curricula to fit time or content constraints specific to their school and/or district (Combellick & Brindis, 2011).

In an effort to better ensure that California youth would have access to SRH information and knowledge, California Department of Education (CDE) renamed SB 71 to be The California Healthy Youth Act (AB 329) (CHYA), which went into effect on January 1, 2016 (CDE, 2019). This act calls on all California school districts to ensure that all pupils in grades seven to twelve receive comprehensive sexual health education, and HIV prevention education (CDE, 2019). This law expands on existing laws regarding comprehensive sexual health education and HIV/AIDS prevention education (CDE, 2018). To effectively comply with this state law, every school district is permitted to autonomously choose its own SRH curriculum to provide students with integrated, comprehensive, accurate, and inclusive SRH education and HIV prevention education (CDE, 2019). Additionally, school districts are required to appoint an instructor of choice that is appropriately trained to teach this material (CDE, 2019).

Available Knowledge

Local Data

In the Northern California city where the intervention took place, the health outcome statistics mirror national health outcomes. According to the statistics offered by the Northern Californian city, adolescents aged 15-24 years old accounted for 2268.0 cases of chlamydia, 833.6 cases of gonorrhea, and 94.2 cases of early syphilis in 2016 (San Francisco Department of Public Health, 2018). When compared to rates from 2012, there has been a 12.2% increase in chlamydia, a 48.6% increase in cases of gonorrhea, and an 8.3% increase in early syphilis cases

(San Francisco Department of Public Health, 2018). Additionally, this city also shows that the greater burden of these STIs is on its adolescent population. In comparison to reported rates of adult cases of chlamydia and gonorrhea reported in 2016, adolescents accounted for 71.0% of all chlamydia cases and 54.0% of all gonorrhea cases reported to the city in that year (San Francisco Department of Public Health, 2018). These local figures are similar to national figures for 2016, where 62.2% of chlamydia cases were reported for the 15-19-year-old age group however, the city does very poorly in comparison to national gonorrhea cases where adolescents aged 15-24 account for 4.3% of total reported cases and the Northern California city has adolescents from the same age group reporting 54.0% of all its reported gonorrhea cases.

PICO(T)

Although the social and health risks of adolescent sexual activity are well known, effective methods in purveying SRH education is not well understood (Brewin et.al., 2014). A thematic literature review was conducted, utilizing a systematic approach to review the literature and available knowledge, with the aim to synthesize areas of conceptual knowledge that contribute to a better understanding of the issue presented in the Intervention PICO(T) question: In an adolescent population, how does a mixed media sexual and reproductive health course versus a lecture only style sexual and reproductive health course, affect topic knowledge retention over 5 lessons (Jesson, Matheson, & Lacy 2013; Melnyk & Fineout-Overholt, 2010)?

Search Process

The search process for this paper involved searching for peer reviewed journals from Cumulative Index of Nursing and Allied Health Literature (CINAHL) Complete, PubMed, and SCOPUS. These searches resulted in 520 journals across all three databases. In an effort to elicit meaningful literature for this review, the following exclusion factors were applied: Articles could

be written in English only, had to be from peer reviewed journal sources, had to be published between the years 2009 and 2019, had to have an adolescent population focus, limited to ages thirteen to eighteen, limited to papers focused on the United States, and should not address only one gender or sexual orientation in the population. Of these 520 articles, titles were scanned, and 71 titles were chosen for abstract review. Of these 71 titles, 11 articles were selected for inclusion based on relevance to the aim of this review. Searches with the following key terms were used: *school based, health education, mix, methods, media, SRH, sex ed, sexual and reproductive health, and adolescent*. The Johns Hopkins Research Evidence Appraisal Tool was used to assess the level of evidence presented in each article used in this review (Johns Hopkins University, 2012). The Johns Hopkins Research Evidence Appraisal Tool provides flexibility for critical appraisal of multiple methodologies, can provide an effective avenue to propagate research into practice, and to help sustain quality improvement projects (Buccheri & Sharifi, 2017; Johns Hopkins University, 2012; Melnyk & Fineout-Overholt, 2015).

Review of the Evidence

After reviewing the literature that met the inclusion criteria, the author of this review was able to identify three themes from the literature that suggest that adolescent knowledge retention on SRH subjects are better achieved by (1) utilizing a variety of methods, approaching the (2) curriculum from an ecological approach, and by addressing (3) SRH instructor barriers.

Utilizing a variety of methods. Suleiman, Johnson, Shirtcliff, & Galván (2015) and their literature review where authors review recent advances in neuroscience and clarify the link between neural development and adolescent romantic and sexual behavior to identify opportunities for future reach found that supporting healthy lifelong sexual development among adolescents requires going beyond learning to control sexual impulses. Adolescents, despite

increasing self-control, are highly motivated to find novel, exciting, and sensual experiences and authors stress that SRH education can help adolescents learn to direct these desires in positive ways by having SRH educators create innovative teaching methods to support adolescents navigating sexual and romantic motivations and emotions (Suleiman et al., 2015).

Lomba, Kroll, Apóstolo, Gameiro, & Apóstolo (2016) in their systematic review to examine and map the use of motivational interviews by nurses in their clinical practice with adolescents to promote health behaviors found that traditional health education methods utilizing the transmission of knowledge with a view to creating healthy sexual behaviors to promote healthy lifestyles is not enough to sustainably inform adolescents when they begin to initiate sexual activity. The motivation or desire initiate sustainable and positive sexual and reproductive behavior should require SRH instructors to instruct medical accurate information but to also utilize a teaching method that involves motivational interviewing to facilitate behavior change and to help retain SRH knowledge (Lomba et al., 2016)

Brewin, Koren, Morgan, Shipley, & Hardy (2013) in their qualitative empirical descriptive study that utilized a qualitative methodological approach that explored the experience of school nurses who instructed school based SRH education with facilitators and barriers to providing SRH education, found that school nurses were unable to adequately establish trust and open dialogue between the instructor and students in a traditional classroom or auditorium spaces. Instead, school nurses said a closed-door method was key in helping to establish trust between students and the school nurse (Brewin et al., 2013). Furthermore, the authors stated that using teaching strategies that made classroom tension reduce, like game strategies engage students to learn about important SRH facts and ensure that they are open to learning about the SRH material (Brewin et al., 2013).

Same, Bell, Rosenthal, & Marcell (2014) in a cross-sectional clinic-based study to examine adolescent male's willingness to discuss various SRH topics and preferred approaches by healthcare providers and SRH educators to initiate dialogue of these topics, stated that systematic and comprehensive approaches to assess SRH with male adolescents using strategies that includes verbal, written, or electronic tools was effective. Authors found that adolescent males want to learn about these topics but prefer healthcare providers and classroom instructors to proactively promote and initiate conversation and lessons regarding a wide range of SRH topics (Same et al., 2014).

Fisher et al., (2011) in their qualitative empirical study to assess the role of community-based organizations in adolescent sexual health promotion, state that many SRH topics are not or cannot be fully provided for within traditional school settings. These authors state that teaching methods need to be not only supported by medical accurate information, but to also be supported by resources to obtain effective learning materials and training for instructors on how to best advance SRH literacy amongst adolescents (Fisher et al., 2011).

Ethier et al. (2011), carried out a randomized control trial to analyze receipt of SRH care access, contraceptive use, and screening for STIs among adolescents who are sexually experienced, with or without access to a school-based health clinics (SBHC) and state that having access to a school-based health clinic did not influence adolescent receipt of SRH care for either male or female adolescents and did not influence contraceptive use of either hormonal birth control or condoms. Authors state that mostly female adolescents utilize SBHCs, that the services offered at SBHCs vary greatly, and suggested that SBHCs clinics need to alter their educational and outreach methods to increase adolescent access to SRH education (Ethier et al., 2011).

Ecological approach to curriculum. Fisher et al. (2011) state that an ecological approach to SRH promotion and education, which is one that includes involvement from schools, parents, community stakeholders, should be used when developing the curriculum of a SRH course. Brewin et al., (2013), states similarly that parents play an important role in the establishment of the SRH curriculum created for their adolescent children. A strong family bond and dialogue is important in postponing an adolescent's first sexual relationship and adolescent pregnancies because course materials that are learned in the classroom can be reviewed and further discussed at home (Brewin et al., 2013).

Maria, Markham, Crandall, & Guilamo-Ramos (2016), carried out a pilot study employing a mixed-methods study to assess the impact of implementing a parent-based adolescent sexual health intervention on baccalaureate nursing students ($N=31$) and found that parents have a pivotal role in adolescent sexual behavior and should be consulted to add weight and reinforcement to topics brought up during SRH lessons.

Dittus et al. (2014), conducted a randomized control trial with an intervention titled *Project Connect*, that evaluated if a health systems intervention to increase adolescent receipt of high-quality SRH care services and showed that a multi stakeholder approach where collaboration between public health, schools and clinical care can lead to low-cost sustainable means to increase utilization of SRH courses among adolescent females and that they can assist female adolescents in developing the skill to seek out healthcare guidance. Additionally, the authors showed that the school environments and courses offered in one area of the community to affect adolescent females that are in close by schools, which can then change community approach to SRH courses even more (Dittus et al., 2014).

Instructor barriers. Evans et al. (2015), in their systematic review that aimed to explore nurses' and midwives' views and experiences of the provision and management of provider-initiated HIV testing and counseling, found that SRH instructors identified lack of training within nursing programs to educate patients in a classroom setting, rather than in the clinic setting, which allows for more personal interactions between patient and provider. Maria et al. (2016), found that undergraduate nursing programs can provide educational barriers to school nurses, as baccalaureate nursing students are not fully prepared for the shift toward innovative primary health care delivery systems that require instructing SRH topics in community settings to better deliver health care to patients. Brewin et al. (2013), state similarly that school nurses, who are often elected to teach SRH course in middle school settings, feel that they have minimal formal preparation to teach SRH topics in a classroom setting and report that they often face barriers from the school administration and concerned parents that make them uncomfortable assuming the role of SRH educator (Brewin et al., 2013).

Walsh-Buhi et al. (2017), in a cross-sectional study to assess the extent to which sexuality and HIV prevention education is being implemented in charter schools in San Diego County, state that when the community and parents do not support the SRH curriculum can present a barrier to the information instructed to the students and are likely to opt to pull students from the SRH and unlikely to reinforce information given at school at home. School based SRH need to support the adolescents enrolled and the parents who enroll those children into these schools (Walsh-Buhi et al., 2017).

McCauley et al. (2014), conducted a randomized control trial in a Northern California setting with data collected from sexually active adolescents ($N= 564$), between the ages of fourteen to nineteen at eight SBHCs, and found that current educational training and teaching

methods for clinicians who are teaching SRH information in schools are not guided by adolescent sexual identity, attraction, or behavior and state that there is a need for attention to STI and contraceptive nonuse and addressing relationship abuse in adolescents. Authors conclude that having materials that do not include these challenges to adolescents is a barrier instructors need to overcome to make sustainable and effective change in the populations they provide for (McCauley et al., 2014).

Rationale

The World Health Organization (WHO) states that health promotion is the process of enabling people to control and improve their health (WHO, 2018). Health promotion goes beyond individually focused behavior and moves towards social and environmental interventions thereby making it a fundamental strategy in healthcare that implies changes in behavior and the adoption of patterns that promote good health (WHO, 2018). Nola Pender's middle range nursing theory of Health Promotion Model guided the review of evidence. An adapted model was provided as Appendix W.

Pender's model emphasizes multidimensionality of persons interacting with their environments as they pursue health. The model describes three basic categories of health promotion which are ideal for this particular project: a) individual characteristics and experiences b) behavior-specific cognitions and affect, and c) behavioral outcomes. Her model can be used by providers who aim to take a proactive stance of health promotion and disease prevention, which is ideal for this project (Alice Petiprin, 2016; Pender, 2011). Pender's understanding of definition of environment is described as the social, cultural, and physical context in which life unfolds. The environment can be manipulated by the individual to create a positive context of cues and facilitators for health promotion and enhancing behaviors. The role of nursing is a

collaboration among patients, families, and communities to create the best conditions for the expression of optimal health and high-level well-being. Pender's definition of health is as the actualization of human potential through goal-directed behavior, self-care, and relationships with others with necessary adjustments made to maintain relevant environments. Illnesses are discrete events in life that can hinder or facilitate the patient's continuing quest for health.

There are five key concepts in the Health Promotion Model are person, environment, nursing, health, and illness (Pender, 2011). Pender suggests that a person is a biophysical organism shaped by the environment. This then means that the relationship between person and environment is reciprocal in that individual characteristics and life experiences shape a person's behaviors. The main components of this model based in patients/subjects' perceived self-efficacy, where patient's perceived ability or confidence to be able to achieve the appropriate health behavior and activity related effect, where subjective feelings or emotions are felt by the patient prior to and during the health behavior (Alice Petiprin, 2016; Pender, 2011).

This framework would indeed explain the phenomenon of adolescent participation in risky behaviors and allows me to better develop a search methodology that focuses on manipulating the educational environment in conjunction with organically allowing the students to interact with their peers whilst learning information that enhances and promotes health. Thereby, improving future adolescent health outcomes. Furthermore, it also informs the manner in which the course is taught. Being cognizant of the fact that the DNP student is aware that she is a tool in this process of bringing the students to organically understand and recognize decisions that will help them is crucial. Information will not be forced on the students. Instead, the purveying of knowledge will allow students and their peers to make more informed decisions.

Specific Aims

The aim of this project was to initiate a community-university collaboration with an evidence based sexual and reproductive health course curriculum for a sixth-grade class in the community of the university over five one-hour lessons offered from March 2018 to May 2018 that utilized a DNP student to improve sexual and reproductive health knowledge by at least 10%. The overall goal was to provide a comprehensive and evidence based sexual and reproductive health course that was age appropriate, engaging, culturally sensitive, cognizant of the community needs, and in compliance with CHYA (AB 329) (CDE, 2019).

Section III: Methods

Context

Stakeholders

The stakeholders for this project include the following list of organizations and the subgroups that are associated with these organizations:

- University school of nursing
 - Faculty advisor
 - DNP Student developing and teaching material
- Middle school in Northern California urban setting
 - Faculty
 - Parents
 - Students

Contextual Elements at the Outset

This quality improvement and clinical project took place at a middle school in an urban Northern California city. The catalyst for its genesis began when several parents from this school

noted a lack of sufficient educational resources following the enactment of a new bill to the CHYA (AB 329) on January 1, 2016 (CDE, 2019). This new bill aimed to integrate the instruction, in all school districts, to ensure that all pupils in grades seven to twelve, receive inclusive, comprehensive sexual health education and HIV prevention education. At the time the parents attempted to seek and find a solution, they did not have a sufficient curriculum for the topic, nor did they have a member of the school faculty willing to take on the changes.

A casual meeting was held with the parents of the sixth-grade students that would be utilizing the Family Life and Sexual Health (FLASH) student curriculum presented by the DNP student of this paper. Roughly 25-30 parents arrived to participate in the meeting and after presenting a general outline of what was proposed, there was an extremely informative questions and answers (Q+A) session that helped to focus and draw attention to topics that were most relevant and applicable to this adolescent population. This represented roughly 50% of the parents of the sixth-grade class which has 76 students. The level of support for implementing a program was present amongst community stakeholders and parent support was reflected in the engagement with the DNP student at the meeting. Parents brought up concerns regarding negative adolescent behavior following the circulation of a video showcasing the rape of a woman, which was discussed amongst the sixth graders. The parents were unsure as to how to best address these easily accessible pornographic YouTube videos, which should be viewed as a crime rather than sensationalized material within the SRH curriculum.

There was a great push from the parents to teach the students how pornography is something that should be identified as “not real” and that it is performed by paid actors rather than a true romantic exchange between two consenting adults. This then led to a conversation about the dialogue of consent and consensual sexual activity. This provided an opportunity to

discuss respectful relationships and how to speak up if something makes a person feel uncomfortable. The parents asked for content in the classes that would cover the basics of healthy relationship building.

Intervention

At the beginning of a health education-oriented partnership between a university school of nursing and the urban middle school, the DNP student prepared to incorporate the parents' and teachers' wishes and thoughts for change into an existing curriculum package. As both the University and middle school are organizations participating in this project, the DNP student reviewed the vision, mission, and values statements of both organizations and can conclude that this project is compliant with both organizations. Both organizations emphasize intellectual curiosity, critical thinking, inclusivity of thought and aim to have a global progressive view of the world. Additionally, they both aim to humanize through learning. Both encourage environments for reasoned discourse and encourage a diversity of perspectives. Because of the close alignment in organizational values, the DNP student was confident that the goals set for this project satisfied both organizations' mission statements.

The FLASH curriculum for middle school and high school students was chosen as it is an evidence-based comprehensive sexual health education curriculum that adheres to the CDC's National Health Education Standards for Sexual Health and the National Sexuality Education Standards (Gerber, Kesler, Lewis, Milliman, & Reitzes, 2016). It is also in compliance with the California Education Code and met requirements with nominal modifications to best fit the student population. Finally, the curriculum was free to utilize. Note: the FLASH curriculum used is the edition prior to the July 2016 updates, which is now available for purchase only.

The original FLASH curriculum was designed to be taught weekly over the course of a full academic semester. However, the school did not have a whole semester and instead wanted this course to be taught on Thursdays over several hours for 5 weeks. The intervention will span three months, with five lessons to be taught to the sixth-grade class of the middle school. The DNP student will teach three sections of the sixth-grade class, with an hour lesson given to each section. The development of each lesson took the DNP student 3 hours to develop from the source material and from input from the parents' meetings. Finalized topics included the following content:

1. Reproductive Anatomy and Physiology
 - a. Pre-Test quiz to assess knowledge acumen prior to starting Lesson 1
 - b. Included a group activity where students worked in teams to complete worksheets that required them to identify male and female anatomy
2. Reproductive Sexual Development
 - a. Included PowerPoint lesson and a YouTube video surrounding healthy relationships, as well as respecting your partner
3. Pregnancy and Childbirth
 - a. Included PowerPoint lesson and a YouTube video about mechanics of childbirth
 - b. At the request of the parents, the boys and girls were separated for question and answer sessions
4. Pregnancy Prevention and Healthy Choices
 - a. Students were shown all forms of birth control

- b. Primary lesson was to showcase that while birth control is reasonably effective against getting pregnant, it will not necessarily prevent STI transmission

5. STI Prevention

- a. This lesson allowed for a more significant look at what STIs are caused by, how to treat them, and how to prevent transmission between or amongst partners.
- b. A YouTube video lesson on consent was shown.
- c. Post-test to assess knowledge retention given.

To best illustrate how this intervention was developed, a narrative of the gap analysis, a narrative of critical milestones, a narrative of a strengths, weaknesses, opportunities, and threats (SWOT) analysis, a narrative of the budget, and a narrative of the responsibility/communication matrix plan have all been described.

Gap Analysis

A gap analysis was conducted to investigate the sixth-grade student knowledge base, as it currently stood, prior to initiating the planned intervention. The general model and completed gap analysis chart has been provided in Appendix E.

The first step of the gap analysis is to define the problem: A lack of a comprehensive sexual and reproductive health program that is compliant with the 2016 California Bill of Healthy Youth (AB 329) amendment (CDE, 2019). The second step is to translate the problem into a goal. For this project the DNP student had several goals 1) to teach a course that is compliant with the new bill enacted in California, 2) to teach a course that is culturally sensitive to the community needs and is conscious of current issues that the community wishes to address,

3) to give confidence to both students and parents to have open and comfortable discussions at home regarding sexual and reproductive health, and 4) to provide a knowledgeable instructor (the DNP student) who can not only teach and answer complicated questions adolescents may have regarding reproductive health, but who will also serve as a role model for students of this age, and encourage them to build trusting relationships with healthcare providers.

The stakeholders for these goals were students, the parents, the middle school faculty and administration, the university, and the DNP student conducting the classes. These were all the entities that had an impact on the goals to be achieved with this project.

The stakeholders valued the course with an appropriate curriculum method, however, they did not feel confident teaching the curriculum to the students. The stakeholders did not have the essential resources to help them achieve their goal. Prior to the parents meeting, there had been no clear school policy on how to accomplish the goal and once the university was identified as a collaborator in this SRH course, there were mixed and conflicting messages amongst the parents. This was mainly because the university is affiliated with the catholic church. The school is progressive, and the stakeholders associated with the school were concerned that abstinence will be the only message taught to the students. However, the culture of the stakeholders after the parents meeting was greatly supportive of the goal and in the manner in which the DNP student proposed to carry out this quality improvement project.

Preliminary data collected from a pre-intervention quiz given to the students prior to the start of this program was collected and reviewed. It showed that students, when quizzed on sexual and reproductive health topics, averaged a score of 60%. There was roughly a 40% SRH knowledge gap. Furthermore, there was not a member of staff that had been trained or had

sufficient materials to teach the content with an effective curriculum to close the 40% gap in knowledge.

Gantt Chart

To ensure that critical milestones were reached, a Gantt chart was developed and had been provided in this paper as Appendix E. There were several tasks charted against time. Development of the PICO(T) question and the education plan were the earliest tasks to be accomplished. The next steps included completing a statement of determination, performing a needs assessment, a SWOT analysis, a work breakdown structure, and a communication plan. Implementation of the intervention was completed in May 2018. The drafting of the manuscript and prospectus happened concurrently so that the DNP student will be able to complete and present the DNP Project Paper prior to the DNP student's graduation in May 2019.

SWOT Analysis

To establish the strengths, weaknesses, opportunities, and threats that this project had faced, a SWOT analysis was performed and has been included in this paper as Appendix I. The strength of this project began with the great support from all stakeholders involved, the academic strength of the student body, the modern school rooms, and the little or no funding required to acquire the curriculum. Weaknesses included how, despite having a parent meeting, some parents began the lesson series possibly feeling conflicted with the lesson topics and did not feel confident enough to support the material at home. Finally, there was a weakness in that the need for the instructor and the curriculum was immediate, so that all components of project planning and management had to be expedited. Threats include the curriculum possibly not being sufficient, despite the modifications to better suit the students and then there could have been a financial need to acquire more appropriately suited material after initiating the lessons.

Budget and Cost-Benefit Analysis

A budget and cost-benefit analysis were completed for this project so as to better understand budgetary needs. The budget and cost benefit analysis were fairly straight forward to analyze. The parents specifically asked for an DNP student to teach this curriculum to the students. As the DNP student is not yet an NP, the figure of \$74.96 per hour was taken from a NP Salary Step Chart provided by the human resources department at a local academically affiliated hospital (UCSF, 2019). This was used because this institution provided a definition that defines what a new graduate nurse practitioner with less than six months experience as a nurse practitioner I (UCSF, 2019). The DNP student considered this figure was the most reflective of the compensation expected.

The projected expenses, had the school needed to compensate the student DNP for her time, was roughly \$2702.00. Actual expenses were \$210.00 that the DNP student spent out of her own pocket for transportation for the seven round trips to the middle school. The variance figure was \$2448.00. As the curriculum materials were already housed within the university's database, the required equipment to teach the lessons included a laptop, Bluetooth capable projectors and speakers, which were all already available in the classroom. The DNP student spent approximately three hours teaching each of the three sections of the sixth-grade class. The DNP student stayed during the lunch hour but did not charge for that hour. She spent a total of four hours on the middle school campus, each lesson day. The DNP student spent roughly three hours adapting materials and creating lesson plans per class session. That resulted to be nineteen hours worked adapting lesson plans and creating tailored lessons for each class session. The budget has been included in this paper as Appendix K for further review.

Cost-Benefit/Cost-Avoidance Analysis

Following three years of participating in this quality improvement project course, which has an ability to increase SRH knowledge retention by roughly 11% a year, the estimated percentage of newly contracted STI rate from the sexually active teens from this population is estimated to decrease from 22% to 17%. This represents a 5% reduction in newly diagnosed STI rates in future adolescent population's sexually active members. Data and calculations have been provided in Appendix J. Additionally, the difference in sexually active students not contracting a new STI from this population who did not have the intervention for three years was estimated to be 24 students. Those that will be sexually active and avoid getting an STI are estimated to be 18 students. That is an estimated six students that will not get a new STI because of this course. Cost avoidance can be estimated to be $6 \times \$800 = \4800 saved from newly diagnosed STI direct medical costs to taxpayers. Additionally, the cost of a DNP student teaching this course for 3 years is $210 \times 3 = \$630$. The course implementation fees, if a Nurse Practitioner were to conduct the Lesson series, would be $2702 \times 3 = \$8106$.

For the purpose of this exercise, it will be assumed that there is an approximate 1.5% inflation rate for cost for DNP student to teach the course over 3 years to calculate the net benefit ratio. For every \$640 spent on DNP student lead course/\$4800 is avoided to be paid by taxpayers every three years. The ratio is then:

$$\frac{\$640}{\$4800} = \frac{2}{15}$$

This means, that for every \$2 dollars spent on this SRH course lead by a DNP student, \$15 dollars are not charged to the taxpayer to cover direct medical costs for newly diagnosed adolescent STIs. Therefore, for every \$2.76 spent on the students taking this course, \$20.17 is costs averted to the taxpayers per student per year for newly diagnosed STIs in this adolescent

population when they reach the ages of 15-19 years. All data provided to calculate this information has been provided as Appendix J.

Communication Matrix Plan

To ensure that communication was utilized as a tool and not as an obstacle, a communication matrix plan showcases the flow of information between the DNP student and several stakeholders. A majority of communication amongst the stakeholders happened primarily via email. However, there were times when the DNP student met with parents, her DNP chair, and faculty separately. Communication of lesson plans and class materials were developed and sent for DNP chair review and then faculty review by the DNP student. The faculty member that received the materials would then post these items on an online forum for the parents to view prior to the class. The DNP student then, with approval from both stakeholders would then precede to teach the lessons with the approved materials. For further review, the communication matrix has been included in this paper as Appendix H.

Study of the Interventions

The DNP student administered a pre-test survey prior to the initial lesson, which consisted of ten true/false fact questions drawn from material covered in the FLASH curriculum. It also includes one question that quantifies how many of the sixth graders had a sexual and reproductive health course prior to this one. Finally, there were several lines at the bottom of the pre-test that allowed the sixth-grade students to ask specific questions that they might have regarding the material. These lines also indicated what topics students are thinking about or discussing amongst themselves, which provided an opportunity to bring in evidence-based knowledge to address their questions. Results of the pre-test quantitative data have been provided as Appendix Q and qualitative data has been included as Appendix R.

The DNP student administered a post-test after the educational materials had been introduced to the students over five lessons. The post-test comes from material that was already housed at the university and was easily accessible to the DNP student. It includes true and false questions, opened questions, and Likert-scale style questions. The post-test materials and all materials used to implement this intervention have been included in this paper as Appendix N. Additionally, qualitative data regarding students' perceived value of the material and value teaching methods were also measured. The post course quality survey has been included as Appendix U. Post-test quantitative results have been included as Appendix S and qualitative data has been included as Appendix T.

Outcome Measures

For measurable outcomes, the DNP student included a comparison of baseline SRH knowledge at onset and analyzed this against the increased SRH knowledge retained post-intervention. Raw scores are provided as Appendix O and a direct comparison of repeated questions on the pre/post-tests as Appendix P. Essential content tested topics from the National Sexuality Education Standards for comprehensive sexual health education (Future of Sex Education Initiative, 2011):

1. Anatomy and physiology
2. Puberty and adolescent development
3. Identity
4. Pregnancy and reproduction
5. STIs and HIV
6. Health Relationships
7. Personal Safety

To ensure that this information properly reflected topics that should be retained following the implementation of a comprehensive evidence-based program, the CDC’s Health Education Curriculum Analysis Tool (HECAT) was utilized (CDC, 2012).

Program Evaluation

According to the Minnesota Department of Health, good public health practice requires strong objectives in order to monitor progress toward achieving goals and outcomes (Minnesota Dept. of Health, 2019). To better allow the DNP student to assess the value and impact of this QI project, the following Specific, Measurable, Achievable, Relevant and Time-bound (SMART) objectives were drafted (CDC, 2012; Minnesota Department of Public Health, 2019).

SMART Objective 1

Specific	Increase student confidence with SRH educational material
Measurable	Having worksheets to be filled out in student groups as part of Lesson 1
Achievable	Increased class participation
Relevant	Required by Lesson 1 curriculum materials and encouraged activity by community stakeholders
Time-bound	To be completed by the end of Lesson 1

SMART Objective 2

Specific	Encourage conversation between students and parents regarding SRH education material
Measurable	-Give quiz for parents to take with students prior to Lesson 1. -Give evidence based and medically accurate SRH reading material to parents to better facilitate dialogue about SRH topics prior to Lesson 2

	-Discussion during Lesson 3 with class will assess student’s comfort with discussing SRH topics. Checked in with the Class Parent Representatives via email to question if parents are reporting that they are able to have open dialogue about SRH subject matters
Achievable	Increased dialogue between parents and students
Relevant	Objective specifically asked for by parents during the Parents Meeting
Time-bound	By Lesson 3

SMART Objective 3

Specific	Show that the students are able to retain cumulative knowledge
Measurable	Question and Answer session at the end of each Lesson to assess knowledge retention in real time. Will also allow DNP student to fill gaps in knowledge during the Lesson time.
Achievable	Required as Lessons build upon knowledge from previous Lesson to understand concepts
Relevant	Objective activity is needed to ensure that students understand next Lesson
Time-bound	Ability to retain cumulative knowledge will be assessed with end of course test that will assess knowledge from all Lessons

Analysis

For the *quantitative data*, the DNP student used Microsoft Excel 2019 to analyze the data gathered using the pre/post-tests. As Microsoft Excel does not have the capability of performing a Shapiro-Wilk test for normal distribution assessment of the pre and post data samples, a Kurtosis test was performed on both samples. While the Pre-test sample data set was normally distributed, the post-test sample data set was not. The proposed method was to analyze the differences in data collected was the Wilcoxon Signed Rank test. This test could not be completed as the data sets were not equal. The purpose of this statistical analysis was to determine if there was a statistically significant difference between the scores from the pre-test and post-test. The DNP student wished to assess if the mean grades are significantly better after taking Lesson Series than the mean grades of the students before they took the Lesson Series. The Null hypothesis: there is no difference of mean grades between pre and post test scores. The Alternative hypothesis is that the post lesson mean test scores will be greater than the post test scores.

$$H_0 = \mu_{\text{post lesson mean scores}} - \mu_{\text{pre lesson mean scores}} = 0$$

$$H_1 = \mu_{\text{post lesson mean scores}} - \mu_{\text{pre lesson mean scores}} > 0$$

The *qualitative data* (Appendices R & T) from the pre and post-tests was transcribed and analyzed for key themes and percentages of similar themes were recorded. Analysis of the themes provided valuable information about the experiences and feelings of students. Main themes from the pre-test (Appendix R) highlighted that despite parental support of the lesson series 3.17% of students questioned the purpose of the course. Other themes included concerns about STIs (4.76%), questioning how puberty effects the body (4.76%), stating that they are not

well versed in the subject matter (1.59%), and questioning the topics that the quiz focused on (6.35%).

Main themes from the post-test were more varied and response rate had increased. For the pre-test only 25% responded in the comments section. In the post-test comments section, 52.07% of the students responded with various statements. Themes included students requesting more information in the lessons (1.45%), 5.78% stated that not being fluent yet in English was a barrier to learning the material fully, 2.90% stated that there was still lingering awkwardness regarding the discussing of SRH information, 17.39% were appreciative of the course, 7.25% positively commented on the materials used during lecture times, 2.90% commented on the content of the lecture series, and 13.04% thanked the instructor.

Ethical Considerations

This project spoke most significantly towards the Jesuit values of *Magis*, in that this project is striving to pursue excellence in the areas of data collection and research methodology. This project also aligned strongly with the value of *Cura Personalis*, in that this project was being conducted in a classroom setting where the students became better informed individuals that will hopefully make informed decisions in the future when armed with knowledge. For issues that surround privacy concerns, all surveys were collected anonymously and only data on age and grade were collected.

The Code of Ethics for Nurses with Interpretive Statements is the social contract that nurses have with the U.S. public and is reflected in the conduct of this project and in its goals and aim (Fowler, 2015). The DNP student was committed to the population that this project is aimed to address, was committed to advancing nursing practice through scholarly inquiry, and

collaborated with other health professionals and the public to reduce health disparities in this adolescent population.

As this project was an intervention developed at the request of the middle school and was approved by the University of San Francisco FNP program, Institutional Review Board (IRB) approval was not necessary. However, the DNP student completed a Statement of Determination to declare the intentions of the project as Appendix A. The middle school headmistress notified all parents and students about the upcoming sexual health classes, and parents could draft permission slips to opt out of the course, if they so wished.

Section IV: Results

Meeting SMART Objectives

The CQI Method, the “PLAN-DO-CHECK-ACT Model,” provided as Appendix L, helped to guide the propagation and provided guidance on how to adjust the lessons in real time so as to meet of the SMART Objectives. The first objective was to increase student confidence with SRH educational material. Anatomy worksheets were used at the end of Lesson one and the students were asked to complete them in groups of five. It increased class participation and had the students focus on the goal of completing a group representation of knowledge retention in an environment with their peers. The second objective was to encourage conversation between students and their parents regarding SRH educational material. This was a specific objective requested by the parents at the Parents Meeting held prior the start of the Lesson Series. The midway check in via email did not have this topic brought up, however, at the Close Out Parents Meeting, parents spoke to this point and were pleased that conversation surrounding SRH material had increased at home. The third objective was to have the students retain cumulative

knowledge regarding SRH materials and this ability to retain cumulative SRH knowledge was captured using a Post Lesson Test.

Results

Of the 76 total students of the sixth-grade class at the dual language urban middle school in Northern California, a sample of 63 students participated in taking the pre-test and 69 students participated in the post test. Which means that 82.89% took the pretest with their parents and 90.79% completed the post test at the end of Lesson 5 in the classroom setting.

Analysis of the data from the pre/post-tests allowed the DNP student to survey the level of retained knowledge by the sixth-grade class. Tables with results and comparison of pre/post test results have been provided as Appendices O& P. As seen in Appendix P, roughly 62.12% of the class had stated that they had a sexual and reproductive health course before. However, there were gaps in knowledge. The pretest and post-test shared four true/false questions and the following results came about. When asked if being abstinent is the only way to be 100% sure that you won't have an unintended pregnancy or an STI, 77.78% of students responded correctly on the pretest and 91.30% responded correctly on the post-test. This is a 13.52% increase in knowledge retention and better understanding of how risk reduction plays a role in adolescent health outcomes. When asked if all birth control methods prevent pregnancy and STIs, 76.19% of students answered correctly, and on the post-test 84.06% answered correctly. This is a 7.87% increase in knowledge retention and nuanced understanding that not all birth control methodology helps to reduce risk of transmission of an STI. Students were able to discern that even when a female is on birth control, that this does not mean that either partner is protected from STIs. When asked if there was a cure for HIV/AIDs, 15.87% had stated that there was, as they understood pre-exposure prophylaxis (or PrEP) to be a cure. Following Lesson 5, which

included information about PrEP, the etiology of HIV/AIDs, and how condoms should be used in any and all sexual encounters, 52.17% of students were able to make this distinction. This is a 36.30% increase in knowledge and understanding of this subject.

Following the collection and review of the pre-test from the time between Lesson 1 and 2, the DNP student directly addressed the class regarding the responses to the true/false questions and to respond to the comments written in the comments section on the pre-test. One of the questions that repeats on the pre and post-test True/False queries is “A girl can get pregnant before her first period.” The DNP spoke directly to this response stating that, “A female can ovulate, without getting her period. This means unprotected sex prior to getting one’s period, does not mean that one cannot get pregnant.” This topic was not put into a PowerPoint or revisited again in the lecture series. The DNP student suggests that this is the reason for the modest 1.20% improvement in knowledge retention from 7.90% on the pretest to 8.70% on the post-test.

To further showcase the students' knowledge retention and to allow for students to platform their ability autonomously discern amongst dictions in reproductive and sexual health scenarios, the following questions were asked on the post-test: 1) List 3 things that happen during puberty? 2) List the 3 most effective forms of birth control?, & 3) List 3 things a teen can do to prevent getting or giving an STD/STI? Students were encouraged to put as many responses as they could, told that if they couldn't spell something, that they could phonetically spell something and/or draw the forms of birth control to answer these questions. The following results came about from the 69 students that took the post-test: When asked to list 3 things that happen during puberty, 81.16% listed ≥ 3 correct items. When asked to list the 3 most effective

forms of birth control, 73.91% listed ≥ 3 correct items. When asked to list 3 things a teen can do to prevent getting or giving an STD/STI, 76.81% listed ≥ 3 correct items.

Following the end of Lesson 1, the DNP and the faculty wanted to provide a more comprehensive Likert style assessment of the Lesson series to take at home and not in the presence of the DNP Student instructor. Students were asked questions drafted by the DNP student via their online scholastic portal, which they have access to on campus and at home. Additionally, to overcome the language barrier that was noted on the final comments section of the post test, the students were able to respond in either English or French. The results and questionnaire have been provided in its English form as Appendix U. Of the 80% of students that had taken the 5 Lesson Series, 96% found the course informative, 96% that it was easy to understand, 69% would prefer more videos than question and answer periods, 69% would prefer more activities, 17% would prefer fewer activities, and 66% stated that the program helped them to more openly discuss the topics comfortably with their parents. These questions were included to assess if the materials chosen were perceived to be of value to the students. The results indicate that the addition of one or more group activity would have been welcomed and that any interactive video that aimed to translate medically accurate information in a visual medium was better digested by the students. Finally, when asked if they thought the program will help you make better decisions in the future concerning the subject, 91% responded yes. When asked if they would suggest having a similar course again next year in the 7th grade, 87% responded yes, and when asked if the students would recommend the course to next year's cohort of sixth graders, 92% said yes.

Modifications Made to the Intervention

With the conclusion of every lesson, the students were given at least 15 minutes to have a Question and Answers (Q+A) period, where the DNP student would field queries from the students and for the DNP student to conversationally assess if the materials were effective. Initially, the Lesson series was supposed to be largely PowerPoint based with great emphasis placed on the breakout sessions. From the midway check in via email and from communication between the DNP students and the faculty and from conversations between the DNP student and DNP chair, it was determined that the Q+A sessions should be held separately from males and females. The DNP student responded immediately and for Lessons 3, 4, and 5 two Q+A sessions were held: one for males and one for females. It allowed for both male and female students to be less self-conscious about bringing up topics that concerned them and allowed for greater understanding of puberty materials as it related to them.

Another modification that was made to lessons following Lesson 3 involved greater incorporation of YouTube videos to better understand materials, changes that followed conversations between the students and the DNP student. Lessons 4 and 5 had many medically accurate and FLASH curricula guided material videos included in them. To ensure that these and all materials were age appropriate, all Lessons were emailed 1 week prior to every lesson to the DNP chair and the Dean of the dual language school for review.

A need that was highlighted at the parents meeting and then addressed whilst the lessons were occurring, was that the parents required materials to help give guidance and medically accurate information to better understand the role of social media on the SRH knowledge of the sixth-grade class. As a way of improving the gap in parents' knowledge on how to approach their children regarding the Lesson Series and on how to tackle the role of social media on SRH

knowledge at home, three peer reviewed journals regarding the topic were found by the DNP student. These journals were submitted to the DNP chair for approval prior to sending this information to the headmistress of the dual language school to distribute to the parents.

Unexpected Data

A close-out meeting with the three parents that were chosen to represent the three sections of the sixth-grade class and one faculty member was hosted one week after the conclusion of the Five Lesson Series. Of note, the DNP student was the only American born participant in this meeting. The three mothers recently emigrated from Australia, Ireland, and France, which was greatly reflective of the majority of the cultural backgrounds represented in the student body. This casual meeting was greatly positive and elicited out moral, ethical, and worldview differences that the parents had prior to the start of the lessons and what allowed the parents to be comfortable with supporting the instructor and curriculum of this sexual and reproductive health course.

Generally, the parents and students were very pleased with the material and the incorporation of their input into the lessons. Discussion was had regarding the effectiveness of the Parents Meeting prior to the start of the Lesson Series in dispelling concerns with the course. There was discussion regarding use of the word “abstinence” in the Parents Meeting PowerPoint presentation of suggested lesson topics. The French mother explained that those who were raised with French as their first language, were concerned that when discussion of abstinence would come about, that a moral undertone which influenced the lesson. When questioned and asked to elaborate on this point, the French mother stated that when the word abstinence is translated into French, the understanding is that it comes with it a connection of being appropriate in a religious sense. This concerned the Francophile parents as they considered themselves as progressive and

were unsure if the lessons would be focused on guilt or shaming students into behaving appropriately. Additionally, while the other mothers did not comment on how native English speakers felt about the term of abstinence being used, these mothers echoed that all parents had a common concern to ensure that shame or guilt should not be associated with discussion of sexual and reproductive health topics. All parents explained that the parents meeting Q+A session helped to dispel these concerns and allowed for all parents to support the lessons.

Parents from all backgrounds reported that they were pleasantly surprised at the amount of at home communication that occurred following each lesson. This was one of the goals gleaned from the parents meeting. However, in an effort to measure quality of the project, the DNP student requested that faculty give the students a survey while not in the presence of the DNP student to ensure that the students were not pressured into answering in any particular way. The survey was meant to measure the students' response to the manner in which the course was taught and to assess quality of materials used. The results collected have been provided in this article as Appendix H. Approximately 80% of the sixth-grade class responded to the survey. The general response from the students was that the course was informative and easy to understand. It also seemed like the students enjoyed videos a great deal rather than Q+A sessions. However, this could be that the boys and girls were not separated for 60% of these sessions and many times students reported feeling embarrassed to ask questions in front of the opposite sex.

Results indicated that the students gained knowledge from the lessons, that the use of mixed media and activities were well received to the student population, and that 92% would recommend that the next incoming sixth grade class take this course. A statistic that greatly pleased the mothers and faculty present at the meeting was that the 66% of the students that

responded to the survey, stated that they feel more comfortable approaching their parents on sexual and reproductive health topics.

Missing Data

While this was a dual language school and both English and French were the fluent languages spoken interchangeably, the Language barrier for those that were learning English was present and was not wholly understood by the DNP student prior to the start of the Lesson Series. This meant that the scores that had resulted from this DNP Quality Improvement project may not be wholly reflective of the true understanding of the knowledge content retained by the 5.79% of students that said that they wished the courses were offered in French.

In the proposed analysis, the DNP student suggested that she carry out a Wilcoxon Signed Rank test. Statistical analyzation was halted, as the DNP student did not have equal data sets. The pretest data set had 63 scores and the post-test data set had 69 scores. This prevented the DNP student from assessing the statistical significance of the mean scores from the pre and post-tests.

Unintended Consequences

The close out meeting concluded with the parents and the faculty stating that they wished to continue its relationship with the university and to possibly continue these courses in the next academic year. The DNP student stated that this arrangement definitely could be continued. This then brought the parents to ask if the DNP student would be able to teach the 7th grade class with the sixth-grade material. Discussion was had and a future meeting was arranged with the faculty to discuss this material and lesson plan adaptation before the conclusion of the 2017-2018 academic year.

Section V: Discussion

Summary

The aim of this project was to initiate a community-university collaboration with an evidence-based sexual and reproductive health course curriculum for a sixth-grade class in the community of the university over five one-hour lessons offered from March 2018 to May 2018 that utilized a DNP student to improve sexual and reproductive health knowledge by at least 10%. The overall goal was to provide a comprehensive and evidence based sexual and reproductive health course that is age appropriate, engaging, culturally sensitive, cognizant of the community needs, and is compliant with The California Healthy Youth Act. The aim statement was met. The mean score from the pretest was 60.00% and the mean score from the post-test was 71.36%, which is a 11.36% increase in student knowledge retention. Raw scores and their means have been provided as Appendix O.

Key findings and lessons learned involved the delivery of the learning material. The students seemed to learn more efficiently and retained more knowledge following the incorporation of more digital video material alongside tradition PowerPoint and breakout activity assignments, like the anatomy worksheets. This incorporation of real-time adjustment of course delivery that resulted from the parents meeting, the real time Q+A sessions at the end of Lessons and the parents mid-point check in via email contributed greatly to the success of this program. Additionally, it is clear that a DNP student can teach a course of this nature in a community setting and influence adolescent SRH behavior and knowledge retention directly.

The greatest possibility that resulted from this QI project was the establishment of a community relationship between the university and the dual language middle school, which allowed this site to be a continued community health rotation site that focuses on health

promotion methods in the community setting. Additionally, implications for Advanced Nursing Practice involve encouraging more Universities that offer Advanced Practice Degrees to also reach out to community centers and schools to establish a permanent clinical practicum sites that immerse DNP students in the community with the dual purpose of training a new professional and by improving health outcomes in the surrounding community proximal to the University.

The plan for dissemination has been implemented. In the Spring 2019 semester, two new DNP students rotated at this site to obtain their choice of reproductive hours, pediatric hours, or population health clinical hours at this site. The DNP student that conducted this QI project, acted as a mentor to those other two DNP students and shared materials that the DNP student found to be effective and useful during the Lesson series.

Interpretations

In the week of the close out meeting, one of the mothers elected to represent the parents of the sixth-grade class reached out the DNP student via email and had stated, “Thank you so much for doing such an amazing program with the sixth graders.” The QI project positively influenced the sixth-grade student population at this dual language urban middle school, making all the students more informed and prepared to navigate the remainder of their adolescent years with better tools to negotiate around and be prepared for sexual and reproductive behaviors. Nola Pender’s middle range nursing theory of Health Promotion Model theoretical framework supports the findings and informed the manner in which the course was taught. The DNP student was cognizant that she is a tool in this process of bringing the students to organically understand and recognize decisions that will help them. Information was offered for the student to consider and apply to their own world views will allowed students and their peers to make more informed decisions.

Hosting courses like this in the community setting and having a DNP student teach the lessons has many positive benefits. DNP students establish and show that Nurse Practitioners are trustworthy providers to seek guidance and care from. Immersion practicum sites of this nature, allow the DNP student to interact and educate the community that they are placed with, allows the DNP student to role model the profession to students who may consider the profession, and potentially establish students as future patients upon graduation from university.

Limitations

This project was limited by the variance in the amount of pretest and post-tests completed. This prevented greater statistical evaluation to occur. Additionally, the language barrier of those that are native French speakers/those that are learning English at the dual language school, were not well appreciated or well identified by the DNP student prior to the start classes. Had this been better understood, a request for a bilingual, English and French, speaking faculty member could have been asked to help assist the DNP student instruct those that had lack of access to the lessons and materials, as they were presented only in English. Future DNP students that rotate at this clinical immersion site would benefit from this understanding and would be able to make a decide for themselves if this translator component is necessary to increase access to the lesson series and it effect on health outcomes.

Conclusion

This immersion practicum site provided an ideal setting for a DNP student to carry out her QI project. Immersion experiences allow DNP students to witness a population's understanding of health and health outcomes in a setting that is familiar to the population. By engaging the faculty and parents directly in a non-clinical setting, the DNP student was able to provide a service to the community, increase sexual and reproductive health knowledge for the

community's adolescent population, and establish trust in the role of the NP in the healthcare landscape. Additionally, this experience satisfies the requirements needed for the DNP student to complete her degree. The benefits from community partnerships further solidify the role of the NP in the community and provide excellent training for DNP students.

While traditional clinical education prepares DNPs to be general health care provider, this innovative approach to community engagement with this particular setting of adolescent community members, helps to establish sustainable relationships to improve health outcomes. Additionally, the method used to Plan, Do, Check, Act this project allows DNP students to tailor interventions based on community needs. This paper greatly supports DNP students participating in projects of this nature as DNP students can become directly involved in preventive healthcare in community settings. This project will demonstrate the added value that DNP students bring to local community health care.

This DNP QI project calls for more DNP schools to establish practicum sites that encourage DNP students to ingratiate themselves into the population they care for, so as to better understand barriers to care and how to further help vulnerable populations. This course showcased that family members and peers are a significant component of SRH knowledge retention and unintended pregnancy prevention. Further work should be conducted by nursing scholars and leaders to explore the role that family and peers play on the receipt of SRH education by adolescents, so as to better measure the importance of teaching, not only adolescents, about SRH materials, but also educating parents on how to initiate conversations and at homes lessons about the topic as well. The DNP student feels that while the state had enacted policy that had required a comprehensive sexual and reproductive health course be taught at least once in a calendar school year to all students in California middle schools, it was

the parents and the school that greatly supported the DNP student to successfully teach the lesson series and thereby influenced adolescent SRH health knowledge.

Section VI: Other Information

Funding

The DNP student did not have receive any funding for the development of the sexual and reproductive health lesson series. The DNP student furnished funds for printing, travel to and from the lessons, and for attendance at both the parents meeting and the close out meeting.

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Section VIII: Appendices

Appendix A – Non-Research Approval Documents



DNP Statement of Non-Research Determination Form

Student Name: *Stephanie D. Calabrese*

Title of Project: Advancing Academic Nurse Practitioner Community Partnerships: A Quality Improvement Project in an Immersion Practicum Setting

Brief Description of Project:

A) Aim Statement: The aim of this project is to initiate a community-university collaboration with evidence based ‘FLASH’ sexual and reproductive health course curriculum that utilized a Nurse Practitioner student to improve sexual and reproductive health knowledge by at least 10% for a 6th grade class in the community of the university over a 3-month period (March 2018-May 2018). The overall goal is to provide a comprehensive and evidence based sexual and reproductive health course that is age appropriate, engaging, culturally sensitive and cognizant of the community needs.

B) Description of Intervention: A DNP student will teach 6th grade level adolescents a sexual and reproductive health course during the Spring 2018 semester

C) How will this intervention change practice? This innovative approach to community engagement with this particular setting of adolescent community members, helps to establish sustainable relationships to improve health outcomes. This project approach allows NP students to tailor interventions based on specific problems seen and identified by this particular population. Additionally, it allows for peer mentoring amongst DNP students as there will be succession planning of continually placing DNP students at this site, with previous instructors mentoring new DNP instructors.

D) Outcome measurements: Pre and post intervention surveys will be performed by the 6th grade students to measure how well they learned/retained health promotion information. Additionally, there will be a survey of the quality and delivery of the material.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:
<http://answers.hhs.gov/ohrp/categories/1569>

This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.



EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

Project Title:	YES	NO
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	✓	
The specific aim is to improve performance on a specific service or program and is a part of usual care. ALL participants will receive standard of care.	✓	
The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does NOT follow a protocol that overrides clinical decision-making.	✓	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does NOT develop paradigms or untested methods or new untested standards.	✓	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does NOT seek to test an intervention that is beyond current science and experience.	✓	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	✓	
The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	✓	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	✓	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: "This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."	✓	

ANSWER KEY: If the answer to ALL of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is NO, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print) _____
Stephanie D. Calabrese
 Signature of Student: _____ DATE 2/1/2019

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print): _____
 Signature of Supervising Faculty Member (Chair): _____ DATE 2/1/2019

Appendix B - Letter of Support from Agency



On Dec 22, 2017, at 1:29 PM [REDACTED] wrote:

Good afternoon [REDACTED]

Thanks for getting in touch with us.

I am thrilled by the idea of developing a partnership between [REDACTED]

I won't be available before January 17 and as you'll be in Florida this week, I suggest that we schedule an appointment the week of January 22. Can you please send me your availabilities?

Happy holidays!

Appendix C - Evidence Table - Literature Review Synthesis Table

Study Citation	Study Design	Sample and Setting	Measures	Statistical test for analysis	Meaning of Results	LOE
(Dittus et al., 2014)	RCT	12 public high schools in Los Angeles, California with SBHCs Paired high schools could not share community boarders Adolescents aged 15-19yrs Control N= 2635 Intervention N=3295	Yearly surveys from 2005 to 2009	Chi-Square analyses and <i>t tests</i> were used to compare demographic and outcome variables across conditions, in the aggregated sample	A school-based structural intervention can improve female adolescents' receipt of services	I A
(Ethier et al., 2011)	RCT	12 urban Los Angeles, California high schools, selected from areas with high teen pregnancy and STI rates, half with SBHCs Paired high schools could not share community boarders N=2603 adolescent females	Yearly surveys in the Spring semesters between 2005 to 2009	<i>t-tests</i> and chi-square analyses	Although an onsite clinic does not seem to lead to increase in all types of reproductive care in the population as a whole, sexually active females are more likely to have received more specific care and to have used hormonal contraceptives if their school as a SBHC	I A
(McCauley et al., 2014)	RCT	N=564 sexually active adolescents aged 14-19yrs seeking care at eight California SBHCs		Wald log-linear chi-square tests and linear regressions for clustered data	Findings suggest the need for attention to STI risk among all girls, but sexual minority status in particular. Clinicians should be trained to assess youth for sexual contacts and sexual identity and counsel all youth on healthy relationships, consensual sex, and safer sex practices relevant to their sexual experiences	I A
(Walsh-Buhi et al., 2017)	Cross Sectional Study	Using purposive sampling of 20 charter school principals in San Diego County, California	Semi structured telephone interviews between July 2015 to January 2016 by a trained interviewer	All data was analyzed using a case-oriented approach	Charter schools often have greater curricular flexibility than traditional schools – however need to serve parents who may have fundamental disagreements with topics need to be considered before rolling out SRH courses Respondents noted variation in approaches to delivery of topic	III B

KEY- LOE: level of evidence, A: high quality, B: good quality, C: low quality; NR: Not reported, N/A: Not applicable (Johns Hopkins University)

Appendix D - National Teacher Preparation Standards for Sexuality Education

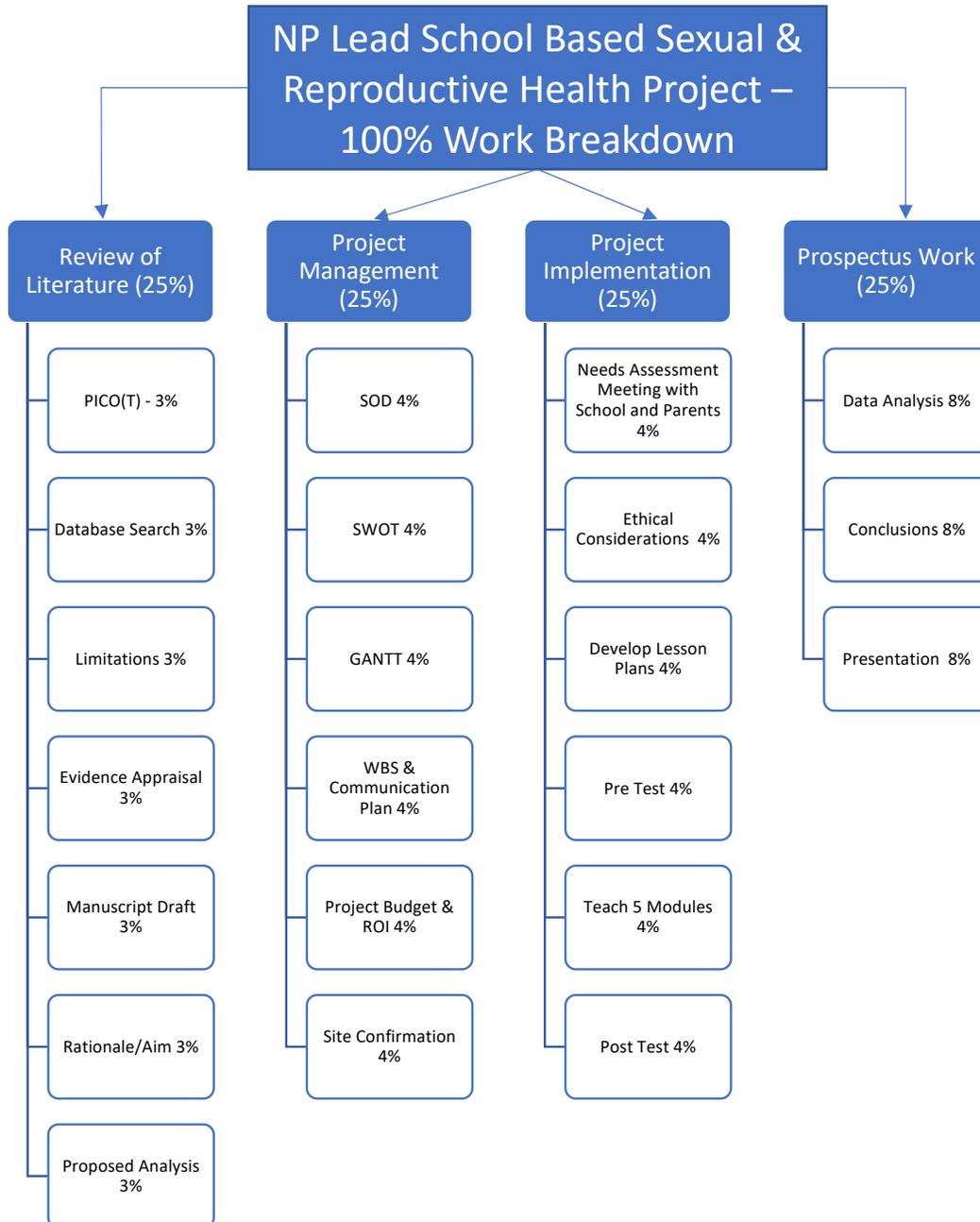
Standard 1: Professional Development	Educators demonstrate comfort with, commitment to, and self-efficacy in teaching sexuality education
Standard 2: Diversity and Equity	Educators show respect for individual, family, and cultural characteristics and experiences that may influence student learning about sexuality
Standard 3: Content Knowledge	Educators have accurate and current knowledge of the biological, emotional, social, and legal aspects of human sexuality
Standard 4: Legal and Professional Ethics	Educators make decisions based on applicable federal, state, and local laws, regulations and policies, as well as professional ethics
Standard 5: Planning	Educators plan age- and developmentally-appropriate sexuality education that is aligned with standards, policies, and laws and reflects the diversity of the community
Standard 6: Implementation	Educators use a variety of effective strategies to teach sexuality education
Standard 7: Assessment	Educators implement effective strategies to assess knowledge, attitudes and skills in order to improve sexuality education instruction

Appendix E- Gap Analysis

Problem	Lack of sexual health and reproductive program that is compliant with new Bill of California’s Health Youth Act
Goals	<ol style="list-style-type: none"> 1- Organizational – To be compliant with the new amendment 2- Stakeholder – To equip the students with comprehensive sexual and reproductive health education that is also compliant with new CA bill amendment
Status	No current curriculum in place and no current instructor at the school willing to teach the course
Gaps	After issuing a pre-test on topics that are included in a comprehensive sexual health and reproductive course to the students, the average score was 60%. That means we have an average 40% gap in knowledge.
Causes	<ol style="list-style-type: none"> 1- Knowledge - There a knowledge gap. The middle school does not have a member of staff that has been trained or has sufficient materials to teach the content 2- Motivation – all stakeholders value this information and the course but the parents are not sure how to initiate conversation with students 3- Organization- The stakeholders do not have the essential resources (course material or instructor) to help them achieve their goal.
Solutions	<ol style="list-style-type: none"> 1- Knowledge – Provide the appropriate curriculum to teach the course and provide the instructor to teach the students 2- Motivation – provide materials for parents to review and to help them feel confident about approaching subject material at home, thereby furthering the lessons outside of the classroom setting 3- Organization - Need to increase transparency and communication for all stakeholders about the sexual and reproductive health policy and what the criteria or goal is about meeting the state requirements set forth by this new bill amendment
Implementation	The plan is to involve as many stakeholders as possible in all stages of implementation with the goal that they have “buy in.” This is the reason for having the focus group/parents meeting to introduce the goals of the plan to the parents, faculty, and school administration.
Evaluation	To evaluate the progress of the change, carried out pre and post-tests to evaluate the course impact and quality improvement in knowledge base in this student population.

(Clark, Estes, Middlebrook, & Palchesko, 2004)

Appendix G - Work Breakdown Structure



Appendix H- Responsibility/Communication Matrix

Stakeholders	Objective of Communication/ Deliverables/ Content of Communication	Medium/Method	Frequency
Faculty	<ul style="list-style-type: none"> • Enhanced and community tailor made lesson plans • To coordinate best methods on how to teach the course to their sixth-grade class of students • Communication Lesson plans and PowerPoint lessons for Parents’ review on web-portal offered via school 	<ul style="list-style-type: none"> • In person meetings • Email • Telephone Communication 	Every week a module is offered
Parents	<ul style="list-style-type: none"> • Enhanced and community tailor made lesson plans • To coordinate best methods on how to teach the course to their sixth-grade class of students 	<ul style="list-style-type: none"> • In person meetings 	Needs Assessment Meeting Midway email correspondence Close out Meeting
Students	<ul style="list-style-type: none"> • Enhanced and community tailor made lesson plans • To coordinate best methods on how to teach the course to their sixth-grade class of students • Communication will be focused on only in person meetings when teaching modules 	<ul style="list-style-type: none"> • In person meetings 	Every week a module is offered
DNP Chair	<ul style="list-style-type: none"> • Enhanced and community tailor made lesson plans • To coordinate best methods on how to teach the course to their sixth-grade class of students • To ensure that project stays on course and I continue to meet objectives for degree completion 	<ul style="list-style-type: none"> • In person meetings • Email • Telephone Communication 	As Needed

Appendix I - SWOT Analysis

<i>SWOT Analysis</i>	
<p>Strengths</p> <ul style="list-style-type: none"> • Strong backing from parents and headmistress • No funding required • Talented and well-educated student body that will be engaged with material • Needs assessment meeting helped to tailor the material to the needs of the study population • Good facilities 	<p>Weakness</p> <ul style="list-style-type: none"> • Some parents of the school may not agree with the material shown or not see the value in the lessons • At the start, parents do not feel confident to approach topic independently. This may require parents to read additional material • The need for an instructor is immediate, which means that a lot of time will have to be put towards tailoring a generic curriculum to meet the needs identified at the parents meeting • Students might have already been influenced by materials on social media/online sources
<p>Opportunities</p> <ul style="list-style-type: none"> • School may be able to acquire additional materials that will better facilitate learning (i.e. more visual/video materials) • If this program is useful to students, they may extend this to more grades, beyond the current target population of 76 sixth graders • Some other schools or even the local area school may also want to adopt this program • Provide instruction on an important public health issue • Expand the ability for DNP students to have sustainable clinical practicum sites in the community 	<p>Threats</p> <ul style="list-style-type: none"> • There may be a demand to obtain more expensive materials to better teach these lessons • No grant money can be obtained as this is not a research project. Finding reliable transportation for the instructor to get to campus on time and paying for that transportation is not covered in budget for this project

Appendix J - Cost/Avoidance/Benefit Analysis

Total number of reported new STI in adolescent population aged 15-24	9.85 Million
Total number of Adolescents aged 10-19	42 Million
Direct medical costs for new STIs for adolescents aged 15-24 annually	*8 billion USD
Rough estimate of adolescents aged 15-19 who contracted a new STI	5 million
Rough estimate of total adolescents aged 15-19 population	23.34 million
Rough estimate of tax dollars spent on STIs annually for adolescents aged 15-19	4 billion
Estimated Cost of Tax dollars/new Adolescent STI cases	\$800 USD per teen aged 15-19yrs
Percentage of teens that will contract a new STI annually btw ages 15-19yrs	22%
Percentage of teens aged 15-19yrs that will become pregnant annually	7%
In 2011–2013, among unmarried 15–19-year-olds, 44% of females and 49% of males had had sexual intercourse.	Median percentage of sexually active teens 46%
Cost of School Based Sexual and Reproductive Health Course Implementation with Nurse Practitioner	True cost of the class \$2702.00 <i>See Appendix K</i>
Actual cost of class with DNP Student	\$210.00
Cost per student (76 students) with outside NP	\$35.55 per student
Cost per student (76 students) with DNP student	\$2.76 per student
Cost to tax payers for every teen birth	\$16,000 per teen
Averting a sexually transmitted disease from this SRH lesson series is estimated to be:	\$4800 after 3 years of course
Benefit-cost ratio calculated for investing in this DNP lead lesson series on SRH offered to this sixth-grade class once a year in middle school (grades 6,7, &8) would be:	2:15
IF program costs \$2.76 with DNP student teaching it AND benefit-cost ratio is approximately 2:15 THEN Cost Avoidance is:	\$20.70

(CDC, 2013; Office of Adolescent Health, 2019; Guttmacher, 2012; Guttmacher, 2017)

Cost benefit analysis/cost avoidance assessments were made utilizing Net Present Value equation: $NPV = Value / (1 + r)^t$

NPV = represents the number of students who won't contract a new STI following 3 years of this lesson years during the ages 15-19yrs

Value = The students that are sexually active and will contract a new STI

r = Percentage of knowledge retention regarding SRH materials in the sixth-grade class

t = Years, which represents that years the student receives SRH lesson series while in middle school

NPV = what we are calculating

Value = 46% x 76 students per year = 8

r = 22% students that will contract STI

t= 3 years

NPV = [(76 sixth grade students)(0.46 percent sexually active teens aged 15-19 yrs annually)](0.22 percent of teens aged 15-19 yrs that contract new STI annually) = 8 will contract STI with no intervention

When the 11.36% increase in knowledge, reduces 46%-11% = 35% - new rate of sexually active students that will contract an STI. NPV now = 6

Projected amount of STIs without this intervention were estimated to be $8 \times 3 = 24$. However, after three years with this intervention, roughly 6 students will contract an STI. The new adjusted amount of newly contracted STI in this population from this patient population is estimated to be: $6 \times 3 = 18$.

Appendix K - Budget and Return on Investment Plan

Budget & Return on Investment

[March -May]

[2018]

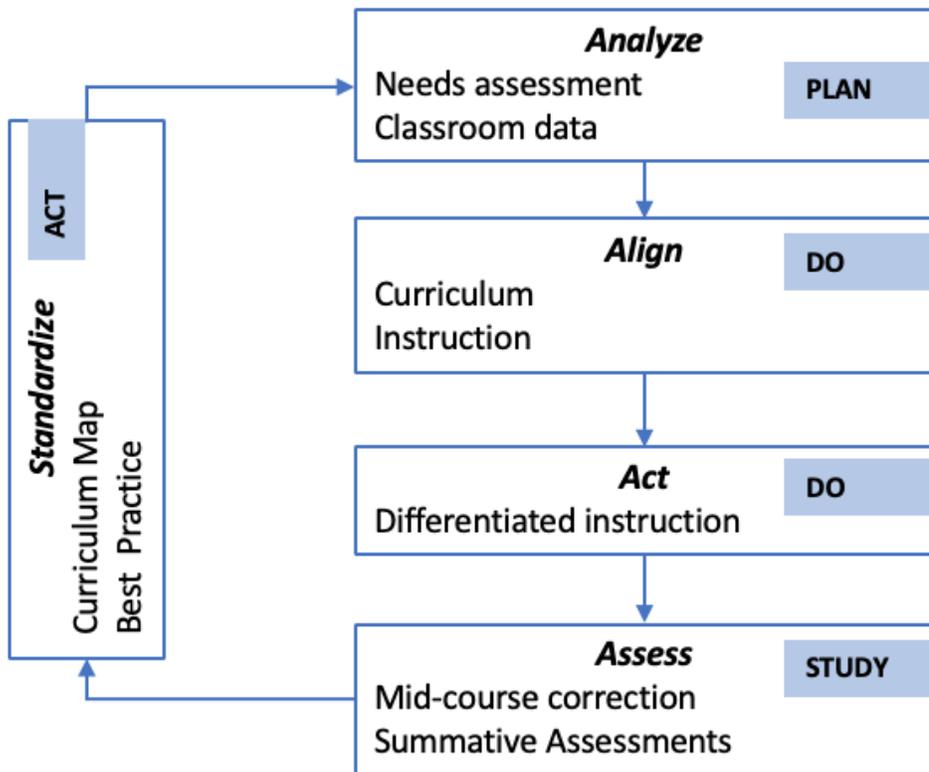
Expenses	Projected	Actual	Variance
Cost of classroom instructor for 5 sessions 3 hrs /day (\$74.96 / hour)	1,124	0 	1,124
Cost of hours to adapt lesson plans roughly 3 hours per lesson for 5 lessons and 1 hr for parents meeting ppt(\$74.96 x 19 hours)	1,368		1,368
Laptop to teach lessons - Already purchased at start of DNP program by DNP student	0	0 	0
Materials in Lesson Plan - Adapted from Evidence Based Lesson FLASH Plan and found online for Free	0	0 	0
Screens and Projectors Needed for Lesson Plans (Provided by LFSF)	0	0 	0
Internet - Free - given to students from LFSF	0	0 	0
Transportation to and from home to LFSF @ roughly \$15.00 per Uber ride for 5 (5*2 = 10 rides) class meetings, Pre course parents meeting (2 rides), and Post parents close out meeting (2 rides)	210	210 	0
Total	2,702	210	2,492

Appendix L - CQI Methods

PLAN-DO-CHECK-ACT Model

This is a continuous cycle of designing curriculum and delivering classroom instruction.

Improvement is not a separate activity – it is built into the work process.



Appendix M - Data Collection & Evaluation Tools (Pre/Post Tests and Electronic Course Assessment)

Grade: _____ Age: _____
 Circle the correct answer

1.	Have you had a class on Reproductive Health or Sex Education Before?	Yes	No
2.	A girl can get pregnant before her first period	True	False
3.	A woman's menstrual cycle is always 28 days	True	False
4.	Both Boys and girls experience rapid growth during puberty	True	False
5.	In order for pregnancy to happen, the egg has to be fertilized by a sperm and then implanted in the lining of the uterus	True	False
6.	Testosterone is found only in men, and estrogen is found only in women	True	False
7.	The ovaries produce hundreds of new eggs every month	True	False
8.	Puberty is the stage when adolescents reach sexual maturity and become capable of reproduction	True	False
9.	All birth control methods prevent pregnancy and STDs	True	False
10.	Being continuously abstinent is the only way to be 100% sure that you won't have an unintended pregnancy or an STD	True	False
11.	There is medication to cure HIV/AIDS	True	False

Human Growth and Reproduction
 Post-test

Grade: _____ Age: _____

Please mark off whether you agree or disagree with each of these statements:

1. It is okay to have sex without a condom every once in a while. Strongly agree Somewhat agree Somewhat disagree Strongly disagree
2. Getting pregnant / getting someone pregnant before I'm ready would be a big deal. Strongly agree Somewhat agree Somewhat disagree Strongly disagree

After having this class, how much more do you know about:

3. Birth control? A lot more Some more A little more The same
4. Using condoms? A lot more Some more A little more The same
5. Making healthy decisions? A lot more Some more A little more The same

After this class, how sure are you that you can talk with a partner about:

6. Using condoms? A lot more sure A little more sure Less sure No change: definitely can't No change: already could
7. Using other birth control? A lot more sure A little more sure Less sure No change: definitely can't No change: already could

8. List 3 things that happen during puberty
 a. _____
 b. _____
 c. _____
9. List the 3 most effective forms of birth control
 a. _____
 b. _____
 c. _____
10. List 3 things a teen can do to prevent getting or giving an STD/STI
 a. _____
 b. _____

c. _____

True or False: Circle the correct answer

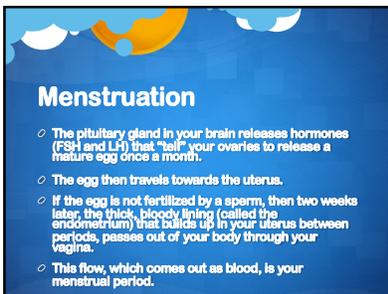
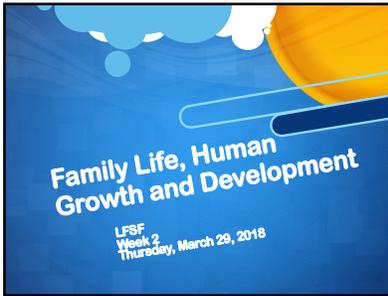
1.	Chlamydia is the most common STD and can lead to serious complications if not treated	True	False
2.	A girl can get pregnant before her first period	True	False
3.	There is medication to cure HIV/AIDS	True	False
4.	All birth control methods prevent pregnancy and STDs	True	False
5.	Avoiding sex (abstinence) is the only way to be 100% sure that you won't have an unintended pregnancy or get an STD	True	False

6. How would you rate the class overall? (Circle your answer)
 Excellent Good Ok Poor

7. How would you rate your teachers? (Circle your answer)
 Excellent Good Ok Poor

Comments:

Lesson 2 Materials



Lesson 3 Materials

Family Life, Human Growth and Development

LFSF
Week 3
Thursday, April 5, 2018

Teen Pregnancy

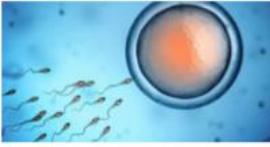
- 3 in 10 teen American girls will get pregnant at least once before age 20. That's nearly 750,000 teen pregnancies every year.
- Parenthood is the leading reason that teen girls drop out of school. More than 50% of teen mothers never graduate from high school.
- About 25% of teen moms have a 2nd child within 24 months of their first baby.
- The United States has one of the highest teen pregnancy rates in the western industrialized world.
- What are your thoughts?

Pregnancy

- What does it mean to be pregnant?
- Pregnancy is a state in which a woman carries a fertilized egg inside her body
- The period from conception to birth
- Usually about 40 weeks
- Trimesters: 3 month segments during pregnancy; 1st trimester, 2nd trimester, and 3rd trimester

Early signs and symptoms

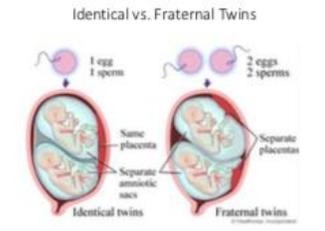
- In addition to a missed period, the earliest signs and symptoms of pregnancy might include:
 - Tender or swollen breasts
 - Nausea: with or without vomiting (aka morning sickness)
 - Tiredness (fatigue)
 - Increased urination
 - Food cravings or dislikes
 - Bleeding or spotting
 - Cramping
 - Mood swings
 - Dizziness
 - Constipation



Fertilization

- Egg is released into the fallopian tube
- Egg cell has 23 chromosomes (genetic material from female)
- Sperm cell has 23 chromosomes (genetic material from male)
- If sperm meets egg, egg is fertilized (46 chromosomes-DNA for a new human)

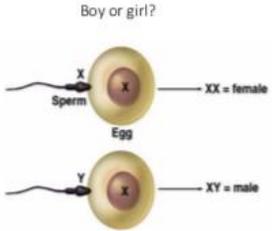
Identical vs. Fraternal Twins



Identical twins: 1 egg, 1 sperm. Same placenta, Separate amniotic sacs.

Fraternal twins: 2 eggs, 2 sperm. Separate placentas.

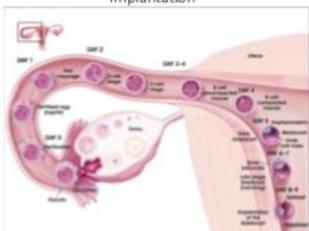
Boy or girl?



X-bearing sperm + X-bearing egg = XX = female

Y-bearing sperm + X-bearing egg = XY = male

Implantation



First trimester: Month 1

- Fertilized egg is called an "embryo"
- Placenta forms around embryo (to provide nutrients and protection)
- Blood begins circulating
- Brain and spinal cord is just beginning to form, though it does not work yet



First trimester: Month 2

- Arms, legs, and internal organs begin forming
- Genitals are starting to form, but male and female still look alike
- Heart has formed and has a regular beat
- Embryo is now called a "Fetus" and is about 1/2 inch long



First trimester: Month 3

- Male and female begin to look different, genitals begin to develop
- Fingers, toes, and fingernails form
- The head is almost half the size it will be at birth
- Fetus about 2 1/2 inches long



Second Trimester: Month 4

- Muscles move
- Skin is transparent
- Sweat glands, eyebrows, and eyelashes form
- Ovaries develop in girls
- Fetus about 4 1/2 inches long



Second Trimester: Month 5

- Hair, eyelashes, eyebrows form
- Clitoris forms in girls
- Hiccups begin and other movement can be felt
- Heartbeat can be heard
- There is hair on the head
- About 6 1/2 inches long



Second Trimester: Month 6

- Brain waves begin (brain starts working)
- Eyes open
- Ears begin to work
- There are fingerprints and footprints
- Fetus is about 8 inches, and 1 and 1/3 pounds



Third Trimester: Month 7

- Adds body fat
- Moves a lot
- Responds to sound
- Sometimes awake, sometimes asleep
- About 10 inches long and nearly 2 1/2 pounds



Third Trimester: Month 8

- Less active, less wrinkled
- Still growing longer, heavier
- Nails, bones begin to harden
- About 11 inches long and 3 1/2 pounds



Third Trimester: Month 9

- Lungs and other organs finish maturing
- 18 to 20 inches long and about 6-7 pounds
- Moving frequently, but less space to move
- The brain won't be fully mature for two more years and then it will mature even more in the preteen and teen years and the reproductive system won't finish maturing for years, either



Labor

- **What is labor?**
- continuous contractions of the uterus that help the cervix to open and thin, allowing the baby to travel through the birth canal.
- Can start within 2 weeks of estimated delivery date
- Involves discomfort, but that varies from woman to woman

Birth

- **Vaginal delivery:** Most common delivery method
 - Baby passes through cervix and vagina
 - Involves mother "pushing" to get baby out
 - Painful as baby passes through the pelvis
 - <https://www.youtube.com/watch?v=duPv3ZV6c3k>
- **Caesarian Delivery:** Surgical procedure to deliver baby if health of mother and/or baby is at risk
 - Has a longer healing time

Complications in pregnancy

- **Miscarriage:** Loss of baby before they are full term (1 in 2 women)
- **Preterm:** baby born before 37 weeks (high in teens)
- **Still born:** birth of a baby who is born without any signs of life at or after 24 weeks of pregnancy
- **Birth defects:** part of the body is not formed properly and affects how the body looks, works or both

Causes of miscarriage or birth defects

- Genetic reason - Chromosomal abnormality in egg or sperm
- Alcohol, tobacco and drug use in both mother and father
- Illness in mother (especially STDs), poor nutrition
- Radiation and environmental pollution
- Mother's and father's age (ideal to have children in 20's to early 30's)
- Something wrong with baby (illness, no prenatal care)
- Other unknown factors

Lesson 4 Materials

Family Life, Human
Growth and
Development

LFSF School
Week 4
Thursday, April 12, 2018

Healthy Choices

- + Pregnancy Prevention
- + Relationship rights and responsibilities
- + Risky behaviors, mental and physical health

**Pregnancy Prevention
Brainstorm**

What methods have you heard of?

**Pregnancy prevention
(AKA contraception)**

Abstinence

- + Choice to avoid sex.
- + 100% effective method of preventing pregnancy

**Barrier Method
(Condoms)**

- + Male condom: 98% effective with perfect use, 92% with typical use
- + Female condom: less effective and must be put in BEFORE having sex
- + Prevents sperm from getting to egg
- + Must use a new one every time

The Pill

- + Needs to be ordered by provider
- + 92-97% effective
- + Contains hormone to prevent pregnancy
- + Must take every day

The Patch

- + Prescription by provider
- + 92% effective
- + Contains hormones
- + Change every week for 3 weeks, then no patch for 1 week

The Ring

- + Prescription by provider
- + 92% effective
- + Contains hormones to prevent pregnancy
- + Insert in vagina and leave for 3 weeks, remove for 1 week
- + Insert new one after end of week

	What is it?	How often does it need to be changed, renewed, or refilled?	Need a prescription?	Prescription DTC?
Traditional Condom	<input type="checkbox"/> A pouch that fits the vagina	<input type="checkbox"/> Daily	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each week	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each four weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the cervix	<input type="checkbox"/> Once each twelve weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

	What is it?	How often does it need to be changed, renewed, or refilled?	Need a prescription?	Prescription DTC?
Female/Intrauterine Condom	<input type="checkbox"/> A pouch that fits the vagina	<input type="checkbox"/> Daily	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each week	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each four weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the cervix	<input type="checkbox"/> Once each twelve weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

	What is it?	How often does it need to be changed, renewed, or refilled?	Need a prescription?	Prescription DTC?
Noplasion	<input type="checkbox"/> A pouch that fits the vagina	<input type="checkbox"/> Daily	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each week	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each four weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the cervix	<input type="checkbox"/> Once each twelve weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

	What is it?	How often does it need to be changed, renewed, or refilled?	Need a prescription?	Prescription DTC?
IUD	<input type="checkbox"/> A pouch that fits the vagina	<input type="checkbox"/> Daily	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each week	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each four weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the cervix	<input type="checkbox"/> Once each twelve weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

	What is it?	How often does it need to be changed, renewed, or refilled?	Need a prescription?	Prescription DTC?
Emergency Contraception	<input type="checkbox"/> A pouch that fits the vagina	<input type="checkbox"/> Daily	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each week	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each four weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the cervix	<input type="checkbox"/> Once each twelve weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

	What is it?	How often does it need to be changed, renewed, or refilled?	Need a prescription?	Prescription DTC?
Abstinence	<input type="checkbox"/> A pouch that fits the vagina	<input type="checkbox"/> Daily	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each week	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> An implant in the arm	<input type="checkbox"/> Once each four weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the cervix	<input type="checkbox"/> Once each twelve weeks	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A patch that covers the penis	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> A device in the arm	<input type="checkbox"/> Every 3-6 years	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Relationship Rights and Responsibilities

Understanding healthy relationships

Risky Behaviors

Any behaviors that harm or put you at risk emotionally, physically, or psychologically

Risky Behaviors Include...

- + Unprotected sex
- + Alcohol use
- + Drug use
- + Tobacco use
- + Teen pregnancies
- + Increased risk for STIs
- + Drunk/drugged driving
- + Depression
- + Anxiety
- + Infarction

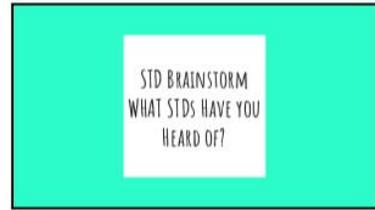
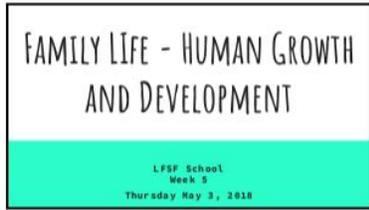
Take away point...

Always use your resources and knowledge to make healthy decisions

Resources

- + www.plannedparenthood.org/facts-for-action/
- + <http://dhs.gov/health/>
- + www.cdc.gov/

Lesson 5 Materials



Reading Materials Provided for the Parents

HealthyChildren Magazine. (2012). Adolescent Sexuality: Talk the Talk Before They Walk the Walk. Retrieved from <https://www.healthychildren.org/English/ages-stages/teen/dating-sex/Pages/Adolescent-Sexuality-Talk-the-Talk-Before-They-Walk-the-Walk.aspx>

Ouytsel, J. V., Gool, E. V., Walrave, M., Ponnet, K., & Peeters, E. (2016). Exploring the role of social networking sites within adolescent romantic relationships and dating experiences. *Computers in Human Behavior, 55*, 76-86. doi:10.1016/j.chb.2015.08.042

Smith-Darden, J. P., Kernsmith, P. D., Victor, B. G., & Lathrop, R. A. (2017). Electronic displays of aggression in teen dating relationships: Does the social ecology matter? *Computers in Human Behavior, 67*, 33-40. doi:10.1016/j.chb.2016.10.015

Appendix O - Raw Data of Student Pre/Post Test Scores

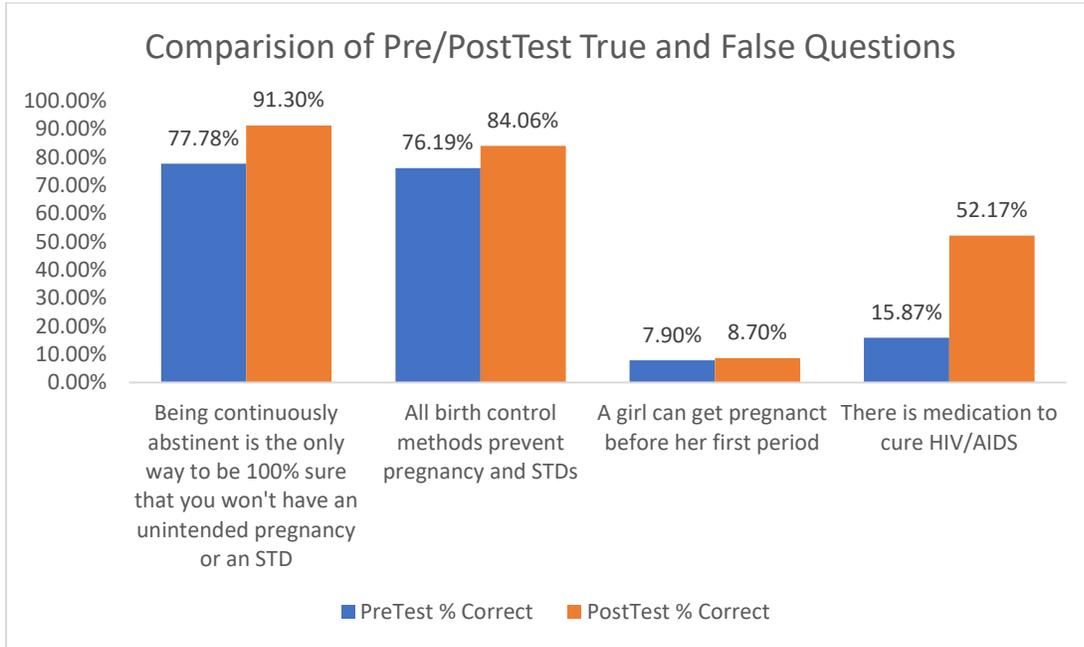
Pretest Scores						
30	60	60	70	60	80	30
80	60	70	80	60	50	50
90	80	60	30	70	50	80
70	80	70	50	60	40	
30	60	50	90	60	40	
70	80	70	30	50	30	
20	70	60	80	70	10	
90	40	80	30	30	60	
60	30	80	70	80	100	
90	40	60	70	60	70	
Mean Grade – 60.00%						

Post-test Scores						
37.5	87.5	62.5	75	87.5	75	87.5
62.5	87.5	62.5	75	75	75	62.5
87.5	87.5	62.5	50	85.5	87.5	75
62.5	62.5	87.5	75	87.5	87.5	75
50	75	62.5	75	60.5	50	75
62.5	73	75	75	87.5	73	75
50	62.5	75	62.5	87.5	75	12.5
62.5	87.5	73	75	62.5	87.5	50
50	83.5	75	75	87.5	75	25
75	75	62.5	87.5	87.5	87.5	
Mean Grade – 71.36%						

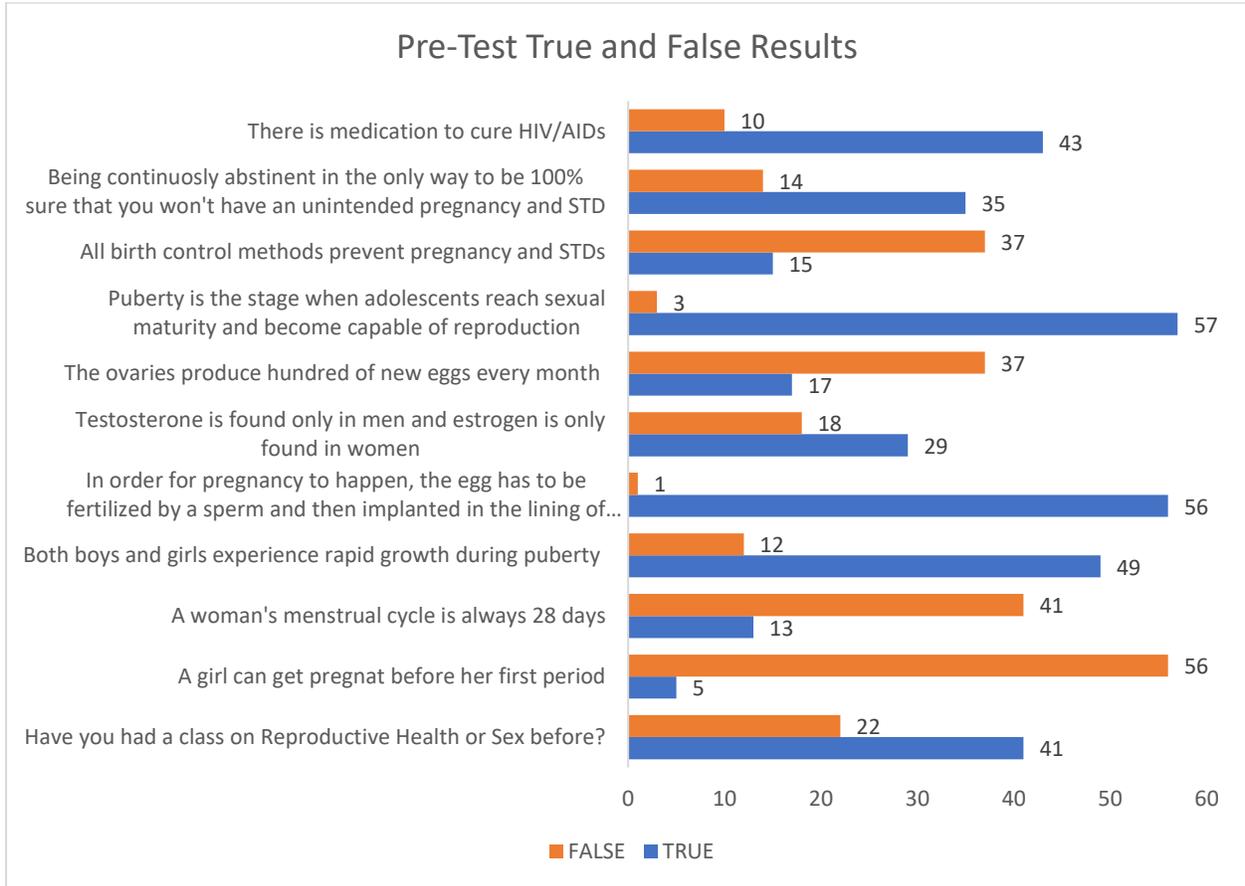
Pre-Test - Relevant Numbers	
Number of Students in the sixth-grade class	76
Students that took pretest with parents and returned quiz on date of Lesson 1	63
Percentage of sixth grade class responses	82.89%

Post Test -Relevant Numbers	
Number of Students in the sixth-grade class	76
Students that took pretest with parents and returned quiz on date of Lesson 1	69
Percentage of sixth grade class responses	86.84%

Appendix P - Comparison of Pre/Post Test True and False Questions



Appendix Q - Pre-Test Quantitative Data

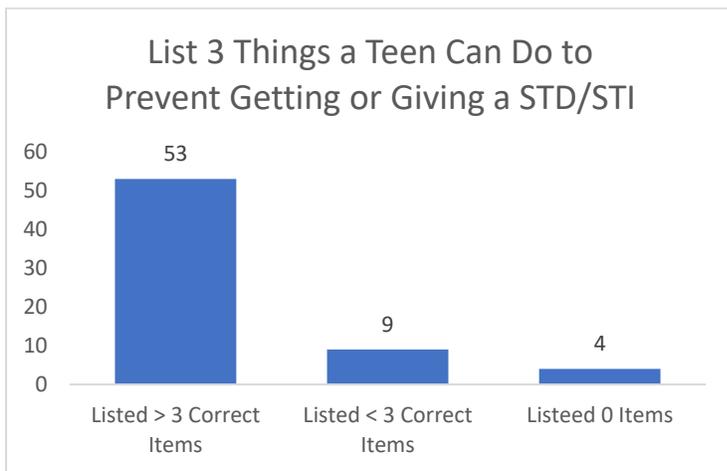
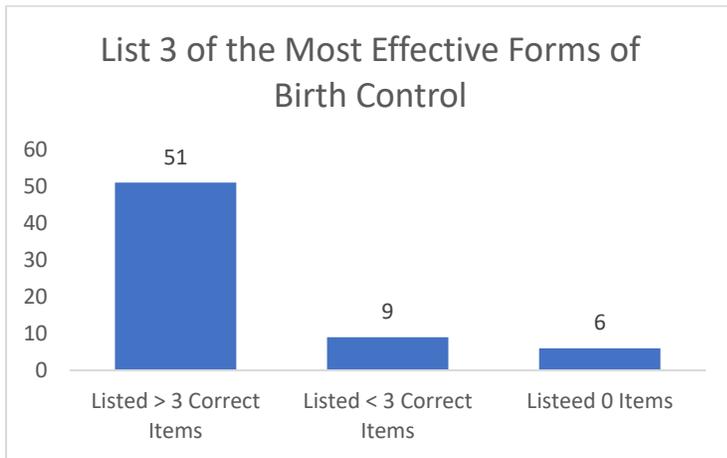
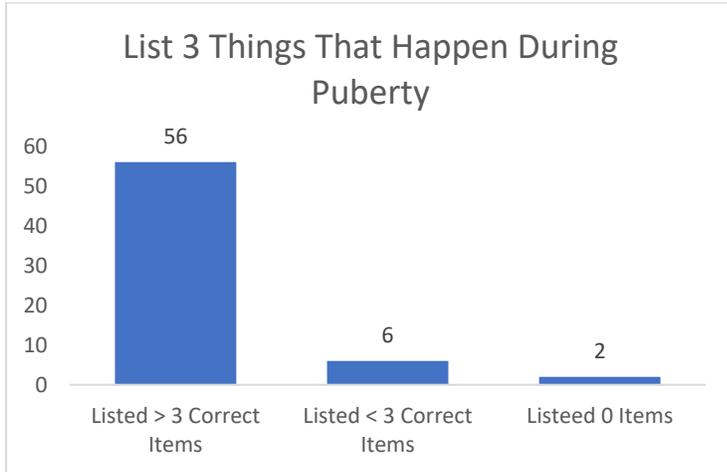


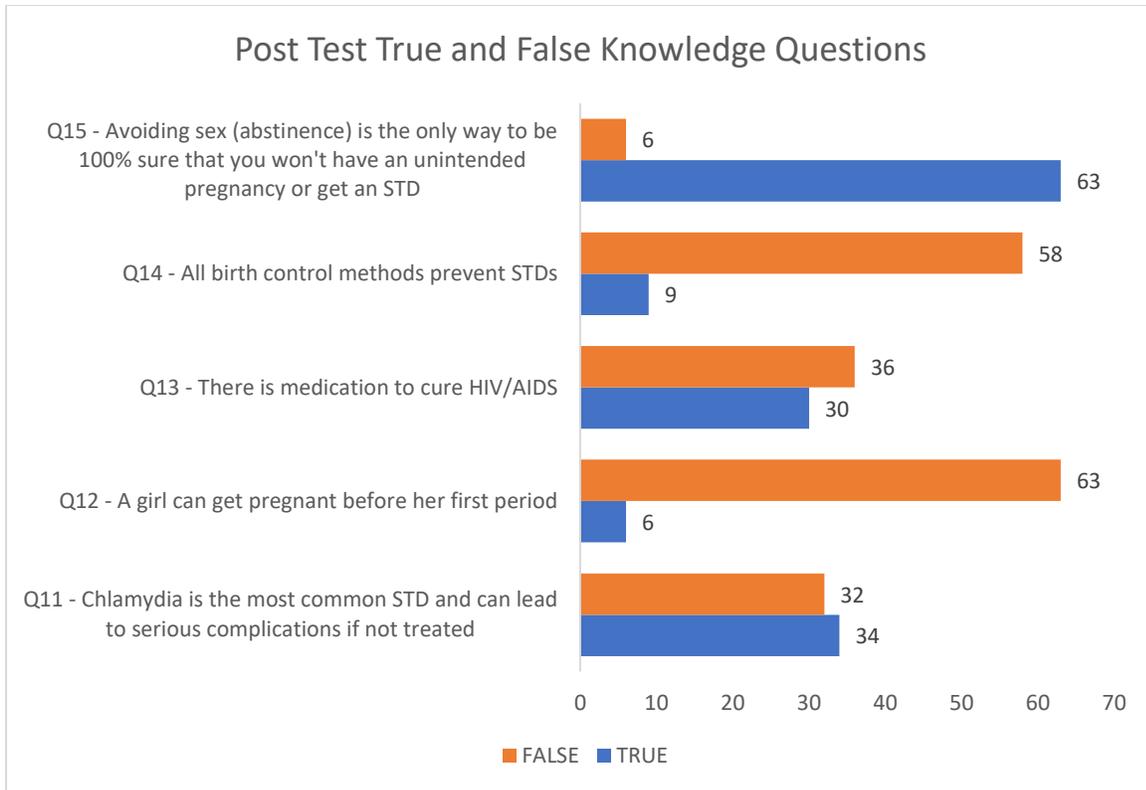
Appendix R - Pre-Test Qualitative Data

<i>Qualitative Analysis</i>				
		<i>Pretest Themes</i>	<i>% of Responses</i>	<i>% Left Blank</i>
Q12	Write down questions you want answered during class	<p>Questioning purpose of the course:</p> <ul style="list-style-type: none"> • “Why do we have to learn this now?” • “Why do we have to learn about how reproduction works when we are only 11? We don’t need to know this yet.” <p>Concerns about STDs:</p> <ul style="list-style-type: none"> • “How to tell if someone has STDs?” • “Can syphilis kill you?” • “What does AIDS do to you?” <p>How puberty effects the body:</p> <ul style="list-style-type: none"> • “Are you stronger or weaker after puberty?” • “What does it feel like to have your period?” • “Is giving birth hard?” <p>Stating that they are not well versed in the subject matter:</p> <ul style="list-style-type: none"> • “I don’t understand anything” <p>Questioning the topics of the quiz:</p> <ul style="list-style-type: none"> • “What is an STD?” • “What is testosterone and estrogen?” • “What is the disease HIV/AIDS?” • “I do not know what all these words mean.” 	<p>3.17%</p> <p>4.76%</p> <p>4.76%</p> <p>1.59%</p> <p>6.35%</p>	74.60%

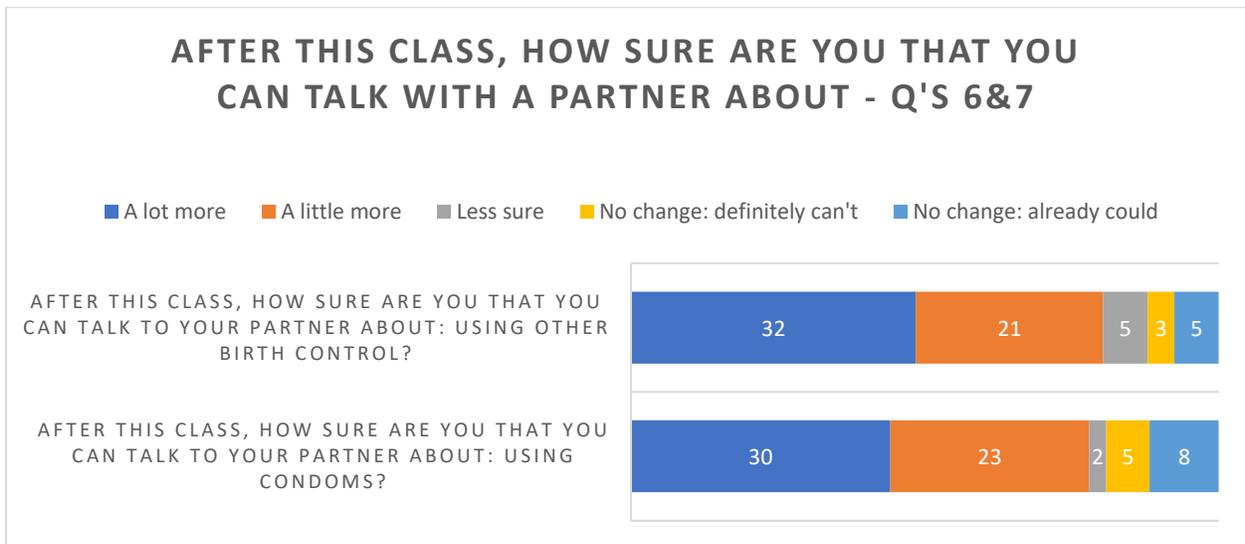
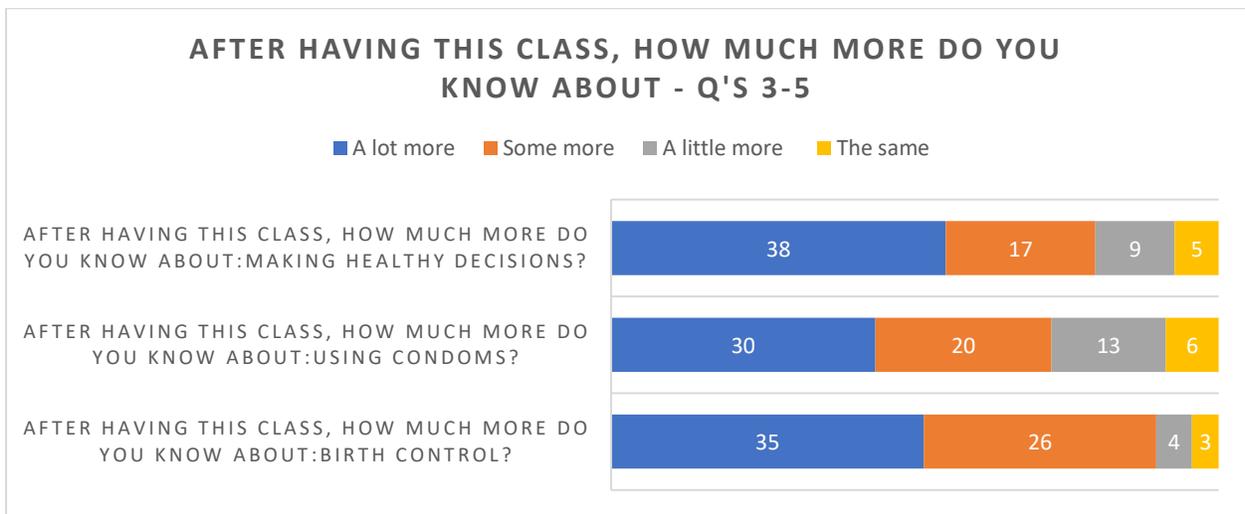
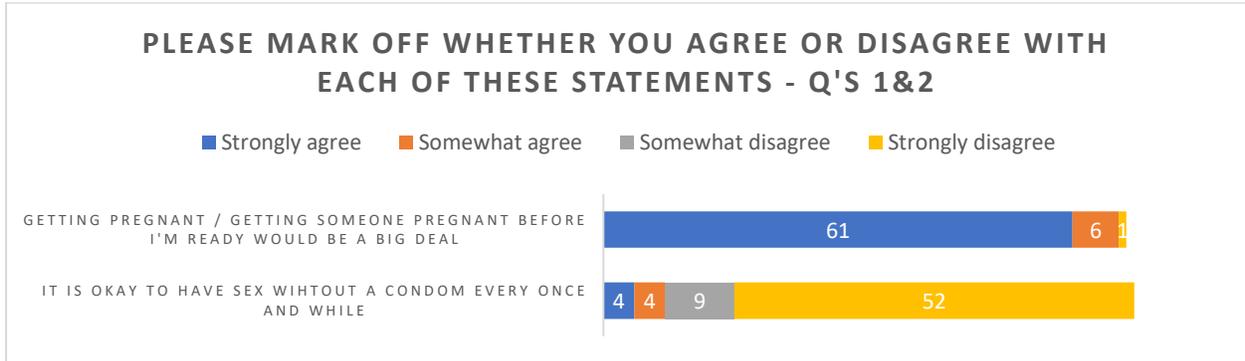
* Roughly 2% student responses were written in the French language. These were translated into the English language for inclusion in analysis of themes and knowledge retention.

Appendix S - Post Test Quantitative Data





Appendix T - Post Test Qualitative Data



		Themes	<i>% of Responses</i>
Q18	Write down any comments you would like to say about this class?	Requesting that the course had been longer: “I would have enjoyed more lessons with more info”	1.45%
		Language was a barrier: <ul style="list-style-type: none"> • “I don’t speak English fluently” • “I don’t speak very English” • “...But in French, please.” 	5.79%
		Lingering Awkwardness: <ul style="list-style-type: none"> • “It was sort of awkward talking about this” 	2.90%
		Appreciation: <ul style="list-style-type: none"> • “I learned a lot more than I thought I would learn” • “I liked this class and learned a lot.” • “This was a great class! I know a lot more an am very grateful” • “Thank you for teaching us more no how to be safe” • “I learned so much” • “I learned things I didn’t know” • “This class was helpful” 	17.39%
		Commentary on materials used in lecture: <ul style="list-style-type: none"> • “I liked the videos!” • “The videos and pictures help to understand.” • “I liked that the teacher used different techniques to teach us.” • “The videos are more effective.” 	7.25%
		Commentary on the content of the lecture series: <ul style="list-style-type: none"> • “This was fun because we learned about birth control as a group.” • “I would have liked to talk about the symptoms of the different STD diseases more” 	2.90%
		Thanking the instructor: <ul style="list-style-type: none"> • “Thank you” • “Thank you for teaching us about being safe and not getting STIs and about puberty” • “I really like our teacher. She always treated us seriously.” 	13.04%
		No Comment(s) Written	47.83%

Appendix U- Post Course Follow Up Qualitative Response Form

Provided Electronically via the School Online Portal

Did you find the course informative ?	96% yes, 4% no
Was the program easy to understand?	96% yes, 4% no
Would you prefer more videos than question and answer period in the course?	69% yes, 31% no
Would you prefer more activities?	69% no, 31 % yes
Would you prefer fewer activities?	17% yes, 83% no
Did the program help you discuss the subject more comfortably with your parents?	66% yes, 34% no
Do you think the program will help you make better decisions in the future concerning the subject?	91% yes, 9 % no
Would you suggest having a similar course again next year in 7th grade?	87% yes, 13% no
Would you recommend the course for next year's sixth grade?	92% yes, 8% no

*Quiz was conducted in this manner to ensure that true reactions could be measured

**80% of the sixth-grade class responded to the survey

Appendix V – Nola Pender’s Health Promotion Model

