What do Indiana Adolescents Really Want from School-based and SMS-delivered Sexual Health Education?

by

Tanisha L. Watkins

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INTRODUCTION

Adolescent sexual health is an acute public health problem in Indiana. STI rates are second highest among the 13-19 age group, and Indiana has the 17th highest teen births rate in the nation (Centers for Disease Control and Prevention [CDC], 2018; Indiana State Department of Health [ISDH], 2015; ISDH, 2013). From 2015-2017, new HIV infections among 15-19-year-olds have increased 23% (ISDH, 2018). In addition to risky sexual behavior, dating violence and sexual assault are significant problems for Indiana teenagers (CDC, 2016; The Indiana Youth Institute, 2017). To improve poor sexual health outcomes among Indiana adolescents, more effective approaches are needed to educate and persuade adolescents to avoid engaging in risky sexual behaviors.

School-based health education is a cost-effective prevention strategy that can help teens adopt healthy attitudes and behaviors, including those that reduce their risk for HIV, sexually transmitted diseases (STDs), and pregnancy (CDC, 2017). Although Indiana law mandates AIDS/HIV education be taught in all public schools, these units do not include sexual health education. Sexual health education is considered a separate subject and is not required to be taught to students. The Indiana Department of Education (IDOE) however, recommends that sexual health education be taught as part of comprehensive health education, but local districts are not required to adhere to this (Instruction on Human Sexuality or Sexually Transmitted Diseases, 2005).

When school-based sexual education is offered to Hoosier teens it appears it often does not reflect their life experiences. State law requires that when human sexuality education is taught, or literature on sexual health is distributed to students, abstinence from sexual activity outside of marriage must be stressed (Instruction on Human Sexuality or Sexually Transmitted

Diseases, 2005). Almost 42% of Indiana adolescents have engaged in sexual intercourse and nearly one-third (32%) are currently sexually active (CDC, 2015). These statistics proving many teens do not abstain from sex until marriage and further demonstrating that Indiana's current sexual health education is out-of-touch with the adolescents' actual behaviors.

Additionally, when sexual health education is available, students may not receive the most effective information. There are two main types of formative sexual health education curricula in the United States; abstinence-only-until-marriage (AOUM) and comprehensive sexual education (CSE). AOUM curricula, the most commonly taught, promotes sexual activity only after marriage and reports birth control as an ineffective method against STDs and pregnancies. A report by the U.S. House of Representatives found such programs frequently espoused medically incorrect information and misrepresented facts about contraceptives, abortion, and the biology of gender (Advocates for Youth, 2009). CSE emphasizes abstinence, but also provides medically accurate information on birth control and condom use. This approach has proven more effective than abstinence-only education to delay the start of sexual activity, increase the use of birth control, lower rates of STI transmission, and the spread of HIV/AIDS (Kohler, Manhart, & Lafferty, 2008).

Indiana is an abstinence-minimum state, meaning comprehensive topics can be taught as long as abstinence is stressed first. Evidence shows, however, that many instructors avoid teaching comprehensive topics. A national report reveals 41.5% of Indiana high school sexual health educators reported teaching students about how to obtain condoms, just 33.6% taught how to use a condom correctly, and only 27.6% of teachers taught all 16 HIV, STD, or pregnancy prevention topics recommended by the CDC (USDHHS & CDC, 2015). Coincidentally, even though 89.6% of Indiana adolescents reported learning about HIV infection in school, 46.6% of

sexually active teens reported not using a condom during their most recent sexual intercourse (ISDH, 2013; USDHHS & CDC, 2015). Such statistics indicate Indiana secondary schools cannot solely rely on HIV education to teach students about how to protect themselves from HIV. It is evident that schools need to expand education about condom use and other contraception within a sexual health curriculum (USDHHS & CDC, 2015).

Problem Statement

The sexual health outcomes of Indiana teens, shows students may be in need of education that will help them make informed and healthy sexual decisions. To effectively impact students' attitudes and behaviors, the content of sexual health education and materials should reflect the age, sexual experience, needs, assets, and culture of young people in the program (Eisenberg, Wagenaar, & Neumark-Sztainer, 1997; Kirby, 2007). One way to improve adolescent sexual health outcomes may be to replace the dominant Indiana paradigm of simply providing abstinence-centered, sexual health curricula with a student-informed, comprehensive sexual health curriculum. Prior research has shown that American students support comprehensive topics such as abortion, pregnancy prevention and homosexuality, and they prefer open, honest classroom environments, trained educators, sexuality education in earlier grades, and interactive presentations in their sexual health education (Eisenberg et al., 1997; Layzer et al., 2014; Orgocka, 2004; Yoo, Johnson, Rice, & Manuel, 2004). A recent global meta-analysis of 25 years of research revealed, however, more research is needed to explore student opinions about topics such as sexting and online safety and who and how school-based sexual health education can be delivered (Pound, Langford, & Campbell, 2016).

Overview and Purpose of the Research

The primary goal of this dissertation is to explore Indiana high school students' preferences for their ideal sexual health education. More specifically I will investigate what students (the consumers of the information) recommend for the content and delivery of sexual health education and what comprehensive topics would they include in a school-based sexual health curriculum. Learning students' preferences for a comprehensive sexual health education is important because it could be helpful in developing more effective materials that lead to behavior change.

Unfortunately, there is not a simple linear relationship between defining students' ideal sex health education and implementing it in school curriculum. Indiana legislators and school board members historically have been reluctant to change legislation and guidelines regarding sexual health education (Hayden, 2015). Given the poor sexual outcomes of Indiana teens, it is imperative to implement strategies sooner than later. It is feasible to effect change in a timely fashion by incorporating student input into sexual health materials that can be distributed by health organizations. Indiana school districts are allowed to supplement their sexual health education with materials from nonprofits, health departments and local health organizations. By partnering with schools, local health departments can distribute student-informed materials after and during classroom presentations, and most promising through their social media sites (SMS).

As adolescents shift their media consumption, SMS are becoming promising avenues to disseminate health information. Although health organizations use these platforms, many state and local health departments have few followers, receive few likes and overall are not reaching or engaging the intended audience (Harris, Mueller, & Snider; 2013; Thackeray et al., 2012). Therefore, a secondary goal of this dissertation is to explore Indiana high school students'

perceptions about receiving SMS-delivered sexual health information from local health departments when school-based comprehensive sexual health education is unavailable. This inquiry will also explore student recommendations for how local health departments can attract and gain adolescent followers to their SMS accounts.

Lastly, health officials need scientific guidance on how to effectively engage adolescents once they follow their SMS accounts. Researchers suggest that user engagement is an important moderator that can help increase the persuasiveness of sexual health information and lead to positive behavior change (Cassell, Jackson, & Cheuvront, 1998; Gold et al., 2011; Neiger, et al., 2012). While health organizations are encouraged to harness the power of SMS to create interactive communities, studies with adolescents have shown the stigma of sexual topics could stifle such conversations (Byron, Albury, & Evers, 2013; Evers, et al., 2013; Veinot, Campbell, Kruger, Grodzinski, & Franzen, 2011; Vyas, et al., 2012). Although young people have recommended the use of private messaging to receive sexual health information (Selkie, Benson, & Moreno, 2011; Veinot et al., 2011) more research is needed to explore how organizations can use SMS features for engagement, especially on newer SMS such Instagram and Snapchat, which are widely popular among teens. Thus, the final goal of this dissertation is to explore how adolescents prefer to engage with others about sexual health information on SMS.

Preview of Subsequent Chapters

Chapter One will provide an overview of the sexual health outcomes of Indiana adolescents and the rules governing the sexual health education Indiana students receive. This section will also contain a review of literature on school-based sexual health education and previous student perspectives.

Chapter Two will review literature on adolescents' uses of SMS and health departments' current uses of SMS for health promotion. Next, there will be an overview of student opinions about receiving sexual health information from health organizations and the challenges these organizations face building communities on SMS.

Chapter Three will review the benefits of SMS health promotion. Specifically, there will be a review of literature on social media engagement and the impact it may have on attitudes and health behavior uptake.

Chapters Four will provide the details of the research design for this dissertation. This section will include research aims, questions, and the methodology for this study.

Chapters Five and Six are beyond the scope of this prospectus. In the final version of this dissertation, Chapter Five will contain results from the collected data. Chapter Six will contain findings and will discuss the limitations of the study and directions for future research.

CHAPTER ONE

Introduction

This chapter will present statistics about the sexual health outcome of Indiana adolescents and reasons why this public health issue requires immediate attention. Next, there will be a review of literature about the appropriateness of schools to address the sexual health needs of students, the two main sexual health curricula offered in the United States, and evidence of each curriculum's impact on sexual health behaviors. Finally, this chapter will describe Indiana's current sexual education guidelines, its effectiveness and how Indiana's current curricula typically does not align with adolescent preferences.

Epidemiological Assessment

Poor Birth Rates. Indiana consistently ranks as one of the worst states for adolescent sexual health. Indiana placed 17 out of 51 (with 1 representing the highest rate) on final 2016 teen births rates among females aged 15-19 (CDC, 2018). Teen births in Indiana are also declining at a slower rate than national average. From 2014 to 2015, the 6% change in the teen birth rate in Indiana, was lower than the 8% national average, making the state's teen birth rate higher than the nation for both 15-17 and 18-19 year-olds (Office of Adolescent Health U.S. Department of Health & Human Services, n.d.). The consequences of poor adolescent sexual health outcomes are not limited to the teenagers themselves. In 2010, teen births cost Indiana taxpayers close to $227 million (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2014). These costs include health care, foster care, incarceration costs for children of teen mothers, and loss of tax revenue from low educational and occupational attainment of teen mothers. Thus, improving teen pregnancy rates stands to benefit all Indiana residents.

Poor STD Outcomes. Improving STD outcomes among Hoosier teens is also a top public health concern. According to ISDH's 2015 Spotlight Semi-Annual Report, STI rates are second highest among the 13-19 age group. Teenagers 19 and under account for 31.6% of all chlamydia cases, 24.8% of all gonorrhea cases, and 6.5% of all syphilis cases in Indiana (ISDH, 2015). As a result, Indiana nationally ranks 22nd among the 50 states in chlamydia infection, 17th for gonorrhea, and 26th for syphilis in this age group (CDC, 2013). HIV infection is also on the rise for this population. Although the highest rates of new HIV infections were not among adolescents, from 2015-2017, new HIV infections among 15-19-year-olds increased 23% (ISDH, 2018).

Current Sexual Activity. Results from the 2015 Youth Risk Behavior Survey (YRBS), also suggests the need for immediate and effective intervention. The YRBS is a nationally distributed questionnaire that gathers information biannually from high school students. The YRBS is a part of the Youth Risk Behavior Surveillance System (YRBSS) which measures behaviors related to the leading causes of mortality and morbidity among both youth and adults and assesses how these risk behaviors change over time (CDC, 2015). The behaviors are grouped into six categories and one focuses on sexual behaviors that contribute to unintended pregnancy and STDs. 1,912 students from 43 Indiana public high schools participated in the spring 2015 survey. The school response rate was 73%, the student response rate was 82%, and the overall response rate was 60%. The results are representative of all Indiana students in grades 9-12.

The 2015 YRBS reveals the current sexual behaviors of Indiana high school students. 41.7% of adolescents reportedly have had sexual intercourse and almost one-third (31.7%) are currently sexually active. 46.6% of sexually active students reported not using a condom during their last sexual encounter. Additionally, in 2011 13% of sexually active students reported not

using any method of pregnancy prevention during their last sexual encounter, in 2015, that number increased to 15.5% (Centers for Disease Control and Prevention, 2015).

Dating Violence and Sexual Assault. In addition to risky sexual behavior, dating violence and sexual assault are also significant problems for Indiana teenagers. Indiana ranks third highest out of 30 states in the percentage of high school students who reported experiencing sexual dating violence during the past 12 months (CDC, 2016). The YRBS defines sexual dating violence as an encounter in which a student was forced to kiss, touch or have sex with someone they were dating or going out with. Since 2001, adolescent dating violence rates in Indiana have consistently been higher than the national average. In 2015, 1 out of 8 or 12.6% of Indiana students reported being victims of sexual dating violence, 10% reported being victims of physical dating violence, the national averages were 10.6% and 9.6 respectively (The Indiana Youth Institute, 2017).

It is important to address dating violence as a public health concern. Even if an instance of dating violence occurs once, it increases a student's susceptibility to other risk factors. An independent analysis of the 2011 YRBS responses revealed, when compared to students who were not victims, Indiana students who were victims of dating violence were 4.14 times more likely to report a history of sexually transmitted disease (Northeast Indiana Area Health Education Center & Office of Institutional Diversity Ball State University, n.d.). The study also found that students who reported abuse were 4.40 times more likely to be forced to have sex.

Summary. The current behaviors, sexual climate, and poor sexual health outcomes among Indiana teens demonstrate why improving adolescent sexual health should be a state public health priority. One way to decrease poor health outcomes is to provide teens with adequate sexual health instruction that can help them make responsible sexual decisions

throughout their adolescence and into adulthood. School-based sexual health education is a practical, economical, and effective approach to improving adolescent sexual behaviors (CDC, 2017). The next section will discuss the importance of sexual health education and the current sexual health instruction in Indiana.

Sexual Health Education

Why focus on school-based sexual health education. Adolescents can receive sexual health education from a variety of sources such as parents, peers, media, and churches. These sources, however, may not provide the most accurate or effective instruction. For instance, parents have reported having difficulties talking about sex and need guidance on how to approach such discussions; especially on topics such as birth control and pregnancy prevention (Newby, Bayley, & Wallace, & 2011; Planned Parenthood Federation of America & Center for Latino Adolescent and Family Health, 2011). Despite a national decline in adolescents' receipt of formal sex education, parents have done a poor job of filling these gaps by educating their teens on their own (Lindberg, Maddow-Zimet, & Boonstra, 2016). Although parents commonly discuss how to say no to sex, there is little discussion about contraception, access to birth control and boys are more likely than girls to receive information about STDs and condom use (Lindberg et al., 2016). The authors argue that adolescents need other sources outside of their parents to receive balanced and comprehensive sexual health information.

Teens have also reported being uncomfortable receiving parent-child sexual communication. In one national survey, only 17.5% teens reported feeling very comfortable talking to their parents about sex (Planned Parenthood, 2012). Another survey found that close to 1 in 4 teen girls and 1 in 3 teen boys do not talk with their parents at all about how to say no to sex, birth control, and STDs (Lindberg et al., 2016). When teens feel uncomfortable talking with

their parents, they may turn to their peers for sexuality information. Peer influence can play a critical role in adolescent risky sexual behaviors (Widman, Choukas-Bradley, Helms, & Prinstein, 2016). For some adolescents, the peer influence may be positive in that it is an outlet for their questions and concerns, but, for many, the peer influence can be detrimental (Croatt, 2012). A sense of insecurity when communicating about sex and fear of rejection can cause some adolescents to silence their beliefs and change their behaviors in order to gain respect from their peers (Shoveller, Johnson, Langille, & Mitchell, 2004). Peer influences have also been shown to increase the likelihood of engaging in sexual intercourse, unprotected sex and oral sex (Miller & Moore, 1990; Prinstein, Meade, & Cohen, 2003; Sieving, Eisenberg, Pettingell, & Skay, 2006).

Challenges with parents and peers to disseminate reliable information makes school-based sexual health education an ideal source to fill the gap. Since students spend a majority of their time at school, this is an opportune setting to shape students' attitudes and behaviors. Most students are in school at least "6 hours a day for 13 years of their social, physical, and intellectual development" (CDC, 2010). By providing well-designed, well-implemented, school-based sexual health education, schools can help young people adopt lifelong attitudes and behaviors that support their health and well-being (CDC, 2017). In addition, many sex and STD/HIV education programs are already well designed to be implemented in school classrooms (Kirby, 2007). School-based sexual health education is also a cost-effective prevention strategy; educators can cover a variety of topics with many students all at once. A study conducted by the CDC found that for every dollar invested in an effective school-based HIV, STD, and pregnancy prevention program, $2.65 in medical costs and lost productivity were saved (CDC, 2017).

AUOM sexual education vs. Abstinence-plus comprehensive sexual education.

School-based sexual health education was first introduced in the early 1900s and remains the

primary source of sexual health instruction for adolescents in the United States (Guttmacher Institute, 2017; Huber & Firmin, 2014). There are two broad categories for sexual health education, abstinence-only-until-marriage (AOUM) sexual health education and abstinence-plus (also known as comprehensive sex education) sexual health education. According to Section 510 of Title V of the Social Security Act of 1996, the federal government defines AUOM education as an educational or motivational program that contains the following eight components [42 U.S.C. 710]:

> (A) has as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity;
>
> (B) teaches abstinence from sexual activity outside marriage as the expected standard for all school age children;
>
> (C) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems;
>
> (D) teaches that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity;
>
> (E) teaches that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects;
>
> (F) teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society;
>
> (G) teaches young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances; and

(H) teaches the importance of attaining self-sufficiency before engaging in sexual activity.

As evidenced by these guidelines, the central rationale of AOUM education is to increase risk avoidance by promoting that teens delay sex until marriage (Weed & Ericksen, 2017). This approach does not teach about contraception or condom use, avoids instruction on abortion, and cites sexually transmitted diseases and HIV as reasons to remain abstinent (Collins, Alagiri, Summers, & Morin, 2002).

Comprehensive sexual education (CSE) programs emphasize abstinence but also offer information on contraception and protection against STDs (Bleakley, Hennessy, & Fishbein, 2006). Currently there are no federal guidelines governing CSE, instead the Sexuality Information and Education Council of the United States (SIECUS) developed the National Guidelines Task Force (NGTF) to develop the *Guidelines for Comprehensive Sexuality Education — Kindergarten–12th Grade.* The guidelines, which were first published in 1991 and last updated in 2004, identify the role of sexuality education in promoting sexual health:

(A) It provides accurate information about human sexuality, including growth and development, anatomy, physiology, human reproduction, pregnancy, childbirth, parenthood, family life, sexual orientation, gender identity, sexual response, masturbation, contraception, abortion, sexual abuse, HIV/AIDS, and other sexually transmitted infections.

(B) It helps young people assess, contemplate and develop healthy attitudes about society, gender and sexuality. This education can help improve critical-thinking skills, increase self-esteem and self-efficacy and help young people understand how their sexuality is shaped by and affects their families and society at large.

(C) It helps young people develop communication, decision-making, assertiveness, and peer-refusal skills so when they are adults they can create reciprocal, caring, non-coercive, and mutually satisfying intimacies and relationships.

(D) It encourages young people to make responsible sexual decisions such as practicing abstinence, postponing sexual intercourse and resisting sexual pressures.

Compared to AOUM, CSE includes a greater variety of sexuality related topics. Researchers note that CSE also better covers a spectrum of teens by simultaneously providing useful information to students who are virgins and those who are sexually active, regardless of their sexual orientation (Weed & Ericksen, 2017). A guiding rationale behind CSE is the assumption that a sizable proportion of adolescents will engage in sexual activity (Weed & Ericksen, 2017). Therefore, CSE aims to protect teens by teaching risk reduction approaches, such as condom use, condom negotiation, and contraceptive use, that can help minimize the chances of becoming pregnant and contracting STDS.

Controversy over Sexual Health Education Approaches. Sexual health education was controversial from its inception and remains a contentious public topic of debate. One of today's main disagreements stems from whether public schools should offer AOUM or CSE curricula (Stanger-Hall & Hall, 2011). Moral and religious observations have been reasons proponents favor AOUM education. Some believe that teaching young, unmarried people where to obtain condoms and contraception, and how to use them, encourages immoral or unhealthy sexual behavior and will thereby increase rates of STD and pregnancy (Kirby, 2007). Others believe that abstinence is the best, most effective protection against STDs and pregnancy and oppose classroom instruction that includes safer sex safe practices such as condom and contraception use because they are not foolproof (Concerned Women for America, 1998). AUOM advocates have

also expressed concern that information about safe sex will encourage early sexual activity among young people (Starkman & Rajani, 2002).

One reason opponents dislike AUOM education is because these programs have been found to frequently espouse medically incorrect information. A 2004 U.S. House of Representatives report revealed 80% of federally-funded AUOM programs used information that contained scientific errors and misrepresented facts about contraceptives, abortion, and the biology of gender (Waxman, 2004). Additionally, social justice advocates argue that AUOM education discriminates against women, girls, and can be harmful to LGBTQ youth. Organizations such as The Center for Reproductive Rights and Human Rights state that AUOM curricula often rely on stereotypes that undermine female sexual decision-making and reinforce the stigma and hostility that LGBTQ youth already experience by teaching primarily about heteronormative intercourse (Center for Reproductive Rights & Human Rights Watch, n.d.). To promote a healthy environment for all youth, researchers have recommended that schools ensure health curricula and materials include HIV and STD information that is relevant to LGBTQ youth (Hatzenbuehler, Birkett, Van Wagenen, & Meyer, 2014; Mustanski, Greene, Ryan, & Whitton, 2015; Pingel, Thomas, Harmell, & Bauermeister, 2013).

Effectiveness of sexual health education curricula. The biggest argument for CSE, perhaps, is that AUOM education has proven ineffective in changing adolescent risky sexual behaviors and delaying sexual debut. Several studies and systematic reviews have concluded that AUOM instruction is less effective at reducing sexual risk behaviors when compared to CSE (Chin et al., 2012; Kirby, 2007; Kirby, 2008; Silva, 2002; Trenholm et al., 2008; Underhill, Montgomery, & Operario, 2007). Kirby (2008) conducted a systematic review of 56 studies completed or published after 1990 that compared the impact of AUOM and CSE programs on

adolescents' sexual behaviors. This review is often cited because the inclusion criteria excluded studies that were poorly designed and did not meet reasonable standards for scientific evidence, providing an objective and fair comparison between the two program types. 48 comprehensive education programs were included in the review while only 9 AUOM programs met the inclusion criteria.

Only one-third of the AUOM programs were shown to have had some positive impact on adolescent sexual behavior. Two AUOM programs were able to delay the initiation of sex and the frequency of sexual intercourse and one study was effective in reducing the number of partners. None of the AUOM studies increased condom use, contraceptive use, or decreased sexual risk taking. In contrast, nearly two thirds of comprehensive programs showed strong evidence that they positively affected young people's sexual behavior. 47% of programs delayed the initiation of sex, 29% reduced the frequency of sex and 46% reduced the number of sexual partners (Kirby, 2008). Results became slightly more positive when the author excluded studies that had quasi-experimental designs and only examined those with rigorous experimental designs. The author concluded that the evidence shows CSE programs produce better behavioral outcomes and such programs warrant widespread replication.

More recent meta-analyses conducted by the CDC confirmed Kirby's findings. Chin and colleagues (2012) conducted two separate systematic reviews on 21 AUOM and 62 CSE programs to evaluate their effectiveness for reducing adolescent pregnancy, HIV and STIs. Using the random-effects model to account for between and within-study variability, data was aggregated across all studies and an overall weighted mean OR with corresponding 95% CIs was calculated for each study (Sipe et al., 2012, p. 300). Results showed that CSE programs were effective in reducing the frequency of sexual activity, the number of sexual partners, unprotected

sexual activity, decreasing STI infections and pregnancy and increasing the use of protection (Chin et al., 2012). The review of AUOM interventions did suggest reductions in sexual activity, however because of large differences in study effect estimates, the researchers stratified the studies by type of study design and found a nonsignificant effect on the frequency of sexual activity. Researchers, thus, were unable to draw clear conclusions about the effectiveness of abstinence education programs.

AUOM sexual health education has also been found to have the same effect on teenage sexual behavior as not receiving any sexual education at all (Collins, Alagiri, Summers, & Morin, 2002). In a survey comparing the sexual health risks of adolescents who received AUOM, CSE or no formal sex education, researchers discovered that students who received CSE had a significantly reduced risk for teen pregnancy and a marginally reduced risk of initiating sexual activity than adolescents who received AUOM or no sex education (Kohler et al., 2008). An evaluation of four Title V, Section 510 abstinence education programs also revealed there was no significant differences on rates of sexual abstinence between control and program youth (Trenholm et al., 2007).

A possible explanation for AUOM programs' inability to effect behavioral changes could be they fail to address the realities of adolescent life. In Indiana, as well as nationwide, many adolescents are not abstaining from sex. By providing AUOM education, schools miss key opportunities to provide adolescents with information that reflects their actual and not just ideal behaviors. The shift in cultural mores regarding sexuality such as the increase in premarital sex and sexual messages in the media may be eroding the attainment of abstinence goals sought by educational interventions (Silva, 2002).

Summary. School-based sexual health education is a cost-effective way to provide adolescents with information they can use to make responsible sexual health decisions. Unfortunately, many students are not receiving the most effective instruction. Despite the ineffectiveness of AUOM program, they continue to be the norm in public schools offering sexual education (Guttmacher Institute, 2017). Researchers have stated to best impact students' attitudes and behaviors, the content of sexual health education and materials should reflect the age, sexual experience, needs, assets, and culture of young people in the program (Eisenberg et al., 1997; Kirby, 2007). It appears that AUOM curricula do not accomplish this and they are out of touch with the realities of adolescent sexual behavior. Unlike comprehensive programs, AUOM appears not to offer information that is as relevant and meaningful to most teens. The prevalence of sexual activity among adolescents and their poor sexual health outcomes demonstrates that adolescents need CSE. AUOM programs do not warrant widespread dissemination and schools throughout the country, particularly those in Indiana, should consider adopting CSE curricula to best serve their students.

Current sexual health education in Indiana. Indiana has an optional, abstinence-minimum sexual health education policy. State law only mandates that schools provide HIV/AIDS education; however, sexual health education is considered a separate subject and is not required to be offered to students. Individual school districts have the option of providing instruction to students in the 6th grade or higher. If sexual health education is taught, state law requires instruction to stress abstinence as the expected standard of behavior. This however, does not make Indiana an AUOM state, instead it is abstinence-minimum, meaning comprehensive topics can be taught as long as abstinence is stressed first. While the state sets up the general

curriculum, it is up to each school district to decide if, when, how much and what type of sexual health education instruction is available to students.

Although each school district can create their own curriculum, evidence shows many avoid teaching comprehensive topics. The 2014 School Health Profile (SCP) is a national survey that assesses the percentage of secondary schools that implement specific policies and practices recommended by the CDC to address critical health problems faced by children and adolescents (USDHHS & CDC, 2015). 300 principals and 295 lead health education teachers from a sample of Indiana middle and high schools each completed a self-administered questionnaire. Results show just 41.5% of Indiana teachers taught high school students how to obtain condoms, one-third taught students how to use condoms correctly, and only 28% taught all 16 HIV, STD, or pregnancy prevention topics recommended by the CDC (USDHHS & CDC, 2015). Only 20% of high school educators taught about all seven contraceptive types and just 20.5% of all secondary schools surveyed provided curricula or supplementary materials that included HIV, STD, or pregnancy prevention information relevant to LGBTQ youth (USDHHS & CDC, 2015).

Statistics also suggest that HIV education may need to be supplemented with sexual health education in order to be more effective. Even though 89.6% of Indiana adolescents reported learning about HIV infection in school, 46.6% of sexually active teens reported not using a condom during their most recent sexual intercourse (ISDH, 2013; USDHHS & CDC, 2015). Implications from the SCP survey, as well as the poor sexual health outcomes of Indiana teens, shows students are not receiving the most relevant education they need to make safe healthy sexual decisions. National health organizations have recommended that Indiana secondary schools expand education about LGTBQ youth health, condom use and other contraception in their sexual health curriculum (USDHHS & CDC, 2015).

To better improve adolescent sexual health outcomes, Indiana school officials should replace abstinence-minimum sexual health curricula with a mandatory, standardized CSE curriculum. There are CSE curricula that Indiana school officials can easily adopt and implement, however researchers contend that teens' own thoughts are important to consider when promoting adolescent sexual health (Eisenberg et al., 1997; Herrman, Kelley, & Haigh, 2017; Kimmel et al., 2013). A youth-centered approach may be instrumental to helping young people make autonomous informed decisions regarding their own sexual health (Kimmel et al., 2013, p. 182). Therefore, to develop the most meaningful information, Indiana school officials should not just adopt an existing CSE curriculum, but instead develop one that is guiding by youth insight. Although researchers advocate for youth-informed curricula, youth perspectives about sexual health education, especially those of American adolescents, remain relatively absent from scholarship (Eisenberg et al., 1997; Hermann, Kelley & Haigh, 2017; Kimmel et al., 2013; Pound, Langford, & Campbell, 2016). The next section will review the available literature on adolescent perspectives about school-based sexual health education.

Student Perspectives about Sexual Health Education

Global youth perspectives of school-based sexual health education. A recent meta-analysis of qualitative studies of young people's opinions about school-based sexual health education shows much of the available research has taken place outside of the United States (mostly in the United Kingdom) (Pound et al., 2016). Despite the geographical reach and time of the studies, the authors report young people's views are relatively consistent. The results reveal two main themes: 1) schools have done a poor job of treating sexual health education as a special, distinctive topic and 2) schools have difficulty accepting that young people are sexually

active and thus sexual health education is out of touch with many young people's lives, especially those that are sexually active.

The first theme shows youth view sexual education as a powerful, sensitive topic and they want educators to be mindful that it cannot be treated in the same manner as other topics (Pound et al., 2016). Due to the sensitivity of the topic, students frequently discussed wanting qualified and trained sexual health educators. Teachers were generally regarded as unsuitable for sexual health instruction as they often were perceived as untrained, unprepared and embarrassed to talk about sex (Pound et al., 2016). This affected students' perceptions of the quality of the education they received and their willingness to ask questions. Confidentiality, credibility and freedom from judgement were highly regarded qualities students desired from educators. Youth reported hesitation sharing personal information with the teachers they interacted with on a daily basis, thus some youth prefer to receive information from peer educators and health professionals.

Although students express discomfort receiving information from their teachers, the authors of the study argue that with this insight, teachers are the most sustainable sexual health educators given their already established positions in schools (Pound et al., 2016). The findings suggest that educators could improve instruction and their trustworthiness by creating safe and confidential spaces for discussion. Teachers could better maintain control over the classroom by establishing ground rules for discussion and engaging in group talk rather than singling out individuals. Teens also reported that specialness could be achieved if sexual health education was not overly biological and moralistic. The authors emphasize that part of the effectiveness of sexual health education largely depends upon the educator delivering it (Pound et al., 2016). The authors recommend that schools acknowledge the delicacy of providing sexual health

information and investigate ways to deliver education that makes students and educators feel safer.

Youth perspectives reveal globally that sexual health education content fails to discuss issues relevant to their reality and preferences. Students reported disliking abstinent messaging, finding it unrealistic and many wanted sexual health education offered to them earlier (Pound et al., 2016). Youth also want to have open dialogue about sex, content that matched their emotional and sexual maturity and topics that covered a range of sexual activities outside of heterosexual intercourse. Sexually active teens wanted education that reflected their actual experiences specifically information about community health services, options if pregnancy occurs, an overview of contraceptive methods, and conversations about emotions and relationships (Pound et al., 2016).

U.S. youth support comprehensive sexual health education. Like Pound, Langford, & Campell's (2016) findings, much of the existing literature on American youths' perspectives of school-based sexual health education, concludes that teens are in favor of comprehensive sexual education (Aquilino & Bragadottir, 2000; Eisenberg et al., 1997; Hammonds & Schultz, 1984; Herrman, Kelley, & Haigh, 2017; Kimmel et al., 2013). Teens have expressed that while abstinence is a valuable part of sexual health education it should not be the only content covered, and it may be most suitable for younger students (Aquilino & Bragadottir, 2000; Kimmel et al., 2013). Eleven focus groups with 75, 14-17-year-olds revealed students dismissed the concept of abstinence-only education and wanted education that described what sex was like (Herrman, Kelley, & Haigh, 2017). Students' support for CSE has largely been driven by the desire to have curricula that is developmentally appropriate, truthful, inclusive of the positives and negatives of sexual behavior, meaningful and "real" (Herrman, Kelley, & Haigh, 2017, p. 91; Kimmel et al.,

2013). Students report being more comfortable when they felt their lives and needs were understood by teachers adding that sexual health education would be better received and effective if it provided realistic examples and focused on current issues of adolescent life (Eisenberg et al., 1997; Herrman, Kelley, & Haigh, 2017; Kimmel et al., 2013).

U.S. youth sexual health education content preferences. Youth recommendations for sexual health education covers a breadth of topics. Eisenberg et al. (1997) were among the first to specifically explore, U.S. student preferences for school-based sexual health education. Focus groups with 29 Minnesota high school 9th-12th graders, revealed students' ideal curriculum would include information about outside resources, consequences of sexual activity, homosexuality, abortion, reproduction, parent communication, sexual violence, decision making and social factors such as stereotypes and gender roles. Over the past 20 years, these content choices have remained relatively the same. Access to resources, decision making, parent communication, information about contraceptive use and STD prevention continue to be frequently suggested as topics adolescents want in their sexual health curriculum (Aquilino & Bragadottir, 2000; Hermann et al., 2017; Kimmel et al., 2013).

Newer research has revealed that some adolescents want the tone of sexual education to change. Eleven focus groups conducted with 75 high school students (ages 14-17) revealed that students believed that consequence-based messages did not impact behavior and instead wanted information that focused on the positive aspects and safer practices of sexual activity (Hermann et al., 2017). This largely includes learning about the emotional aspects of being sexual active and how it can impact relationships (Aquilino & Bragadottir, 2000; Hermann et al., 2017; Kimmel et al., 2013). Similar to Pound et al., (2016), Kimmel and colleagues (2013) found that youth want safer sex instruction to include discussions about self-pleasure and discover that

young people also want male and female condom demonstrations covered in their sexual health materials. Therefore, researchers recommend that sexual health education "adopt a sex positive approach, in which pleasure and the rewards of sexual activity are framed favorably while addressing the inherent responsibilities" (Herrman et al., 2017, p. 96).

Gaps in the literature

Studies that document American youth perspectives about school based sexual health education have been sparse over the past 30 years. The studies that are available, have all arrived at similar conclusions by using similar data collection and analysis methods. Although the study instruments differed in each study, they all used a semi-structured interview approach. Focus group transcripts were analyzed, coded and themes about what content preferences were generated from student responses. The confirmability in results strengthens the trustworthiness of findings, however youth may not readily recall all of the topics they may want in sexual health education. To further advance the literature, this dissertation will use surveys along with focus groups to help solicit ideas among participants.

Next, advances in technology, the Internet, and the influence they each have on sexual socialization warrant exploration on whether adolescents believe they these topics should be included in sexual health education. Pound et al. (2016) found no studies that explored young people’s views of sexual health education that covered topics about sexting or online safety. My own search shows no documentation of student views about consent and social media, all topics that have recently become pervasive in American culture. Lastly, although students have shown support for including homosexuality as a topic in sexual health content, research has not explicitly explored student opinions about incorporating topics related to LGBTQ sexual health. Interviews with 30 young gay, bisexual and questioning men's (YGBQM) revealed that the ideal

school-based sex education would provide content that explained different desires people may experience, different sexual orientations and gender identities, and presentations of sexual behaviors beyond vaginal-penile sex such as anal sex (Pingel et al., 2013). The specificity of these topics go beyond the broad topic of homosexuality and need more investigation.

RESEARCH AIMS, AND QUESTIONS

Knowing and incorporating student feedback into sexual health education is vital to developing a curriculum and instructional methods that will resonate with them. To impact students' attitudes and behaviors through sexual health education and develop relevant content, we need to hear the lived experiences of Indiana adolescents and their recommendations for their ideal sexual health curriculum. The aims of this dissertation are as follows:

Research Aim 1 is to explore Indiana adolescents' opinions about their current sexual health curriculum.

RQ1: What are Indiana adolescents' current opinions about the content of their current sexual health curriculum?

RQ2: What are Indiana adolescents' current opinions about the content of their current sexual health curriculum?

RQ3: What are Indiana adolescents' opinions about their current sexual health instruction?

Research Aim 2 is to explore Indiana adolescents' recommendations for their ideal sexual health curricula.

RQ4: What topics would students include in their ideal sexual health curriculum?

RQ5: What type of material would students include in their ideal sexual health curriculum?

RQ6: What type of instruction would students prefer in their ideal sexual health curriculum?

Schools are not the only institutions that can benefit from learning what students desire in their ideal sexual health education. The next chapter will review the challenges and successes health organizations experience trying to disseminate sexual health education to adolescents and how health organizations can help provide sexual health information when schools cannot quickly implement the changes students desire.

CHAPTER 2

This chapter begins by reviewing how adolescents currently use SMS, how SMS are becoming emergent health education tools and adolescent perspectives about using SMS for sexual health information. This chapter will close by exploring the successes and challenges health departments face trying to connect with adolescents on SMS.

Introduction

Learning what students want in their sexual health education can help develop more effective curricula and improve sexual health outcomes, however, the gap between finding out what students want and implementing the changes they desire is quite a large task. In Indiana, despite evidence that CSE programs are more effective than abstinence-only programs, Indiana legislators historically have been reluctant to changing laws governing sexual health education. Convincing lawmakers, changing legislation, developing a curriculum and producing new materials could mean comprehensive sexual health education may not be available for Indiana teens for years to come. The poor sexual outcomes of Indiana youth demonstrate that teens need immediate access to up-to-date sexual health information, making the issue of this dissertation quite important.

Indiana school districts are allowed to supplement their sexual health education with materials from nonprofits, health departments and local health organizations. These organizations could possibly help schools more readily provide comprehensive sexual health education to their students. Since state and local health departments would not face the same administrative and political barriers as schools, they possibly could more quickly incorporate student feedback into materials. By partnering with schools, health departments can distribute student-informed materials after and during classroom presentations, and most promising

through their social media sites (SMS). A secondary goal of this dissertation is to explore Indiana high school students' perceptions about receiving SMS-delivered sexual health information from local health departments when school-based comprehensive sexual health education is unavailable. This inquiry will also explore student recommendations for how local health departments can attract and gain adolescent followers.

Sexual Health Instruction

U.S. youth sexual health instructional preferences. Research shows adolescents agree that sexual education should be taught in schools, however studies have documented student dissatisfaction with sexual health educators' performance and instruction (Aquilino & Bragadottir, 2000; Hermann et al., 2017; Kimmel et al., 2013). Youth perceive teachers as uncomfortable and untrained when they want open, straightforward, detailed instructions about sex (Hermann et al., 2017; Kimmel et al., 2013). African-American young people (ages 14-23), reported that instructors followed curricular materials too rigidly and provide material without explanation, thus stifling in-depth conversation and question asking (Kimmel et al., 2013). Hermann and colleagues (2017) found similar results, with participants reporting their instruction was not in-depth and there was a need for updated materials. Adolescents have also complained about teachers' inability to cultivate sex-positive or "safe" classroom environments (Eisenberg et al., 1997; Kimmel et al., 2013). Young people reported being afraid to ask questions for fear they would be humiliated by peers. Teachers' presentation style has also impacted youth involvement in classroom discussion. Students reported not asking questions when teachers appeared to be uncomfortable about a sexual health topic (Pound, Langford, & Campbell, 2016). Overall, student responses indicate that teachers who are uncomfortable discussing sex would be unable to teach it effectively (Pound et al., 2016). Moreover, even if teachers were comfortable with the

material, presentations that created embarrassment among students, would make teaching the material ineffective.

To eliminate or compensate for these problems adolescents have recommended peer and professional educators over teachers when it comes to sexual health education (Kimmel, et al., 2013; Pound et al., 2016). Youth want credible information and anonymity when receiving sexual health information and have discussed becoming uncomfortable receiving such information from teachers they interact with on a daily basis (Pound et al., 2016). The medical expertise of doctors and nurses and the confidentiality they must ensure, have therefore made them attractive choices. Teens also want educators who have knowledge of reproductive health and access to contraception, further making health professionals a preferred option. (Aquilino & Bragadottir, 2000; Eisenberg et al., 1997; Hermann et al., 2017).

One study found that health professionals were more effective than classroom teachers when delivering sexual health information to high school students (Borawski et al., 2015). Teachers and school nurses were both effective in conveying sexual health information, however, students in nurse-led sessions had more significant changes in attitudes, beliefs, and efficacy up to a year after the intervention. The results imply health education teachers should not bear the sole responsibility of teaching adolescents about sexual health and involving health professionals could benefit sexual health instruction (Borawski et al., 2015). Health professionals have a unique set of skills and experiences that appear to be useful in teaching the technical and interpersonal skills needed to reduce risky sexual behavior (Borawski et al., 2015).

Borawski and colleagues (2015) recognize due to fiscal constraints and student demands, it may not be realistic for schools to use school nurses in sexual health classes. Outside health professionals also may not have time and resources to commit to teaching classes daily.

Therefore teachers remain the most viable option for providing sexual health information to adolescents (Pound et al., 2016). Adolescents have recommended field trips to sexual health clinics and classes at clinics as ways to incorporate health professionals into school-based sexual health education, other ways health professionals can aid in sexual health education are not well documented (Pound et al., 2016).

Indiana schools could strike a balance by partnering with local health departments (LHDs) to supplement sexual health education. LHDs can be a key partner in school-and district-level efforts to strengthen student wellness and often provide expertise, support, and evidence-based resources to schools looking to strengthen the health environment for both students and staff (NACDD, 2017). One way LHDs can provide ongoing education to students is by disseminating information through social media sites (SMS). SMS are emerging as important resources in public health. They offer an inexpensive way to disseminate timely, tailored, science-based, health information to large audiences at one time (CDC, 2011). The next section will provide an overview of SMS, adolescent SMS use, and adolescent opinions about receiving sexual health information on SMS.

Social Media Sites

SMS Trends. Based on a widely used definition of SMS from public health studies (e.g. Gough et al., 2017; Landry et al., 2013; Moorehead et al., 2013; Syred et al., 2014), SMS "employ mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, cocreate, discuss, and modify user-generated content" (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011, p. 241). There is a diverse collective of SMS that vary in scope and functionality (Kietzmann, et al., 2011). Currently, Facebook, Instagram, Twitter, Google, Snapchat, Pinterest, Linkedin, and Tumblr are leading social media

platforms, each with millions of users worldwide. These platforms help users maintain relationships, create new connections, and build online networks among people who share similar interests or real-life connections. A SMS usually consists of a profile page for each user, their links with other people on the site, methods to communicate with others, and a variety of additional services. By design, SMSs focus on user engagement. Users are encouraged to build relationships and that lead individuals to converse, share objects of sociality, meetup, or simply just list each other as a friend, fan, or follower (Ellison, 2007).

SMS have been widely adopted among the teen population and are becoming an ubiquitous part of adolescent daily life. Approximately 94% of teens, ages 13-17, use SMS. The average teen user has at least three SMS accounts, and SMS use is relatively consistent among all demographic backgrounds in that age group (Lenhart, Smith, & Anderson, 2015). Until recently, Facebook was the most heavily adopted SMS among teen users, however photo-centric platforms, Snapchat and Instagram, have now become the top sites for teens. Nearly three out of four teens, use Snapchat and Instagram, while 66% use Facebook and only 44% use Twitter (Lenhart, et al., 2016). Another study reports that teens spend a little over two hours a day on SMS (Rideout, Pai, & Saphir, 2015).

With the widespread adoption of SMS among teens, health officials view these platforms as promising health promotion tools to reach adolescents “where they are.” Stevens and colleagues (2016) consider an adolescent’s online community, or digital neighborhood, a prominent yet understudied social determinant of sexual health. The digital neighborhood is an online community that adolescents cultivate and are exposed to through their use of various SMS. This neighborhood serves as a hub for social relationships, entertainment, and often parallels their geographic environment and offline social relationships, yet is not bound by

geography (Stevens et al., 2016). As adolescents spend a great deal of time in their digital neighborhoods, these online environments have the potential to influence attitudes, beliefs, sexual opportunities and behaviors. One study found Latino youth who frequently used text messaging and social media were more likely to have had sex (Landry, Gonzales, Wood, & Vyas, 2013). The "digital 'hood' is a space where youth share and seek out sexual information, sex–related behaviors are modeled, and where norms are depicted, circulated, and strengthened or weakened"; thus, making SMS ideal channels to provide and promote sexual health education (Stevens et al., 2016, p. 61).

Adolescent support for SMS-delivered sexual health education. Examination of the extant literature yields mixed results about adolescents' acceptance of receiving sexual health education on SMS. Immediate and accessible resources, trustworthy sources, and the ability to be open and honest are top reasons youth give for wanting to receive sexual health information online (Selkie et al., 2011; Ralph et al., 2011; Veinot et al., 2011; Vyas et al., 2012). These views have been equally expressed across racial and ethnic backgrounds. In a mixed methods study exploring how mobile texting and SMS can be used in an intervention to decrease sexual risk taking in Latino youth (9th and 10th graders), students and after-school staff identified four positive aspects to using a SMS program component. Widespread access, daily platform use, convenient communication, and open and honest dialogue were reasons participants supported using Facebook for sexual health information (Vyas, et al., 2012). Overall, the 15 youth participants were supportive of SMS use, reporting they would join or like a Facebook-based sexual health intervention page. Although staff expressed concerns about cyberbullying, inappropriate content, and backlash, students mentioned only one concern; if unable to post

comments, pictures, or have a personal interaction with the Facebook page, participants stated they would not monitor it as often.

Focus groups with Midwestern teens (14-19), found personal communication was an aspect teens desired when receiving sexual health information on SMS (Selkie et al., 2011). Participants did not want difficult to understand, textbook-like information, instead they preferred to receive immediate information in an interactive manner. Unlike (cf. Vyas et al., 2012), students wanted more discreet communication. Participants discussed how SMS education would allow them to connect with credible and trained sources, while simultaneously protecting their anonymity, allowing them to escape the judgement often felt from adults and friends. Private messaging and having a "frequently asked questions" section were recommendations students suggested in order to have open conversations while preserving their image. Students were receptive to receiving information from peers but wanted advanced medical information such as pregnancy questions and STI prevention to come from professionals. Researchers concluded youth appear enthusiastic about using SMS for sexual health education and these platforms could readily offer teens a "safe" setting to interact with real people via technology (Selkie et al., 2011).

Veinot and colleagues (2011) found similar results among young people (ages 14-24) in a qualitative study examining perspectives about using information and communication technologies (ICTs) to promote youth sexual health. This study was conducted in a socio-economically disadvantaged community and had a large proportion of African American and LGB participants. Findings revealed, young people face significant challenges talking with their peers, parents, and educators about sex, and view SMS as potential channels to supplement their education (Veinot et al., 2011). In addition to offering opportunities to receive information

absent in their school curriculum, such as the emotional and relational aspects of sexuality, some participants discussed wanting to help spread sexual health information to have a positive impact on others. Participants explained that being identified as a user of an ICT dedicated to sexual health education was a way to be a role model to their peers. Interestingly, despite wanting to be sexual health messengers, participants worried about drama, such as gossiping, fighting, and rumors that could come with their association or interactions with the site.

Adolescent opposition towards SMS-delivered sexual health education. Issues related to drama have been repeatedly cited as reasons adolescents are reluctant to use SMS for sexual health education. The stigma surrounding STIs makes teens concerned their involvement with SMS sexual health materials will make them susceptible to bullying and gossip (Byron, Albury, & Evers, 2011; Evers, Albury, Byron, & Crawford, 2013; Veinot et al., 2011; Vyas, et al., 2012). According to a group of Australian young people (ages 16-22), the stigma attached to sexual practice makes SMS less than ideal for detailed discussions on sexual health, and content related to the topic would unlikely be shared on Facebook (Byron et al., 2011). Participants suggested incorporating humor into messages (also see Evers et al., 2013) and indirectly discussing sexual health as ways to reduce stigma and embarrassment. “Humor can help the [sexual health] message be more amenable to being passed on, because the sharing does not directly reflect something personal about the sender and receiver except for a shared appreciation of humor” (Evers et al., 2013, p. 268). When asked to recall familiar sexual health campaigns, researchers found students were able to recall campaigns that had humorous punchlines and images. Humor, however should be used with caution. Prior research shows humor has been used by participants to ridicule the idea of STIs and STI testing (Syred, Naidoo, Woodhall, & Baraitser, 2014).

Concerns about drama and stigma have made youth protective of their self-image and this has influenced their acceptance and interactions of sexual health education on SMS. A content analysis of comments and interactions on a Facebook-based sexual health promotion campaign with 96% of fans aged 13-24, found only a small minority of participants shared positive chlamydia test results (Syred et al., 2014). Most of the users who did share, posted in a joking manner, at times using hyperbole to describe consequences. The low positive test postings may not necessarily be indicative of user shame or fear, they could possibly reflect low infection prevalence among users. Nonetheless, researchers did find that even though STI testing is generally regarding as "right thing to do" some participants implied that the need for testing was precipitated by engagement in risky sexual behaviors (Syred et al., 2014). Results also revealed, harmful or offensive comments appeared at least once in 19% of message threads. Named individuals or screenshots of previous messages were often the subject of offensive language or inappropriate remarks.

Teens mostly worry about peer and parental responses to their SMS activity. A mixed methods study exploring MySpace as a way to connect youth to sexual health services, found teens worry parents and friends would make assumptions about their sexual activity or health based upon their SMS activity (Ralph et al., 2011). For the qualitative portion, researchers conducted six focus group with a total of 48 California youth ages 14-19. Teens believed their SMS interaction with sexual health content could easily be misconstrued to imply they need the information and this would make them easy targets for rumors and gossip. Even if the information is positive, such as promoting teen pregnancy prevention, students worried parents and peers would take it out of context. Participants recommended having popular teens involved with the site to garner greater acceptance and participation. Indirect ways of receiving sexual

health information such as through Facebook ads, also offer teens a way to deny deliberately seeking information and reduces the risk of being accused of being sexual activity or having a STI (Byron et al., 2011). Trends show teens are migrating to newer SMS such as Instagram, Snapchat, and WhatsApp, where they are less likely to encounter parents (Kiss, 2013).

Stigma, self-preservation, and privacy could partly explain why youth report being more comfortable accessing sexual health information from traditional sources such as websites, doctors, emails, schools, and mainstream media than on SMS such as Twitter and Facebook (Divecha, Divney, Ickovics, & Kershaw, 2012; Ralph et al., 2011; Lim, Vella, Sacks-Davis, & Hellard, 2014). In a survey among 620 Australian young people (16-29), 85% of respondents were most comfortable receiving their information from websites, while only 52% and 35% wanted information from Facebook and Twitter, respectively. 64% of respondents ages 16-19, did report they would be comfortable receiving information from at least one social media source, however there was no specification as to which one. A survey of 94 low-income, parenting adolescents and young adults found participants preferred to have conversations about sexual health privately, in-person or over the phone (Divecha et al., 2012). Less than 10% of respondents were willing to discuss sexual health information with close friends on SMS, and approximately only 5% wanted to receive sexual health tips from a public SMS post. Interestingly sharing preferences on SMS were a bit higher. 20% of participants were willing to share sexual health tips with friends and 15% were willing to announce they had had an STD test.

Summary. SMS use is pervasive in adolescent life. Although studies have alluded to the reluctance of young people to receive sexual health information from SMS, these early findings do not mean that health promotion should not occur within these platforms. Teens are eager to

receive sexual health education through channels outside of their schools, peers, and parents, and SMS can indeed fill that void. It is not so much youth do not want to receive sexual health education on SMS, the matter of concern is *how* they receive it. The themes are consistent across most studies, teens want to be open and honest about their experiences, have immediate access to trustworthy sources, all while maintaining and protecting their self-image. Therefore, before engaging in SMS health promotion, it is critical for organizations to conduct their own needs assessments (Ralph et al., 2011). Youth feedback is necessary to inform strategies to disseminate information in a manner in which the population will readily receive it. Adolescent insight is especially needed to learn how newer SMS can be used for sexual health education.

Challenges to building a following. Although organizations are attempting to integrate SMS into their health promotion strategies, most are facing challenges with connecting, building and engaging their intended audiences (Harris et al., 2013; Jha, Lin, & Savoia, 2016; Thackeray et al., 2012). A non-experimental, cross sectional study of state health department (SHD) social media sites, revealed SHDs have few followers, receive few likes and overall are not reaching or engaging the intended audience (Thackeray et al., 2012). Harris and colleagues (2013) found similar results about LHDs. Research has also shown that followers of state health department Facebook accounts tend to be employees or other similar agencies, rather than general public (Jha, Lin, & Savoia, 2015, p. 177). The three aforementioned studies concluded that more research is needed on how local health departments can most effectively use SMS.

Thackeray et al. (2012) recommend that health departments consider developing a strategic communication plan that incorporates best practices for expanding reach and fostering engagement. Similar to the development of effective sexual health curricula, health officials should include adolescents in the planning process to design relevant and effective SMS health

interventions. Therefore, a primary component of a health organization's strategic communication plan should involve learning directly from adolescents their preferences for receiving sexual health education on SMS. Adolescent input however is relative absent in scholarship regarding sexual health promotion and education.

A thematic and critical literature review, the first to exclusively include research with a primary or substantial focus on adolescents, sex education, the Internet or Internet associated media, found that the research available on adolescents' use of the Internet for sex education is limited and there are a number of gaps that exist in the field (Simon & Daneback, 2013). The authors write, "These [gaps] are namely related to the qualitative experience of adolescents who engage with sex information online, from their initial interest in information to the effects such information could have on their lives" (p. 313). Simon and Daneback (2013) also note that there are few studies that have explored adolescent use of new digital media for sexual education.

As the format of the Web has shifted in the last few years, so too have adolescents' online actions. Their experiences online are more interactive and social. However, few studies have specifically examined how and why young people use these new interactive resources (e.g., social networking, blogging) for sex education.

This dissertation seeks to fill these gaps and help advance the literature on SMS for sexual health education.

RESEARCH AIMS, QUESTIONS, AND HYPOTHESES

SMS use in sexual health education is an emerging research area and can be one way schools and LHDs can partner together to provide student-informed sexual health information to Indiana teens. Despite being pervasive in adolescent life, there is a paucity of research about how

SMS can be used to disseminate sexual health information to adolescents. To effectively use SMS for sexual health education, health officials first need to know what adolescents desire from SMS that disseminate comprehensive sexual health information. The purpose of this study is to explore adolescent opinions about receiving sexual health education 1) on SMS and 2) the SMS of local health departments. The research aims and questions guiding this study are:

Research Aim 1 is to explore what are adolescents' *current* attitudes and behaviors regarding receiving and seeking sexual health information on popular SMS.

RQ1: What are adolescents' current attitudes about receiving and seeking sexual health information on SMS?

RQ2: What are adolescents' current behaviors about receiving and seeking sexual health information on SMS?

RQ3: What motivates adolescents to receive and seek sexual health information on SMS?

RQ4: What deters adolescents from receiving and seeking health information on SMS?

Research Aim 2 is to understand what motivates youth to respond to sexual health education on SMS. Given adolescents' previous reluctance to receive sexual health information on SMS, health organizations cannot assume simply because they are on SMS, adolescent users will find, like and follow their accounts (Thackeray et al., 2012). Of the few studies that are available, none have explicitly explored how health organizations can work around these barriers and gain adolescent followers on SMS that provide sexual health information. Health organizations need scientific guidance in this area, therefore, this study seeks to fill these gaps by exploring:

RQ 5: What motivates adolescents to follow health organizations that disseminate sexual health information on SMSs?

RQ 6: What recommendations do adolescents have for how health departments can work with schools to use SMS to deliver comprehensive sexual health education?

Once local health departments gain an adolescent following, they also need to know how to interact with teens on their SMS accounts. The next chapter will review SMS engagement and explore how teens prefer to use SMS features to engage with others about sexual health information. It will conclude by exploring how this engagement can influence health behaviors.

CHAPTER 3

SMS maybe ideal channels for sexual health education for many reasons. It is a convenient channel to reach teens "where they are," with their communication method of choice, for the way they communicate. By using SMS, local health departments are able to make sexual health information more accessible, shareable, and tailored to the preferences of adolescents (Moorhead et al., 2013). Adolescents appear to want to receive sexual health information in a way that involves personal communication (Selkie, et al., 2011; Veinot et al., 2011). Unlike traditional health promotion channels, SMS allow for two-way communication and offer the dialogic communication adolescents desire, while simultaneously reaching large populations. The intended audience of health messages are now able to engage with both the message and the sender. Researchers suggest that this interactivity or engagement is an important mediator that can help increase the persuasiveness of sexual health information and it has proven to lead to positive behavior change (Cassell, Jackson & Cheuvront, 1998; Gold et al., 2011; Neiger, et al., 2012; Cao et al., 2017a).

While health organizations are encouraged to harness the power of SMS to create interactive communities, studies with adolescents have shown the stigma of sexual topics could stifle such engagement (Byron, Albury, & Evers, 2011; Evers, et al., 2013; Veinot, et al., 2011; Vyas, et al., 2012). When using SMS for health promotion, researchers recommend that information be communicated in a manner that "reflects the audience preferences, stimulates response or discussion, and is tailored to the social media application" (Thackeray, Neiger, Smith, & Van Wagenen, 2012, p. 6). Currently, there is scant research that advises health organizations how to use SMS features for engagement or that document adolescents' engagement preferences. Therefore, the final goal of this dissertation is to explore how

adolescents prefer to engage with others and how they would like to interact with sexual health information disseminated on SMS.

Engagement

Defining Engagement. The hybrid communication functionality of SMS is turning health education and promotion into an online social experience (Lefebvre & Bornkessel, 2013). As digital extensions of mass media channels, SMS continue to offer cost-effective dissemination with wide reach but now offer the transactional and response-dependent qualities of interpersonal communication that traditional mass media channels lacked. (Casswell, Jackson, & Cheuvront, 1998; Neiger, Thackeray, Burton, Giraud-Carrier & Fagen, 2013). Features such as the ability to post comments, send video responses, privately message and directly mention others, allow audience members to move away from passive to active receivers, now with the ability to directly converse with others and health organizations about a variety of health issues. Users are actively using SMS to have conversations about an array of health-related matters (Heldman, Schindelar & Schindelar, 2013). Health organizations are encouraged to join these conversations and use the participatory features of SMS to guide discussions toward health behavior change and advance the field of public health communication (Heldman et al., 2013).

In the context of health education and promotion, there are two guiding perspectives that define engagement. Neiger and colleagues (2012) define engagement as “connections between people that contribute to a common good” (p. 158). This definition suggests that the outcomes of engagement are mutually beneficial for both the health organization and its audience. The authors also propose that engagement is a multi-stage process that culminates to program involvement (also see Neiger et al., 2013). In their evaluation hierarchy, engagement links SMS use to action and the type of engagement can be classified in three categories, low, medium, and

high. Each engagement category has corresponding behavioral cues. For instance, low engagement occurs when health organizations broadcast messages to their followers and do not ask for a response or expect action. The goal during this stage is for health organizations to build a presence and gain a mass following. Users are only expected to passively engage by simply observing or reading the information. Health organizations introduce dialogic messaging during medium engagement. During this phase, health organizations may ask followers questions, mention them, and reshare their responses. Users become more interactive by sharing content and initiating dialogue through direct messaging or commenting. Finally, high engagement culminates to program involvement in which users participate in offline or online health interventions either as a partner or as a participant (Neiger et al., 2013).

While Neiger and colleagues (2012; also see Neiger et al., 2013) provide a multi-step model of engagement, Heldman et al. (2013) provide a more concrete definition. The authors define social media engagement as:

> … a multi-way interaction between and among an organization and digital communities that could take many forms, using social media channels to facilitate that interaction; health messaging is shared in a way that creates opportunities for information to be acted on by the audience, thereby opening a dialogue with the organization that allows both parties to work collaboratively to address issues affecting the health and well-being of the audience. (p. 5)

Both definitions highlight that SMS engagement revolves around dialogue, reciprocity, and participation, engagement, however, is not solely about dialogic communication. It is important to note that users not only have an opportunity to converse with each other, they can also interact with health content. While SMS help facilitate deep interactions such as two-way

communication, features and functions also promote broad level engagement with the health messages themselves. Thus, engagement should be viewed in two ways: 1) how users interact with health content and 2) how users interact with each other and the health organization. In both categories the central attribute of engagement is the same, "that users do something with information— either, listen, share, create, act, respond, or ask" (Heldman et al., 2013, p. 10). It is up to health organizations, however, to determine what exactly they want their users to "do" and how they will measure and evaluate engagement (Gold et al., 2012; Merchant et al., 2014).

Since SMS offer different features and functions, engagement varies across platforms, therefore, engagement definitions should be both program and platform specific. Early research has evaluated engagement in various ways including commenting, lurking, voting, liking, sharing, and posting (Cao et al., 2017a; Hales, Davidson, McGrievy, 2014; Kim, Marsch, Brunette & Dallery, 2017; Rafaeli, Ravid, & Soroka, 2004). Health organizations are advised to first decide what they are trying to accomplish by using SMS and then match appropriate strategies and evaluation metrics to their goals and objectives (Neiger et al., 2012). To develop the most appropriate strategies, health organizations should seek user input to guide what type of engagement activities will lead to the desired outcomes. This will allow organizations to communicate information in a way that "reflects the audience preferences, stimulates response or discussion, and is tailored to the social media application" (Thackeray et al., 2012, p. 6). User input is an often missed but critical consideration. Poor SMS engagement between users and health organizations has been attributed to mismatches between posted content and audience preferences (Thackeray et al., 2012).

The Importance of Engagement. Health organizations are encouraged to embrace the unique functionality of SMS to engage the public because of their potential to impact health

behavior change (Chou, Hunt, Beckjord, Moser & Hesse, 2009; Heldman et al., 2013; Neiger et al., 2013). Despite their wide reach, traditional mass media-delivered sexual health campaigns have shown to have small effect sizes on behavior change (Noar, 2006; Noar, Palmgreen, Chabot, Dobransky, & Zimmerman, 2009; Snyder & Hamilton, 2002). Researchers assert that mass media health promotion efforts can more effectively impact attitudes by having audience members partake in a two-way, interactive communication process (Cassell, et al., 1998; Heldman et al., 2013; Neiger et al., 2012; Neiger et al., 2013). With SMS-delivered health messages, audience member are no longer passive receivers. This engagement can help maintain users' attention and suggests users are actively attending the health message (Suggs, 2006). In addition, the interactivity offered on SMS can help users build skills and foster behavioral changes (Noar et al., 2009).

The guiding rationale is that engagement initiates deeper-level thinking that can enhance the persuasiveness of health messages. Cassell et al. (1998) explain that interactions such as the transactional cycle of interpersonal communication can better change cognitions because it provides opportunities for message clarification, elaboration, and allows users to process and apply the meaning of messages to their own lived experiences. This process can better guide members through the persuasion process and toward behavior change. Neiger et al. (2013) share similar sentiments and argue that dialogic communication helps guide users through the engagement hierarchy. These conversations can result in a range of outcomes, including increased health knowledge, feelings of social connection, and involvement with health promotion programs (Neiger et al., 2013).

Effectiveness of Engagement. SMS engagement for public health is an emerging research area. Currently, there is a paucity of literature that explores the role of engagement on

behavior change, but, early results show great promise. In a study to determine what types of posts prompt the most participant engagement in a Facebook weight loss support group, results showed posts that solicit participant feedback were more successful in engaging participants than those that just broadcast information (Hales et al., 2014). In turn, posts that prompted greater user engagement such as user-initiated content, comments, poll votes and likes, were also associated with greater weight loss than posts that only required passive participation. Similar outcomes have been achieved in a SMS intervention for smoking reduction and cessation (Kim et al., 2017). An intervention with content tailored to participants' readiness to quit smoking showed that engagement was associated with more favorable smoking cessation outcomes. Data from 3-month, follow-up surveys showed participants who were able to abstain from smoking commented twice as much as participants who were unable to sustain from smoking, suggesting that higher engagement leads to better smoking cessation outcomes (Thrul, Klein, & Ramo, 2015). In another study, researchers also found that engagement was a significant predictor of smoking reduction, receiving one like or posting on the intervention platform was associated with smoking approximately one less cigarette in the past 7 days (Kim et al., 2017).

In context of sexual health education, a recent study found that user SMS engagement was positively associated with recent HIV testing among Chinese men who have sex with men (MSM) (Cao et al., 2017a). In this study, engagement was divided into the three categories, observing (i.e., receiving), endorsing (e.g., liking and sharing), and contributing (e.g., posting or commenting on HIV testing materials). Bivariate analysis revealed that all three engagement categories were associated with offline health behaviors, however certain platforms and behaviors were more strongly linked to HIV testing than others (Cao et al., 2017a). Instant messaging platforms and higher-level engagement activities such as contributing were more

strongly correlated with recent HIV testing when compared to more passive activities such as observing and endorsing. The authors explain that activities such as posting, and commenting require users to contemplate and cognitively respond to the health matter. This focuses participants' attention and increases overall comprehension of HIV testing issues, encouraging the translation of online action to offline behavior uptake (Cao et al., 2017a).

A recent systematic review concluded SMS interventions that were participatory led to higher HIV testing rates compared that did not have or did not include interactive characteristics (Cao et al., 2017b). Studies that encourage peer interactions and were tailored to user's characteristics increased the likelihood for participants to link to HIV care and services (Cao et al., 2017b). The authors explain that this engagement can increase the perceived relevance and importance of the behavior uptake and motivate users to take actions. This review primarily included studies that focused on MSM populations and used Facebook as an intervention platform. Future research should focus on key populations beyond MSM and explore other SMS aside from Facebook (Cao et al., 2017b).

Challenges. Despite the potential benefits of using SMS for health interventions, critical gaps in knowledge persists. Two areas that require greater understanding is how health topics influence user engagement and audience preferences for engagement. For SMS-delivered sexual health education aimed at adolescents this is an important consideration given teens concerns about interacting with sexual health topics openly on SMS. Teens appear to have different preferences when engaging with sexual health information than those previously observed by MSM populations (Cao et al., 2017a). Although teens want sexual health education in a way that involves personal communication, early research shows they simultaneously prefer to interact through private message or in closed confined groups (Selkie et al., 2011; Veinot et al., 2011).

Research has advised health organizations to anticipate adolescents' concerns for safety and privacy as barriers to engagement (Selkie et al., 2011; Veinot et al., 2011). Fears about using platforms where they might be identified and hesitations about interacting with strangers, could stifle public discussions about sexual health information. To generate engagement among users, authors recommend providing opportunities for conversations to take place outside of personal profiles (Veinot et al., 2011). Later research, however, has suggested otherwise. Although STI prevention messages delivered on Facebook were efficacious in promoting short-term condom use among young people, user engagement with the content occurred mostly on their own pages. Users rarely visited the intervention page suggesting a majority of youth do not actively seek out and engage with organizations on Facebook (Bull, Levine, Black, Schmiege, & Santelli, 2012).

Bull and colleagues (2012) findings not only exemplify why it is important to understand engagement in context of the related health topic, they also demonstrate a need for more literature about user engagement preferences and potential barriers to engagement. While studies demonstrate that engagement can lead to positive behavior uptake, there may be a disconnect between what health organizations are providing and what their audiences actually desire. Studies show many health organizations receive few likes and are facing difficulties engaging their audiences, especially adolescents (Bull et al., 2012; Harris, Mueller, & Snider, 2013; Neiger et al., 2013). One possible reason for this is instead of using these platforms for interactivity and relationship building, many organizations are under utilizing the potential of SMS by using them to only broadcast information (Chou, Prestin, Lyons, & Wen, 2013; Lovejoy, Waters, & Saxton, 2012; Neiger et al., 2013). It is unclear why health organizations are using SMS in this manner; however, they cannot assume that posting content on SMS will garner automatic participation among users. While some researchers argue this low engagement is a prerequisite for dialogic

engagement, many agree that it is time to leverage the participatory nature of social media and move beyond one-way message dissemination (Cao et al., 2017; Chou et al., 2013; Neiger et al., 2012; Neiger et al., 2013).

Another possible explanation could be there is a mismatch between posted content and audience preferences (Thackeray et al., 2012). Content may be poorly developed, or topics may be of little interest to the intended audience (Thackeray, et al., 2012). Research has shown that content influences engagement, and engagement can in turn impact behavior change (Thrul et al., 2015; Hales et al., 2014). Therefore, before creating and disseminating sexual health information, LHDs need to consult with members of the adolescent audience to understand what type of content will encourage user engagement.

RESEARCH AIMS AND QUESTIONS

To advance SMS engagement for public health promotion, health organizations are advised to develop a communication plan that incorporates strategies to foster engagement (Thackeray, et al., 2012). A key component of this plan should include learning directly from members of the intended audience how they currently use SMS in regard to the health topic and their ideal engagement preferences. In addition, the SMS landscape is constantly evolving and there are newer platforms with even more interpersonal features than considered in previous research (Selkie et al., 2011; Veinot et al., 2011). Thus, health organizations need new insight about which platforms, engagement features, and what type of content will motivate adolescents to engage with sexual health information disseminated on SMS. The answers to these issues are necessary to help guide a health organization's engagement strategy and should inform decisions about the type of engagement the organization seeks to create, and which platforms are most appropriate for the desired level of engagement.

Research Aim 1 is to explore how adolescents prefer to engage with others about sexual health information on SMS. The research questions guiding this aim are:

RQ1: How do adolescents currently engage with others on SMS about sexual health information?

RQ2: How do adolescents currently engage with sexual health information on SMS?

RQ3: How do adolescents prefer to engage with others on SMS about sexual health information?

RQ4: How do adolescents prefer to engage with sexual health information on SMS?

RQ5: What features would students prefer to use when engaging with sexual health information on SMS?

RQ6: What motivates/deters students to engage with sexual health information on SMS?

By exploring these questions, this study seeks to make a meaningful contribution to SMS engagement literature and public health communication practice. By documenting adolescent perspectives, this dissertation expands the current literature by moving beyond MSM populations and introducing perspectives on SMS engagement features on newer platforms such as Instagram and Snapchat. Lastly, this inquiry seeks to provide local health departments with the scientific guidance they need to better utilize SNS features to engage teens towards sexual behavior change.

The next chapter of this dissertation will outline the study design and methods that will be used in this dissertation project.

CHAPTER 4

PROPOSED METHODOLOGY

Summary of the problem. Indiana teens have poor sexual health outcomes. Schools and local health departments can help improve teen decisions concerning sexual behavior and health by providing teens with safer, accurate, more timely sex education. To best impact behaviors, both entities need to deliver information in a manner that is relevant and meaningful to teens. To date however, incorporating teen perspectives have been relatively absent in the development of school-based sexual health curricula and in health organizations' communication plans to disseminate safer sex information. Learning directly from teens what they desire in sexual health education will allow schools and health organizations to create information that teens will more likely pay attention and adhere to. These insights are vital to alleviating poor sexual health outcomes among Indiana adolescents.

Purpose

The central purpose of this dissertation is to gain a pragmatic understanding of Indiana teens' experiences and perspectives about receiving school-based and SMS-delivered sexual health education. The objectives of this dissertation are three-fold. The first is to explore Indiana students' current experiences and recommendations for the content and delivery of high school sexual health education. The next goal is to explore student perceptions about receiving SMS-delivered sexual health information from local health departments when school-based comprehensive sexual health education is unavailable. Lastly, this dissertation will explore how adolescents prefer to engage with others about sexual health information on SMS. Engagement in this study will be defined as the behaviors SMS users take to interact with a SMS post, with other users, and the creator of the post.

Research Questions. Below are the research questions guiding the five aims of this study.

Research Aim 1 is to explore Indiana adolescents' opinions about their current sexual health curriculum.

RQ1: What are Indiana adolescents' opinions about their current sexual health curriculum?

RQ1a: What are Indiana adolescents' opinions about the **content** of their current sexual health curriculum?

RQ1b: What are Indiana adolescents' opinions about their current sexual health **instruction**?

Research Aim 2 is to explore Indiana adolescents' recommendations for their ideal sexual health curricula.

RQ2: What would students include in their ideal sexual health curriculum?

RQ2a: What **topics** would students include in their ideal sexual health curriculum?

RQ2b: What type of **instruction** would students prefer in their ideal sexual health curriculum?

Research Aim 3 is to explore what are adolescents' current attitudes and behaviors regarding receiving and seeking sexual health information on popular SMS.

RQ3: What are adolescents' current attitudes and behaviors regarding receiving and seeking sexual health information on popular SMS.

RQ3a: What are adolescents' current **attitudes** about receiving and seeking sexual health information on SMS?

RQ3b: What are adolescents' current **behaviors** about receiving and seeking sexual health information on SMS?

RQ3c: What motivates adolescents to receive and seek sexual health information on SMS?

RQ3d: What deters adolescents from receiving and seeking health information on SMS?

Research Aim 4 is to explore what are adolescents' current attitudes and behaviors regarding receiving and seeking sexual health information on popular SMS.

RQ4: What motivates adolescents to follow health organizations that disseminate sexual health information on SMS?

RQ4a: What recommendations do adolescents have for how health departments can work with schools to use SMS to deliver comprehensive sexual health education?

Research Aim 5 is to explore how adolescents prefer to engage with others about sexual health information on SMS.

RQ5a: How do adolescents currently engage with others on SMS about sexual health information?

RQ5b: How do adolescents prefer to engage with others on SMS about sexual health information?

RQ5c: How do adolescents currently engage with sexual health information on SMS?

RQ5d: How do adolescents prefer to engage with sexual health information on SMS?

RQ5e: What features would students prefer to use when engaging with sexual health information on SMS?

RQ5f: What motivates/deters students to engage with sexual health information on SMS?

Proposed Study Design

Rationale for Research Design. A mixed methods study design, using focus group and survey data, will be employed to answer the research questions. Mixed methods research involves the use of both quantitative and qualitative methods in one study (Creswell & Clark, 2007; Creswell, 2009). Previous literature exploring adolescent perspectives about US school-based sexual health curricula has mostly used only qualitative methods (e.g. Aquilino & Bragadottir, 2000; Eisenberg et al., 1997; Hammonds & Schultz, 1984; Herrman, 2008; Herrmann et al., 2017). Adding a quantitative component such as a survey can generate new knowledge by initiating ideas for focus group discussion and can offer a more holistic understanding of this health issue. By employing both quantitative and qualitative methods, this study will help advance the literature by collecting more insights that cannot be captured in qualitative work alone.

When using mixed methods procedures, Creswell (2009) advises researchers to consider the weight given to each method in the research study. In a mixed methods design, the weight of each method does not have to be equal. Depending on the interests of the researcher, the audience for the study, and the emphasis of investigation, the researcher may prioritize one method over another (Creswell, 2009). Due to the nature of the research questions, this study will prioritize qualitative methods in the research design. Quantitative methods will be used to help guide focus groups and to triangulate and cross-validate qualitative methods.

Creswell (2009) also recommends that researchers consider the timing of their data collection. Therefore this study will use a combination of both concurrent triangulation and sequential explanatory strategies. This study is concurrent in that all data will be collected during one phase, however it is sequential because survey data will be collected first before students

participate in focus group discussions. Unlike the typical sequential approach, quantitative findings will not be used to guide focus groups in totality, because previous literature will be used to inform the qualitative instrument. Instead as more students take the survey and trends begin to emerge, participants to elaborate on these trends in the focus groups. Consistent with a concurrent triangulation strategy, the mixing of the data will primarily occur in the discussion section, where the survey statistics will be followed by qualitative quotes that support or disconfirm the quantitative results (Creswell, 2009). This approach will allow me to collect data in a shorter amount of time while triangulating my qualitative findings and adding trustworthiness to study results.

Strategies for inquiry. Qualitative research is a scientific method of inquiry used to explore and understand how individuals or groups interpret their experiences, how they construct their world and how they ascribe meaning to a social or human problem (Creswell, 2009; Merriam, 2009). A central goal of qualitative work is to produce, rich deep descriptions that allow us to make sense of reality, to describe and explain the social world and to develop explanatory models and theories (Morse & Field, 1996). Qualitative research is also characterized by its research methods. Researchers typically study phenomena in their natural settings, employ interpretivist approaches during analysis and generate words as data instead of numbers (Bricki & Green, 2007).

Qualitative inquiry dates back to the early twentieth century, however the application of qualitative research methodologies in health research is an emerging trend that began approximately 20 years ago (Al-Busaidi, 2008). Its growth has been driven by the need for greater cross cultural understanding of health behaviors, global health issues, and issues of health equity and human rights (Tolley, Ulin, Mack, Robinson, & Succop, 2016). Researchers contend

qualitative research strategies are particularly suitable for health-related research because their philosophical underpinnings are concerned with the human, interpretative aspects of knowing about the social world (Pope & Mays, 2006; Ritchie & Lewis, 2003). Human behavior and understanding are at the core of health and healthcare. “Health care deals with people and people are, on the whole, more complex than the subjects of the natural sciences, there is a whole set of such questions about human interaction, and how people interpret interaction, to which health professionals may need answers before attempting to quantify behaviors or events” (Pope & Mays, 2006; pg. 5). By focusing on the human experience, researchers are able to investigate beyond the effectiveness of treatments and gain a richer understanding of the interwoven aspects of the topic which can bring fresh insights into health and illness (Yardley, 2000).

There are several interpretive frameworks within qualitative research, however some research questions can be explored without a particular allegiance to epistemological or philosophical tradition (Kennedy, 2016). "There is a practical side to qualitative research that simply involves skillfully asking open-ended questions and observing matters of interest in real-world settings to solve problems, improve programs, or develop policies" (Patton, 2014; p. 370). The straightforward questions that people have about the world can be addressed with generic qualitative inquiry. This approach “investigates people’s reports of their subjective opinions, attitudes, beliefs, or reflections on their experiences, of things in the outer world.” (Percy, Kostere, & Kostere, 2015, p. 5). Generic qualitative inquiry uses “qualitative methods without framing the inquiry within an explicit theoretical, philosophical, epistemological, or ontological tradition” (Patton, 2014; p. 371). Generic inquiry also does not seek to build theory but instead seeks to identify recurring patterns in the forms of themes or categories (Merriam, 1998). This approach is “particularly appropriate when the researcher has a priori knowledge (categories or

subcategories of information) about the topic and wants to more fully describe experiences from the participants' perspective" (Percy et al., 2015 p. 5).

The research questions and aims of this dissertation seek to explore, understand, and describe social phenomena within a particular health context. My goal is not to generate theory but to build on existing knowledge and identify practical ways to provide teens with sexual health education. A generic qualitative approach therefore is suitable for the present study. The methods described below reflect approaches that will allow this study to produce descriptive data for the purpose of understanding students' lived experiences and recommendations that can be used to inform problem-solving programs and interventions (Patton, 2014).

The Researcher's Role. In qualitative research, the researcher is an instrument and data collection and analysis are therefore assessed through human interpretation. Researchers, therefore, should make known any personal values or assumptions at the beginning of the study that may impact their findings (Creswell, 2009; Patton, 2014). My perceptions of school-based sexual health education have been shaped by my personal experiences. I had an unplanned pregnancy when I was 20, and although I was an adult, I was very much unprepared to become a parent. There were many factors that impacted my circumstance, however, I attribute inadequate education from school, parents, and peers as significant areas of influence in my behaviors and attitudes. I came from a conservative home and attended middle and high schools in NC in which teen pregnancy and sexual activity were commonplace. I received school-based sexual health education just twice, once in middle school and then again in ninth-grade. In retrospect, I feel those units lacked critical information and did not provide a comprehensive view of relationships, sexual health services, contraceptive use, and the economical and emotional impact

of parenthood. I needed, and believe all students need, this information to make healthy and responsible sexual decisions. Schools are the most ideal sources to provide such education.

My experiences and views have lead me to advocate for curriculum change and create school-based safer sex campaigns. Being involved in these activities has provided me with knowledge into the challenges and issues adolescents face receiving reliable and timely sexual health information. These insights can help me build rapport and show the empathy towards participants about such a sensitive subject matter. I bring biases to the study, but I am committed to openness and documenting events as they are told in order to produce authentic, trustworthy findings. To strengthen my validity as an instrument, during data collection, I will practice mindfulness, meaning I will be completely attentive to the interactions I am having with participants and the interactions they are having with each other during focus group discussions (Patton, 2014). Also, to minimize the influence of my opinions in the analysis and results of this study, I will use member checks as well as methods and analyst triangulation to ensure the findings represent the voice of the participants.

Setting. For the purposes of this study, data collection will take place at Crawfordsville High School (CHS), located in Crawfordsville, IN. The city of Crawfordsville is located within Montgomery County, a rural county located in West Central Indiana, with a population of roughly 38,000 residents (U.S. Census Bureau, 2018). Crawfordsville is the largest city within the county and has a population of about 16,000 (U.S. Census Bureau, 2018). Normal enrollment at CHS fluctuates between 650 to 715 students. CHS was chosen for a number of reasons, the first being CHS requires students to complete a sexual health education course before graduation. Students must have completed either an in-class or online, two-week sexual health unit and this is typically taken during their first year of high school. Next, the school is located in a region

where adolescents are impacted by poor sexual health outcomes. In 2015, 37.2% of STI cases were among individuals between the ages of 10-19 and residents have named teen pregnancy as a major health concern (Montgomery County Health Assessment, 2016). The teen birth rate among females ages 15-17, is also higher than the state average (HHS, 2015; Montgomery County Health Assessment, 2016). CHS officials are taking a proactive approach to alleviate poor sexual health outcomes among their students. School administrators have recently partnered with their local health department and Purdue University to explore solutions to improve sexual health conditions in the community, further making CHS an ideal setting to conduct this dissertation project.

Participant criteria. Eligible participants will be Indiana high school students between the ages of 13-19 years-old. Participants will 1) have completed a sexual health unit or 2) currently be enrolled in a sexual health unit. Students currently enrolled will not be excluded. They will be able to provide the most up-to-date evaluations of the sexual health curriculum which can help enrich the significance of the data.

Type of data collected. Focus groups will be the primary strategy to collect data during this study. Focus groups are ideal methods for this study because they utilize a socially oriented, interview setup. By design, focus groups elicit a multiplicity of views and shape knowledge within a group context. Gibbs (1997) argues that participant recollections and beliefs are more likely to be revealed through the social gathering and interaction that occurs during focus groups than with other approaches. Patton (2002) further supports this notion by adding that social experiences can increase the meaningfulness and validity of findings because individual's perspectives are formed and sustained in social groups. From this vantage point, focus groups resemble the in-class group setting most students encounter when they receive sexual health

instruction, thereby making group discussion a format students will already be familiar with within the context of this study's research topic.

Although, focus groups have historically been the primary method of data collection in gathering student perspectives on their sexual health curriculum, this study will also collect descriptive statistics through self-reported, online surveys (Aquilino & Bragadottir, 2000; Eisenberg et al., 1997; Hammonds & Schultz, 1984; Herrman, 2008; Herrman et al., 2017; Kimmel et al., 2013). The survey will be cross-sectional and will be used for descriptive and not inferential purposes. Their primary purpose will be used to provide basic summaries of the opinions of the sample. Surveys offer a fast and convenient way to get responses from a large population and will add rigor to this study, by offering a method to triangulate focus group findings (Tariq & Woodman, 2013). In addition, surveys may help youth more readily recall topics they may want included in their education and will be used to guide discussions and broaden perspectives that have not been considered in past studies.

Sample Size. Researchers acknowledge that there are no stringent guidelines for the appropriate or expected number of focus groups in health science research (Carlsen & Glenton, 2011). In their study, Carlesn & Glenton (2011) found that researchers commonly used saturation, recommendations from literature, and practical reasons to justify their focus group sample sizes. I will use these metrics to determine a reasonable number of focus group sessions. The mode and average amount of focus groups in studies similar to this is six, however, the amount of participants were wide ranging from 29 to 120 (Aquilino & Bragadottir, 2000; Eisenberg et al., 1997; Herrman, 2008; Herrman et al., 2017; Kimmel et al., 2013). Six to eight participants are considered the optimum size per focus group discussion, however sensitive topics can use a smaller number of participants (Bloor, 2001). Therefore, I will begin with six

focus groups that will have between five to eight participants in each group. If saturation is not met, and discussions are still producing new ideas I will continue to conduct focus groups. For practical reasons primarily, budgetary constraints, focus groups will not exceed 65 participants. Finally, I will use a criterion purposeful sampling strategy to recruit focus group participants. This technique will allow me to recruit students who have experienced and are knowledgeable about the sexual health education offered at CHS (Creswell & Clark, 2011).

For surveys, I will also use a criterion purposeful sampling approach, as I will survey students who have taken or are currently taking a sexual health course. This will present a threat to external validity, because this nonprobability sample my differ from the rest of the student population. This technique however is most appropriate for this study because it will help confirm or disconfirm qualitative findings. Based on CHS student population of 650 students, the ideal sample size at a 95% CI level with 5% margin of error is 242 participants, however the school does not have an efficient process of finding out how many students have taken a sexual health education unit. Given most students take the course in ninth grade, I can assume 75% of the student population would be eligible for the study, and thus the ideal sample size would be 216.

This number, however maybe hard to obtain. Adolescents are considered a vulnerable population and sexual health research "can be complicated by issues of informed consent, parental permission institutional review board (IRB) approval, and state laws" (Braun-Courville et al., 2014, p. 1). Although this study presents no more than a minimal risk to participants, Purdue University IRB was reluctant to provide a waiver of guardian consent and has required active parental consent in order for students to participate. Requiring parental consent in sexual behavior research has shown to decrease adolescent participation (Reed & Huppert, 2008; Reed,

Thistlethwaite, & Huppert, 2007; Macapagal, Coventry, Arbeit, Fisher, & Mustanski, 2017). While the scholarship recognizes barriers to participation, viable solutions to increase recruitment have yet to be identified and even though it is almost expected that sample sizes will be less than ideal, currently and acceptable amount of survey responses has not been recommended.

Instruments. I will use two surveys and one semi-structured interview instrument for data collection. The Sexual Education Evaluation Survey is divided into five parts (Appendix 1). Part 1 gathers student demographic information. These questions come from the 2017 Standard High School Youth Risk Behavior Survey. Part 2 elicits student evaluations of their current sexual health curriculum and their views about sexual education in schools. These questions will capture student satisfaction with their current curriculum, recommendations for improvement if any, and their perceptions about the place of sexual education in schools. Some of the questions in this group have been adapted from Byers and colleagues (2003) and the qualitative work of and Eisenberg et al. (1997). Part 3 asks students about their perceptions about their sexual health knowledge. Using a 5-point scale, these questions seek to assess students' perceived knowledge about how to prevent unplanned pregnancy, STIs, and HIV/AIDS and provide insight about whether students need more education. Part 4 asks participants about social media engagement and their preferences for interacting with sexual health information. The answer choices are reflect the three engagement categories, observing, endorsing, and contributing, reported by Cao and colleagues (2017a). Finally, part 5 asks students to report their sexual behaviors. These questions also come directly from the Youth Risk Behavior Survey. These questions are included to measure the prevalence of sexual activity, number of sexual partners, age at first intercourse, alcohol and other drug use related to sexual activity, condom use, and contraceptive use (CDC,

2017 p. 26). These questions can benefit this study by comparing current student sexual behaviors to the content of their current sexual health curricula.

The Focus Group Screening Questionnaire (Appendix 2) requests demographic information and completion of sexual health course. Participants are asked their gender, age, ethnicity, and whether and what type of sexual health course they have taken.

The Focus Group Discussion Instrument is presented in Appendix 3. This instrument is based on previous literature exploring adolescent sexual health preferences, teen pregnancy prevention, and social media health promotion intervention and evaluation (Aquilino & Bragadottir, 2000; Eisenberg et al., 1997; Herrman, 2008). This instrument is semi-structured, however although it is composed of predetermined questions, it still allows the opportunity to explore themes or responses that naturally occur in conversation. This guide will query participants about their perceptions of their sexual health education, receiving sexual health education from local health departments and on social media channels.

Data collection procedure. Participant recruitment will take place approximately four days before (on a Monday) the first students will begin taking surveys (on a Friday). I have permission to verbally recruit students in their study hall sessions only. On a predetermined day in May, I will enter study hall classrooms to deliver a recruitment script (Appendix 4) to prospective participants. Interested students will receive a flier, a parent letter, an assent form and a parental consent form if under the age of 18 to take home and return signed (Appendix 5-8). Fliers will be posted throughout the common areas of the school, and a school-wide announcement will be made for four days to remind students to return all forms. Students must return forms signed in order to participate in the survey and the focus groups. Recruitment forms will also be available in the main office. Students who complete the survey will receive an

opportunity to win one of two $25 gift cards and focus group participants will receive lunch and a $5 gift card at the end of their participation.

On Friday, I will return to the study hall classrooms and collect all signed assent/consent forms from students who are interested in participating in the study. Interested participants will have an opportunity to ask questions they may have about the study or assent/consent form. Students who agree and are allowed to take the survey will be given the url to complete the online survey on their mobile devices. If students do not have a mobile device, they will be allowed to take the survey on a secured computer. Students will then write down their name and phone number and place it in a box to be entered into the raffle for the gift cards. Winners will be notified once all data collection is complete.

Focus groups will begin the following week. I will report back to study hall classes and escort students to the focus group location. The discussions will take place in the conference room located in the principal's corridors. It is a room that has a locked door for privacy. A "Focus Group In Session, Please Do Not Disturb" sign will also be placed on the door. Students will have lunch and then will be asked to complete the online Focus Group Screening Questionnaire. I will also check to see if all students who want to take the study survey have done so. If a student only wants to participate in the focus group they do not have to take the study survey, however they will need to complete a demographic survey to determine their eligibility. A laptop computer will also be available for students without mobile access. In the event there is a participant who does not have a signed parental consent form, refuses to sign an assent/consent form, or is ineligible, the participant will be asked to leave the study site and return to study hall.

Once surveys are completed, there will be a brief welcome to state the purpose of the study and to explain ground rules for appropriate behaviors in the focus group. After the introduction, audio recorders will be turned on. The session will begin with moderators asking pre-determined questions for the group. Sessions will last no longer than 75 minutes each, however they more than likely will need to be conducted during two study hall periods as each period is only 55 minutes. At the end of the discussion, audio recorders will be turned off and participants will be thanked for their time and they will each receive their gift cards. At the end of each focus group, I will offer students the opportunity to volunteer to be an informant for the member checks. Students will be given an extra entry in the gift card raffle for volunteering. Data collection should last approximately 5-10 school days.

Proposed Analysis

For survey results, frequencies and descriptive statistics will describe in general terms the consistency and nature of participant responses. Focus group recordings will be transcribed verbatim and then analyzed using NVivo 11.4.3, a software for qualitative and mixed methods analysis. For the focus group data, I will use a variation of the VSAIEEDC-model. There are many ways to code and analyze data within qualitative research. To lessen vagueness and encourage more replication, Persson (2006), developed a generic analysis model that can more explicitly guide generic qualitative inquiry. The VSAIEEDC-model details seven steps in data analysis: "(a) variation (b) specification (c) abstraction (d) internal verification, (e) external verification, (f) demonstration, and (g) conclusion" (Persson, 2006, p. 38). VSAIEEDC is a cognition-based model in which Persson (2006) posits that understanding and meaning is based on cues from the context in which patterns occur. Table 1 details the VSAIEEDC model and how I will use it to guide my analysis.

Table 1

VSAIEEDC steps	Explanation of step
1. Variation	Identify tentatively general variation in the material through the principle of "similarities – dissimilarities."
2. Specification	Identify more thoroughly and specifically the identifying characteristics of the data suitably subdivided in manageable sections.
3. Exploration	A visual overview of the reduced data in search of frequency-related regularities or irregularities.
4. Abstraction	Transformation through conceptualization and reduction.
5. Internal verification	Comparisons within the data, checking for logic and feasibility.
6. External verification	Comparisons to establish logic and feasibility with other materials other than the data like established theories, published research and/or other researches.
7. Demonstration	A more formal demonstration of possibly found frequency-related regularities or irregularities in for example a matrix format.
8. Conclusion	A concluding, though still tentative, full assessment of the analysis and its result. At some point the researcher will have to decide that the data cannot yield more information.

(Persson, 2006)

1. Variation-Within this step a graduate student and I will use structural coding, which is designed to start organizing data around specific research questions. Structural coding "applies a content-based or conceptual phrase representing a topic of inquiry to a segment of data that relates to a specific research question that was used to frame the interview" (MacQuecn, McLellan-Lemal, Bartholow & Milstem, 2008, p.124). A codebook based upon the focus group interview instrument, will be used to help develop these codes. We will each memo throughout our coding process and compare notes for any negative cases or recurring themes.

2. Specification-Within the anchor themes from step 1, we will utilize a second cycle coding method called pattern coding (Miles & Huberman, 1994). We will reread the anchor themes and within those themes, begin to cluster items of data that are related or connected into separate sub themes. An intercoder reliability check will be conducted again.

3. Exploration-Although, this step is introduced later in the model, word cloud summarization helps to identify the number and kind of topics present in a body of text. This approach can serve as a starting point for a deeper analysis (Heimerl, Lohmann, Lange, & Ertl, 2014). We will use word cloud visualization on each of the pattern codes to help identify, words that have high frequency and check to see if they are consistent with the new subthemes.

4. Abstraction-Still analyzing within the pattern codes, we will take note of which descriptions, words or expressions that made each pattern cohesive and unique. We will compare these words and descriptions to the previously produced word cloud. From both approaches, I will transform the descriptors and consolidate the pattern name into a more generally applicable and conceptual level. The resulting codes should be explanatory or inferential and ideally bring the information together in a more parsimonious unit of analysis (Miles & Huberman, 1994).

5. Internal verification-We will examine all of the patterns and look for the emergence of overarching themes. This will be done by exploring the underlying meaning across codes and the relationship between codes.

6. External verification-I will comparing pattern codes and overarching themes with results from existing literature.

7. Demonstration-This step will not be utilized. While this approach may work for case studies and one-on-one interviews, it will be difficult to quantify the large amount of data focus groups may produce in a matrix format. Instead this is where I will compare qualitative explanations to survey results.

8. Conclusion-I will synthesize themes together to form a composite explanation of the phenomena. I will present these findings to focus group informants for member checks.

Trustworthiness. Guba's (1981) four criteria for assessing trustworthiness in qualitative work has received considerable favor in the literature and has been a long-standing expectation to help guide rigor in qualitative research (Shenton, 2004). Guba (1981) posits that demonstrating credibility, transferability, dependability and confirmability are four key ways qualitative researchers can demonstrate rigor in their results. I will address each of these areas below.

Credibility. To ensure that my study's findings are consistent with reality, I will utilize member checks and analyst triangulation. During focus group analysis, I will utilize the assistance of another graduate student to analyze and review findings. Having two researchers independently analyze data helps to eliminate selective perception and interpretive bias (Patton, 1999). To maximize intercoder reliability, I will first develop a coding scheme and codebook of detailed descriptions that set the rules for codes. This protocol will help define the categories that are most relevant to the study aims and will guide coders to categorize information based upon definitions from previous literature. Next, coders will perform an intercoder reliability check on a sample of the data. Lombard et al., (2002) recommends that at 10% of the total content be tested. This dissertation has 10 main primary exploratory categories; therefore, the coders will randomly choose one category for the reliability check. Coders will then use Nvivo software to calculate the reliability coefficient, Cohen's kappa. Currently, there is no standard number that constitutes an acceptable level of intercoder reliability (Campbell, Quincy, Osserman, & Pedersen, 2013). Previous studies have argued that a score of at least .70 is acceptable, however it has been recommended that the level for exploratory research be relaxed since there is no existing and reliable coding scheme (Campbell, Quincy, Osserman, & Pedersen, 2013; Hruschka et al., 2004; Fahy, 2001; Krippendorff, 2004; Kurasaki, 2000). NVivo software calculates .40-.70

as acceptable. Given this study is exploratory, I will aim for at least a .55 intercoder reliability score and will engage in intercoder agreement if discrepancies arise.

Next, I will conduct member checks with at least two focus group participants. Member checks present the overall findings with source groups before writing them in a final report (Guba, 1981). At the end of focus groups, participants will have the opportunity to volunteer to participate in an informant session. Once analysis is completed, I will have participants read the overall findings before placing them in my final report. In separate sessions, participants will be asked to evaluate whether the results represent their experiences and if there is anything that needs to be changed or if anything is missing. If there is a consensus among the informants that something needs to be changed, I will first seek the opinion of two more informants before modifying the transcriptions to include their recommendations. The information given to the informants will be devoid of all personal information to protect participants' identity. This respondent validation will confirm and verify the interpretation of the findings and the appropriateness of the quotes used.

Transferability. I will use thick descriptions in the results and discussion sections to ensure the findings of this study are applicable to situations that are of similar context. Providing descriptive data allows for greater comparison which can help answer the issue of applicability (Guba, 1981).

Dependability. To make sure other researchers can replicate this study design and results, I will provide exact and detailed descriptions of the methods used for data gathering, analysis, and interpretation. This will include thoroughly documenting decisions that occur during intercoder agreement. This will allow for stepwise replication and can help enhance both the confirmability and dependability of results (Guba, 1981).

Confirmability. Methods triangulation will be used to help confirm that the study findings are a result of the experiences of the students, rather than researcher preferences or bias (Shenton, 2004). I will use the results from the surveys to help guide student focus group sessions. This will give students an opportunity to provide an explanation based on the collective responses of their peers.

Ethical issues

Given this study is working with a vulnerable population, informed parent consent and participant assent are two ethical areas that need to be addressed. Parental consent is required for all students under age 18. Students will not be allowed to participant in focus groups or surveys without written permission from their parents. This is stressed in all recruitment materials. Students will also be reminded they can end their participation at any time and this will not have a negative academic impact on them.

Next, due to the nature of focus groups, participant identity will be known to other focus group participants. Also, because participants will be recruited through their school, there may be inherent concerns about being identified or overheard during the interview. I will take the following steps to minimize this risk. 1) No one except the school nurse will be allowed enter the room during the focus group discussion, and the tape will be stopped, or conversation will cease if the interview is interrupted. 2) Participants will be instructed not to discuss focus group information outside of the designated room and scheduled interview sessions. This is also outlined in the assent and consent forms and will also be reiterated during the focus group ground rules on the day of the session. 3) Participants will be told in advance that they can choose not to disclose information they are not comfortable discussing. 4) No specific identifiers other than age and year in school, will be collected therefore it will be close to impossible to

ascertain the definite identity of a participant in written reports. Lastly, participants will be instructed from refraining from using names in their responses.

To ensure survey participants remain anonymous, students will be provided an online link so they may take the survey from their private electronic devices. In the event, students do not have a personal electronic device, they will be allowed to take the survey from a secured computer. Surveys do not ask for participant names or any other identifying information.

Timeline

Activity	Targeted Completion Date
IRB Application	Completed approved until 3/4/2019
Development of Codebook	Completed 2/1/2018
Recruitment Begins	4th week of September
Focus Groups and Survey collections begins	1st week of October
Analysis Begins immediately	1st week of October
Member checks	By 4th week of October and again in January
Analysis	October and November
Results writing	November and December
Discussion writing	December and January
Dissertation presented to committee	February 2019
Dissertation defense	March 2019
Close IRB	March 2019

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APPENDIX 1
Electronic Participant Survey

Thanks for participating in our survey. This survey should take no longer than 20 minutes to complete. Please answer ALL questions honestly. Remember no one can link your identity to your answers. Once you complete the survey you will be entered into a drawing for a chance to win a $25 gift card. Click next to begin.

1.How old are you?
A.12 years old or younger
B.13 years old
C.14 years old
D.15 years old
E.16 years old
F.17 years old
G.18 years old or older

2.What is your sex?
A.Female
B.Male
C. Transgender
D. Prefer not to answer

3.In what grade are you?
A.9th grade
B.10th grade
C.11th grade
D.12th grade
E.Ungraded or other grade

4.Are you Hispanic or Latino?
A.Yes
B.No

5.What is your race? (Select one or more responses.)
A.American Indian or Alaska Native
B.Asian
C.Black or African American
D.Native Hawaiian or Other Pacific Islander
E.White
F. Bi-racial (two races)
F. Other_____

The next few questions will ask you about your sexual health and/or health and wellness education course. Please answer honestly.

6. Have you taken a sexual health education class while in high school?

A. Yes
B. No

7. What was your sexual health education class?

A. Online
B. In-class instruction at CHS
C. Took at another school

8. How would you rate your sexual health educator instructor?

A. Excellent
B. Good
C. Average
D. Poor
E. Terrible

9. How would you rate the quality of your sexual health education course? (Adapted from Byers et al., 2003)

A. Excellent
B. Good
C. Average
D. Poor
E. Terrible

10. How did your sexual health education course influence your sexual behaviors? (Adapted from Eisenberg et al., 1997)

A. In an extremely positive way
B. In a somewhat positive way
C. They did not change
D. In a somewhat negative way
E. In an extremely negative way

11. How did your sexual health education course influence your sexual decision making? (Adapted from Eisenberg et al., 1997)

A. In an extremely positive way
B. In a somewhat positive way
C. They did not change
D. In a somewhat negative way
E. In an extremely negative way

12. How valuable would you rate your sexual health education course? (Adapted from Byers et al., 2003)

A. Extremely important

B. Very important
C. Moderately important
D. Slightly important
E. Not at all important

13. Do you think the sexual health education you received should be improved?

A. Yes
B. No

14. If you could improve your sexual education class, what would you do differently? (Check all that apply).

- ☐ Have a different instructor
- ☐ Include more topics
- ☐ Provide more timely information
- ☐ Course would be longer to cover more information (i.e. 1 week to 2 weeks)
- ☐ Course would be taught more than once (i.e every year, or every two years) to go over age appropriate information
- ☐ Include information about local resources and services
- ☐ Focus on more than abstinence
- ☐ Other

15. Do you think sexual health education should be taught in school? (Byers et al., 2003)

A. **Yes**
B. **No**

16. Do you think sexual health education should be taught in school?

A. Abstinence-only
B. Safer Sex education

17. What topics do you think should be included in sexual health education classes? (Check all that apply.) (Adapted from Byers et al., 2003)

- ☐ Pregnancy prevention and contraceptive use
- ☐ Consent
- ☐ LGBTQ health
- ☐ Sexual transmitted infections and diseases
- ☐ Local services and resources
- ☐ Sexual assault/abuse/violence
- ☐ Abortion
- ☐ Sex and technology
- ☐ Abstinence
- ☐ Puberty
- ☐ Partner sexual communication
- ☐ Condom use

- ☐ Relationship management
- ☐ Other_____

18. Why do you think sexual health should be taught in school? (Check all that apply).

- ☐ **I get reliable, credible information**
- ☐ **I would not learn this information anywhere else**
- ☐ **My parents wouldn't teach me**
- ☐ **This information is important because people my age are having sex**
- ☐ **My friends do not give me the best information**
- ☐ **The Internet/social media does not give me the best information**
- ☐ **I am sexually active**
- ☐ **Other_____**

19. Why do you think sexual health should not be taught in school? (Check all that apply.)

- ☐ I am too young
- ☐ My parents should teach me
- ☐ I don't need the information
- ☐ Information goes against my religious beliefs
- ☐ Other_____
- ☐ I think it should be taught in school

20. When you have a question about sex or sexual health where do you go for information? (Check all that apply).

- ☐ Parents
- ☐ Siblings
- ☐ Friends
- ☐ Teachers
- ☐ Doctor
- ☐ Social media
- ☐ Internet

21. How knowledgeable are you about how to prevent pregnancy?

A. Extremely knowledgeable
B. Very knowledgeable
C. Moderately knowledgeable
D. Slightly knowledgeable
E. Not knowledgeable at all

22. How knowledgeable are you about how to prevent the transmission of HIV?

A. Extremely knowledgeable
B. Very knowledgeable
C. Moderately knowledgeable

D. Slightly knowledgeable
E. Not knowledgeable at all

23. How knowledgeable are you about how to prevent the transmission of STIs such as gonorrhea and chlamydia?

A. Extremely knowledgeable
B. Very knowledgeable
C. Moderately knowledgeable
D. Slightly knowledgeable
E. Not knowledgeable at all

24. If a health educator wanted to use social media to provide sexual health information to teens your age, what platforms would you tell them to use? (Check all that apply).

☐ Facebook
☐ Instagram
☐ Snapchat
☐ Twitter
☐ Vine
☐ Other

25. To capture your attention, a social media post about sexual health information should come from: (Check all that apply.)

☐ A friend
☐ A celebrity
☐ A health organization
☐ A church
☐ A school
☐ A local health department

26. What would get you to pay attention to a social media post about sexual health information? (Check all that apply).

☐ The words/message
☐ The messenger
☐ The photo
☐ If someone @ me
☐ Other people who have liked it
☐ Other_____

27. If I liked a social media post about pregnancy prevention I am likely to? (Check all that apply).

☐ Share/retweet it
☐ Like it
☐ Take a screenshot

- ☐ Tag/mention someone
- ☐ Comment
- ☐ Message someone privately

28. If I liked a social media post about STD and AIDS prevention I am likely to? (Check all that apply).

- ☐ Share/retweet it
- ☐ Like it
- ☐ Take a screenshot
- ☐ Tag/mention someone
- ☐ Comment
- ☐ Message someone privately

29. What are some barriers that would keep you from liking a social media post about sexual health information?

- ☐ Liking it publicly might make me look bad
- ☐ It's not important enough to like
- ☐ Not a lot of people liked it
- ☐ I would share it privately because of the subject matter
- ☐ The picture is too graphic
- ☐ Other

The last few questions are about your sexual behavior. Remember no one can trace your answers to your identity. It is very important your answer this questions honestly.

30. Have you ever had sexual intercourse?

A. Yes
B. No

31. How old were you when you had sexual intercourse for the first time?

A. I have never had sexual intercourse
B. 11 years old or younger
C. 12 years old
D. 13 years old
E. 14 years old
F. 15 years old
G. 16 years old
H. 17 years old or older

32. During your life, with how many people have you had sexual intercourse?

A. I have never had sexual intercourse
B. 1 person
C. 2 people
D. 3 people
E. 4 people
F. 5 people
G. 6 or more people

33. During the past 3 months, with how many people did you have sexual intercourse?
A. I have never had sexual intercourse
B. I have had sexual intercourse, but not during the past 3 months
C. 1 person
D. 2 people
E. 3 people
F. 4 people
G. 5 people
H. 6 or more people

34. Did you drink alcohol or use drugs before you had sexual intercourse the last time?
A. I have never had sexual intercourse
B. Yes
C. No

36. The last time you had sexual intercourse, did you or your partner use a condom?
A. I have never had sexual intercourse
B. Yes
C. No

37. The last time you had sexual intercourse, what method(s) did you or your partner use to prevent pregnancy?
A. I have never had sexual intercourse
B. No method was used to prevent pregnancy
C. Birth control pills
D. Condoms
E. An IUD (such as Mirena or ParaGard) or implant (such as Implanon or Nexplanon)
F. A shot (such as Depo-Provera), patch (such as Ortho Evra), or birth control ring (such as NuvaRing)
G. Withdrawal or some other method
H. Not sure

38. During your life, with whom have you had sexual contact?
A. I have never had sexual contact
B. Females
C. Males
D. Females and males

39. Which of the following best describes you?
A. Heterosexual (straight)
B. Gay or lesbian
C. Bisexual
D. Not sure

Thank you for completing this survey!

APPENDIX 2

Focus Group Screening Questionnaire

1.How old are you?

A.12 years old or younger
B.13 years old
C.14 years old
D.15 years old
E.16 years old
F.17 years old
G.18 years old or older

2.What is your sex?

A.Female
B.Male
C. Transgender
D. Prefer not to answer

3.What is your race? (Select one or more responses.)

A.American Indian or Alaska Native
B.Asian
C.Black or African American
D.Native Hawaiian or Other Pacific Islander
E.White
F. Bi-racial (two races)
F. Other_____

4. Which online sexual health course have you taken?

A. I have not taken a sexual health course yet

B. In-class instruction

C. Online

APPENDIX 3
Focus Group Interview Instrument

The health problem

1. Do you believe sexual health among your peers is a problem in your community? (Aquilino & Bragadottir, 2000)
2. Why do you think people of your age have sex? (Aquilino & Bragadottir, 2000)

Research Aim 1-Opinions about current sexual health curriculum.

1. What are your general thoughts about sexual education in schools?
2. What do you like or dislike about your current curriculum? **(Eisenberg et al., 1997)**

Research Aim 2- Recommendations for sexual health curricula.

3. What topics do you think you should be covered?
4. How do you think sexual health education should be taught?
5. Who should teach sexual health education courses? Why?
6. Should it be abstinence-only or safer sex?

Moderator: Now we want to change focus a bit and talk more about other ways teens learn about sexual health?

Research Aim 3-Adolescents' current attitudes and behaviors regarding receiving and seeking sexual health information on popular SMS.

1. Do you use social media for sexual health information? How?
2. What encourages you to receive information from SMS?
3. What deters you from receiving information from SMS?

Moderator: Let's say your local health department wants to develop a SMS platform to present sexual health information to teens like you.

Research Aim 4-Adolescents' current attitudes and behaviors regarding receiving and seeking sexual health information on popular SMS.

1. What would motivates teens to follow health organizations that post sexual health information on SMSs?
2. What advice would you give your local health department so they can partner with schools to provide sexual health information?

Moderator: Lastly, let's talk about how teens interact with others about sexual health information on SMS.

Research Aim 5-explore how adolescents prefer to engage with others about sexual health information on SMS.

1. How do you currently interact with others on SMS about sexual health information?
    a. If you saw a post about sexual health on SMS would you like it? Tag it, share it?
2. How do you prefer to engage with others on SMS about sexual health information?
3. How do you currently engage with sexual health information on SMS?
4. How do you prefer to engage with sexual health information on SMS?
5. What features would you prefer to use when engaging with sexual health information on SMS?
6. What motivates/deters you from engaging with sexual health information on SMS?

Moderator: Does anyone have any final thoughts? Thank you for your time!

Research Aim 1 & 2-Perception and Recommendations for Sexual Health Education

Topic of Inquiry	Corresponding Focus Group Questions	Corresponding Survey Questions
Demographic Questions	1.How old are you? 2.What is your sex? 3.What is your race?	1.How old are you? 2.What is your sex? 3.In what grade are you? 4.Are you Hispanic or Latino? 5.What is your race?
Eligibility	4. Which online sexual health course have you taken	6. Have you taken a sexual health education class while in high school?
Views on Sexual Education	1. What are your general thoughts about sexual education in schools? 2. What do you like or dislike about your current curriculum? (Eisenberg et al., 1997)	9. How would you rate the quality of your sexual health education course? (Adapted from Byers et al., 2003) 10. How did your sexual health education course influence your sexual behaviors? (Adapted from Eisenberg et al., 1997) 11. How did your sexual health education course influence your sexual decision making? (Adapted from Eisenberg et al., 1997) 12. How valuable would you rate your sexual health education course? (Adapted from Byers et al., 2003) 13. Do you think the sexual health education you received should be improved? 14. If you could improve your sexual education class, what would you do differently? 15. Do you think sexual health education should be taught in school? (Byers et al., 2003) 16. Which curriculum below do you think should be taught in sexual health education? 18. Why do you think sexual health should be taught in school? 19. Why do you think sexual health should not be taught in school? (Check all that apply.)
Instructional Preferences	4. How do you think sexual health education should be taught? 5. Who should teach sexual health education courses? Why?	8. How would you rate your sexual health educator instructor?

Content Preferences	3. What topics do you think you should be covered? 6. Should it be abstinence-only or safer sex?	17. What topics do you think should be included in sexual health education classes? (Check all that apply.) (Adapted from Byers et al., 2003)

Research Aim 3-Recommendations for Health Departments to Disseminate Information to teens

Topic of Inquiry	Corresponding Focus Group Questions	Corresponding Survey Questions
Create a following	3. What would motivate teens to follow health organizations that post sexual health information on SMSs? 4. What advice would you give your local health department, so they can partner with schools to provide sexual health information?	24. If a health educator wanted to use social media to provide sexual health information to teens your age, what platforms would you tell them to use? (Check all that apply). 25. To capture your attention, a social media post about sexual health information should come from: (Check all that apply.) 26. What would get you to pay attention to a social media post about sexual health information? (Check all that apply).

Research Aim 4&5-Fostering Engagement and Preferred Preferences

Topic of Inquiry	Corresponding Focus Group Questions	Corresponding Survey Questions
Engagement	1. What features would you prefer to use when engaging with sexual health information on SMS? 2. How do you currently interact with others on SMS about sexual health information? a. If you saw a post about sexual health on SMS would you like it? Tag it, share it? 3. How do you prefer to engage with others on SMS about sexual health information? 4. How do you currently engage with sexual health information on SMS? 5. How do you prefer to engage with sexual health information on SMS?	27. If I liked a social media post about pregnancy prevention I am likely to? (Check all that apply). 28. If I liked a social media post about STD and AIDS prevention I am likely to? (Check all that apply).
Barriers	6. What motivates/deters you from engaging with sexual health information on SMS?	29. What are some barriers that would keep you from liking a social media post about sexual health information?
Current Uses	7. Do you use social media for sexual health information? How? 8. What encourages you to receive information from SMS? 9. What deters you from receiving information from SMS?	20. When you have a question about sex or sexual health where do you go for information? (Check all that apply).
Current Sexual Behaviors	NA	30. Have you ever had sexual intercourse? 31. How old were you when you had sexual intercourse for the first time? 32. During your life, with how many people have you had sexual intercourse? 33. During the past 3 months, with how many people did you have sexual intercourse? 34. Did you drink alcohol or use drugs before you had sexual intercourse the last time?

		36. The last time you had sexual intercourse, did you or your partner use a condom? 37. The last time you had sexual intercourse, what method(s) did you or your partner use to prevent pregnancy? 38. During your life, with whom have you had sexual contact? 39. Which of the following best describes you?

APPENDIX 4

Sample Recruitment Script for

Investigator Initiated In-person Contact

Script:

Hello, my name is _____ and I am a graduate student at Purdue University. By show of hands how many of you have taken a sexual education class? Well, we are conducting an experiment that will give you an opportunity to tell us what you thought about your experiences and just your overall thoughts about health and wellness education. We need high school students to take a survey and participate in a focus group to give us some insight about how to improve your health and wellness education.

If you decide to participate you will be paid for your time. If you participate in the focus you will be given a $5-dollar gift card, and we will also provide light refreshments. If you take the survey, you will be entered into a drawing to win a $25-dollar gift card.

In order to participate you will need to get your parents to sign the attached permission forms and also you will need to sign a consent form as well. We must have these forms the day of the focus group in order for you to be eligible to participate. Although we are getting your parents' permission, everything you report in the experiment will be anonymous. Your identity will be coded, and only researchers have access your information. Within our reports we will not match your answers to your identity.

Your participation is completely voluntary, and you can end your participation at any time.

You will have to contact us in order to find out where and when the focus group sessions will be held. There will be fliers around the school to remind you of the experiment.

We look forward to working with you, as this research is very important to health communication. If you have any questions, feel free to contact me at harri490@purdue.edu or by phone at 305-766-7436. If you are interested in participating, please raise your hand and I will give you the forms you need to get signed.

Thank you for your time.

APPENDIX 5
Recruitment Flyer

Are you a student a Crawfordsville High School?
Want an opportunity to receive a $25 gift card by telling us what you think?

We want to hear from you!

Purdue University researchers are looking for teenagers, ages 13 to 19 to participate in a study about sexual health education.

We need students to take a brief survey. If you take the survey you will be entered in a drawing to win one of two $25-dollar gift cards. We also need students to participate in a 75-minute focus group discussion. Simply share your ideas about sexual health education and health and wellness education. Lunch will be provided. If you decide to participate and complete the focus group, you will receive a $5 gift card and if you complete the survey you will be entered in the drawing as well!

YOU can get INVOLVED…Don't miss your chance to participate.

If you would like to be considered for the focus group, please contact Tanisha Watkins at harri490@purdue.edu or 305-766-7436. You can text or e-mail your name and phone number and we will schedule your spot in the focus group. Once you have reserved your spot, we will give you a consent form for your parents to sign.

We look forward to hearing from you!
If you have any questions, please contact us.

APPENDIX 6

Dear Parent:

I am a Purdue University student and I have partnered with your child's school to conduct a research project about what high school students think about their current health and wellness education with focus on sexual education. The purpose of this study is to hear directly about what students would like to have included or excluded in their health and wellness curriculum. To learn more about what students think, we would like for your child to participate in a brief one-time survey during their study hall as well as a focus group session.

Your child does not have to participate. If s/he does participate, his/her information will be kept completely confidential, or private. If a child participating in this study is in foster care, the foster parent should contact the child's caseworker to determine who can give consent. Please take a few moments to carefully read the enclosed parental consent form. If you give your child permission to participate in the surveys and/or the focus group, please complete and sign the parental consent form. Your child will need to return this form signed in order to participate in the survey and focus group. If you have any questions about this research, please refer to the parental consent form to contact researchers or the Human Research Protection Program at Purdue University. I hope you will be as excited about this project as other parents have been.

Sincerely,

Tanisha Watkins, Ph.D. Candidate
Consumer Science Academic Instructor
Purdue University