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LOMA LINDA UNIVERSITY
School of Behavioral Health
in conjunction with the
Department of Psychology

Literature Review of Drug Education Programs

by

Brianna E. Johnson, B.S., M.A.

Project/Thesis submitted in partial satisfaction of
the requirements for the degree of
Doctor of Psychology

June 2016

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Each person whose signature appears below certifies that this doctoral project in his/her opinion is adequate, in scope and quality, as a doctoral project for the degree Doctor of Psychology.

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ABSTRACT

Literature Review of Drug Education Programs

by

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Doctor of Psychology, Graduate Program in Psychology

Loma Linda University, June 2016

Dr. Holly Morrell, Chairperson

The onset of drug use usually begins during adolescence. Adolescents and teenagers have the highest rates of drug use (Center for Disease Control [CDC], 2011a). Among 9th through 12th graders, drug use increases with each year in school, with rates being the highest for 12th graders (Stigler, Neusel, & Perry, 2011). While overall rates of drug use have been declining, the current rates of drug use among teens are still of concern. The current rates of drug use emphasize how important it is for drug education programs as well as prevention efforts to be began early on. The current drug use trends, as well as teens' and adolescents' perceived conceptions about the risks involved with drug use, help to show the importance of and need for more effective and widely available drug education programs. In this study, we plan to evaluate the efficacy of currently available drug education programs, critically examine the strengths and weaknesses of each program, and to synthesize core factors that seem to be the most effective in preventing drug use and delaying the onset of drug use. With this research, our goal is to draw conclusions and make recommendations as to what is most effective for preventing drug use among teens. A preliminary analysis of the literature suggests that certain factors from each of the different drug education programs would be important to include in a comprehensive drug education program that is implemented in schools. From the

literature, it appears that interactive programs that are intensive in their training (meaning they last from 10 – 30 sessions), include skills training and competency enhancement, comprehensively cover all drug-related topics, and include normative education.

ABBREVIATIONS

C.D.C.	Center for Disease Control Prevention
CSAP	Center for Substance Abuse Prevention
D.A.R.E.	Drug Abuse Resistance Education
GHB	Gamma Hydroxybutyric Acid
IHRA	International Harm Reduction Association
LSD	Lysergic Acid Diethylamide
SAMHSA	Substance Abuse and Mental Health Services Administration
SHAHRP	School Health and Alcohol Harm Reduction Project
SHPP	The School Health Policies and Practices Study
STAR	Steps to Achieving Resilience
USDHHS	U.S. Department of Health and Human Services

CHAPTER 1

INTRODUCTION

There has been a push for drug education to be focused on deterring and preventing drug use and abuse among teens and adolescents. This focus that began in the 1980s changed the scope of drug education programs and efforts were made to start drug education directly in the students' schools. It was important to emphasize that drug misuse and initiation was an education issue that schools could address (Coggans, 2006). It was judged that schools were an appropriate place to focus drug education efforts. Schools have the greatest access to a large number of school aged children and these programs are relatively easy to implement in comparison to community type programs (Soole, Mazerolle, & Rombouts, 2008). Throughout the 1980s and the 1990s, Drug Abuse Resistance Education (D.A.R.E.) was the most popular and widely implemented drug education program used in schools to educate teens and adolescents about the risks of drug use. However, D.A.R.E. was found to be ineffective in reducing teen's rates of drug use (Ennett, Tobler, Ringwalt, & Flewelling, 1994; Lynam, et.al., 1999; Rosenbaum, Flewelling, Bailey, Ringwalt, & Wilkinson, 1994; West & O'Neal, 2004). Data showed that drug use among teens was at an all-time high during those decades.

Recently, there has been some variation in drug use rates among teens; use of some drugs has been declining over the years and use of others has been increasing (Centers for Disease Control and Prevention [CDC], 2011). Marijuana use has been increasing among teens over the past four years, while alcohol use and cigarette use have been declining (Johnston, O'Malley, Bachman, & Schulenberg, 2013). One drug that may have increasing rates in the next few years is Adderall; during 2012 usage rates increased among 12th graders. The prevalence rates of bath salts (bath salts contain one or more

synthetic chemicals related to cathinone which is found in the khat plant) are very low (.8 to 1.3 percent for 8th, 10th, and 12th graders in 2012) and usage rates of synthetic marijuana have not changed (i.e., synthetic marijuana use has remained around 11.4 percent in both 2011 and 2012). Synthetic marijuana was recently scheduled by the Drug Enforcement Administration, making many chemicals found in synthetic marijuana illegal to sell and buy. However, synthetic marijuana use has not decreased, suggesting that compliance with the new regulations has not completely taken effect or manufacturers have found new ways to change the chemical formulas of synthetic marijuana. There was a significant decline in the use of ecstasy as well as heroin use without a needle (i.e., heroin use without a needle was approximately .3 and .4 percent in 2012 for 8th, 10th, and 12th graders; this is a decline from 2010 when usage rates were around .6 percent). There has also been a decline in the rates of salvia (an herb in the mint family), inhalants, and tranquilizers. Several drugs have remained steady in use over the years. Cocaine, methamphetamines, Rohypnol, Gamma Hydroxybutyric Acid (GHB), Ketamine, steroids, over-the counter cough and cold medicines, sedatives, psychotherapeutic drugs and prescription drugs have all remained steady in their use (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

Changes in drug use rates could be due to many factors. One possibility is that drug education programs have been increasing in options, availability, and effectiveness over the last few years. Increases or maintenance in levels of other drugs, such as marijuana and Adderall, could be due to the fact that teens and adolescents perceive there to be less risk using these drugs than with cocaine, heroin, and methamphetamines (Johnston, O'Malley, Bachman, & Schulenberg, 2013). Currently there are many

different types of drug education programs one can choose from that are based on varying theories, principles, and philosophies. With so many competing theories, it can be hard to parse out exactly what may be influencing the variability in drug use among teens.

CHAPTER 2

CLINICAL IMPORTANCE OF PROBLEM

The onset of drug use usually begins during adolescence. Adolescents and teenagers have the highest rates of drug use (Center for Disease Control [CDC], 2011a). Among 9th through 12th graders, drug use increases with each year in school, with rates being the highest for 12th graders (Stigler, Neusel, & Perry, 2011). While overall rates of drug use have been declining, the current rates of drug use among teens are still of concern. For example, nine out of ten smokers start smoking before the age of 18 (Benjamin, 2012). A report by the surgeon general states that over 3.6 million middle and high school students smoke cigarettes (U.S. Department of Health and Human Services [USDHHS], 2012). It is estimated that nearly 4,000 adolescents and teens will have already tried smoking before age 18 (USDHHS, 2012). Altogether, that is almost 1.5 million young adults a year (USDHHS, 2012). Ultimately, 480,000 people die prematurely each year from smoking and exposure to second-hand smoke, which makes smoking the leading preventable cause of death in the United States (USDHHS, 2014).

Alcohol use is the third leading lifestyle-related cause of death, and is responsible for approximately 80,000 deaths each year (CDC, 2012). Sixteen percent of adolescents aged 12–17 years had their first alcoholic drink before age 13 (Fryar, Merino, Hirsch, & Porter, 2009). Marijuana use has been on the rise recently. Monitoring the Future reports that 6.5% of 12th graders are using marijuana daily, which means that one out of every 15 high school seniors is using marijuana daily (Johnston, O'Malley, Bachman, & Schulenberg, 2013). The data also show that there has been a decline in students' perceptions of how risky the consequences of marijuana are, and that 82% of 12th graders report finding it fairly easy to access marijuana (Johnston, O'Malley, Bachman, &

Schulenberg, 2013). Synthetic marijuana trends have remained the same over the past two years with 11.3% of 12th graders using synthetic marijuana in the past 12 months (Johnston, O'Malley, Bachman, & Schulenberg, 2013). In addition, approximately 21% of adolescents aged 12–17 years had ever tried marijuana (Fryar, Merino, Hirsch, & Porter, 2009).

Inhalant use has declined among 8th graders over the past eight years. Tenth graders' inhalant use has been declining since 2007 and 12th graders inhalant use has been declining since 2005 (Johnston, O'Malley, Bachman, & Schulenberg, 2013). However, adolescents and teens perceive there to be little risk associated with the use of inhalants. While the lack of perceived risk by adolescents has not been linked to any increases in inhalant use, the fact that there is little perceived risk associated with inhalant use is troubling. On the other hand, there is a great amount of disapproval of the use of inhalants among teens, with 80% saying they would disapprove of trying inhalants even just once (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

Levels of lysergic acid diethylamide (LSD) use have remained at historically low levels of use since 2001 (Johnston, O'Malley, Bachman, & Schulenberg, 2013). Levels of perceived risk, availability of LSD and disapproval of use have remained low or have been decreasing for LSD. It is suggested that this is due to the fact that many teens and adolescents are unfamiliar with LSD. While teens may be unsure of the risks posed by LSD, they do know of the risks associated with cocaine. Cocaine use has been declining for the past ten years (Johnston, O'Malley, Bachman, & Schulenberg, 2013). Two percent of adolescents aged 12–17 years had ever tried cocaine during their lifetime (Fryar, Merino, Hirsch, & Porter, 2009). Perceived risk associated with cocaine use is

acknowledged by over 50% of teens and adolescents. Disapproval of the use of cocaine has slightly increased over the past few years. The perceived availability of cocaine has also slightly decreased in the recent years (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

Methamphetamine use has been declining for the past 13 years. In 1999, methamphetamine use was between 3.2 and 4.7 percent for 8th, 10th and 12th graders; in 2012 methamphetamine use was approximately one percent for all three grades. Amphetamine use has also been declining over the recent years. In 2000, 13.5% of 8th, 10th, and 12th graders had used amphetamines in their lifetime, while in 2012 8.3% of surveyed students had used amphetamines in their lifetime. Adderall and Ritalin were included in the survey's questions about the perceived risk, disapproval and availability of amphetamines; with these inclusions there was some variation in the levels of teens' perceptions. The perceived risk has declined in the past few years. The perceived availability has declined over the past few years, meaning that teens perceive it to be more difficult to obtain amphetamines. The disapproval of the use of amphetamines is fairly high, with over 80% of teens disapproving of the use of amphetamines (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

There has been a significant decline in the use of heroin in the last three years (Johnston, O'Malley, Bachman, & Schulenberg, 2013). In 2009, lifetime use for 8th, 10th, and 12th grade combined was 1.4 %, while in 2012 lifetime use for all three grades combined was one percent. Tenth graders perceive the most risk associated with the use of heroin. In all three grades (i.e., 8th, 10th, and 12th grade) the perceived risk has remained steady for the past decade. The disapproval of the use of heroin is quite high,

with all three grades reporting a disapproval rate of around 90%. The perception of the availability of heroin has been declining in the recent years, with very few students finding it easy to obtain heroin (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

The use of ecstasy spiked around 2010, but has since declined (reportedly, in 2012 lifetime use of ecstasy was 5.5% and in 2012 lifetime use of ecstasy was 4.6%; Johnston, O'Malley, Bachman, & Schulenberg, 2013). Eighth graders see the least amount of risk in using ecstasy and 12th graders have the highest levels in perceived risks associated with the use of ecstasy. This trend continues with levels of disapproval, as well as perceived availability (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

While there has been a decline in some drug usage rates over the years, the current rates of drug and substance use among teens is still concerning. The current drug use trends, as well as teens' and adolescents' perceived conceptions about the risks involved with drug use, help to show the importance of and need for more effective and widely available drug education programs. In 2006, an evaluation of the current drug education programs was conducted by the Centers for Disease Control and Prevention. The School Health Policies and Practices Study (SHPP) is conducted approximately every six years. The study is conducted at the state, district, school, and classroom levels nationwide and assesses eight characteristics and components of school health during elementary, middle, and high school. The components evaluated are health education, physical education and activity, health services, mental health and social services, nutrition services, healthy and safe school environment, faculty and staff health promotion, and family and community involvement. Analyzing these components of school health education programs helps us to better understand what topics are covered in

school health programs; who delivers the information and how; the level of involvement of the school, parents, and outside communities; and key health policies in place in teens' schooling (Kann, Brener, & Wechsler, 2007).

The SHPP study found that between 70% and 80% of states and districts provide funding for the development of staff members who teach health education. However, only 26.6% of these health education courses were being taught by a staff member who had received extra training to teach the class. They found that most prevention measures were implemented in high school. For high school students, 79.9% of educators spoke to their students about making a personal commitment to not use alcohol or other drugs. For middle school students, 62.9% of teachers spoke to their students about the alcohol content in different drinks and corresponding blood alcohol levels. For elementary school students, only 17% of teachers addressed this issue. In high school, over 90% of teachers talked to their students about the effects and consequences of drug and alcohol use. In middle school, over 81% of teachers addressed the peer pressure to use drugs that students face; over 71% of elementary school teachers spoke to this issue as well. The percentage of schools that had participated in a community based drug education and prevention program decreased from 50% to approximately 40% from 2000 to 2006, which shows that there is still some work that needs to be done to help insure that all students and communities are provided with and receiving drug education (USDHHS, 2006a).

Approximately 60-80% of states and districts provide resources for getting families and communities involved in the schools' drug education programs. Fifty percent of schools involved the community in the prevention of illegal drug use, while

only 29% of schools involved family members in the prevention of tobacco use. Only 38% of schools participated in community-based alcohol use prevention programs, and only 47% of schools participated in programs in which family or community members served as role models or mentors for the students. Thirty percent of schools had representatives from the local health department participate in their school health councils and only 34% had council members that were local health care providers (USDHHS, 2006b).

These statistics are important for educators and clinicians to aid them in recognizing how much of a problem drug use and abuse still is among teens and adolescents. Educators and clinicians have an important role to play in improving the prevention of risky substance use behaviors among teens. It is therefore essential to conduct research that informs clinical work, policymaking, educational structure, access to information, and community involvement.

CHAPTER 3

AIMS

In this study, we plan to evaluate the efficacy of currently available drug education programs, critically examine the strengths and weaknesses of each program, and to synthesize core factors that seem to be the most effective in preventing drug use and delaying the onset of drug use. With this research, our goal is to draw conclusions and make recommendations as to what is most effective for preventing drug use among teens. Our aims are to:

1. Identify and describe what drug education programs aimed at preventing drug use among children and teens in the United States currently exist, according to salient characteristics to be identified during the literature search (e.g., setting, modality, etc.). The focus will be on interventions that are more recent and those that are still being implemented.
2. Evaluate the effectiveness of these drug education programs based on the currently available scientific literature.
3. Identify and evaluate the effectiveness of common strategies used across these drug education programs.
4. Determine who benefits the most from treatment (e.g., certain racial/ethnic, gender, socioeconomic, or personality-based groups, etc.) to the extent possible for both programs as a whole and individual intervention strategies.
5. Based on a thorough review and critique of the currently available scientific literature, provide specific recommendations for improving interventions and for

future research that is needed in this area to develop interventions that are more effective.

CHAPTER 4

LITERATURE REVIEW

Currently there are several competing theories used to inform the development of drug use prevention programs. Some interventions address educating students, some address educating parents, and others educate and train both the teens and their parents. A few programs have a much wider scope of community involvement and policy change. The method of education is different in each program as well. A few interventions focus on assisting participants in learning new life skills such as assertiveness, problem solving, and coping; these techniques are used with the hope that students will be able to effectively deal with and manage the social and peer pressure that they face from their friends, idols, media, and society.

While there are various types of drug education programs, this paper will focus on the most prominent and commonly used drug education programs. Several programs will be evaluated in this paper, such as the Blueprint program, Strengthening families, Drugsbridge, and The School Health and Harm Reduction Project. The Blueprint program focuses on school curriculum, sources of support, teacher training, and public policies (Baker, 2006). Strengthening families is an evidenced-based program that focuses on parenting skills and strengthening the family unit (Strengthening Families Program, 2012). Drugsbridge is considered a humanistic approach to drug education, with its use of an informed choice approach and having learning occurring in a non-threatening environment. Drugsbridge acknowledges that thinking, feeling, knowledge, and behaviors are all important in the learning process (Mallick & Watts, 2007a). The School Health and Harm Reduction Project focuses on school based curriculums, with a

particular aim to reduce alcohol related harm (McBride, Farrington, Midford, Meuleners, & Phillips, 2004).

Several new treatment approaches are also coming into play, such as harm reduction and internet based intervention programs. Harm reduction should not be confused with the zero tolerance or abstinence model. Zero tolerance interventions advocate for the prevention of drug use through the promotion of no drug use. Drug use in any form is not tolerated and the consequences for drug use are harsh. Zero tolerance interventions promote that users of illegal drugs suffer the full legal consequences of their behavior (Munro & Midford, 2001). Harm reduction, in contrast, focuses on reducing the incidence of drug use and risky drug usage behaviors such as sharing needles with others. Harm reduction offers support to those who want to reduce or moderate their drug use. While harm reduction is more focused on reducing drug use, that does not mean such programs are against abstaining from drug use (McKeganey, 2011). Overall, more recent programs focus on family and community involvement, social influences, life skills training, interactivity (i.e., providing the students with contact and communication opportunities with other students, peers, teachers, parents and professionals), harm reduction, time intensity, and self-efficacy. Many are school-based programs, and are rooted in social cognitive theory and personal construct theory (Soole, Mazerolle, & Rombouts, 2008).

Family and Community Involvement

The rationale behind including the family in teen drug education programs is the idea that when positive, nurturing relationships are established between parents and their

young children, this bond can continue to positively influence development into the teen years. Continued communication and involvement serve as protective agents as the child matures. When a family life does not foster positive bonds, teens are more susceptible to high-risk behaviors such as substance use, which is why it is important to involve parents in the drug education process (Mallick, 2007). It is also important to be part of a community that fosters and promotes a healthy quality of life (Mallick, 2007).

Interventions involving families and communities typically target systems-wide change that involves a multi-component model. A multi-component model simply means that the program focuses on many components of drug education and prevention. Family involvement and community involvement are both different components of the model. Many programs focus on a child's home environment where their foundation for values, morals, ethics, and beliefs has been laid. This intervention emphasizes the important role that a child's caregiver plays in the child's attitudes and behaviors towards drug use (Mallick, 2007). This intervention focuses on a wider scope of not just changing the attitudes of teens, but also the attitudes of their parents. Strong, positive, and healthy family relationships are an important target for intervention in the prevention of drug use among teens.

Attempts are made to ensure that drug prevention is addressed at the school, family, community, and media levels. Evidenced-based school education curricula are implemented as part of these comprehensive programs. There are a variety of curricula a school could implement. What curriculum is implemented depends on the age and grade of the students. Some of these curricula include Growing Healthy, Know Your Body, Teenage Health Teaching Modules, The Alcohol Misuse Prevention Program, Project

Alert, Project Northland, Steps to achieving resilience (STAR), and the Social Competence Prevention Program. Project Alert is a “social resistance skills training program for students in 6th through 8th grade” (Dusenbury, Mathea, & Lake, 1997, p. 128). The program content of Project Alert is based in part on Albert Bandura’s self-efficacy theory of behavior change (Ellickson, 2014). Project Northland is similar to Project Alert; however, Project Northland specifically focuses on alcohol education and prevention. Project Northland is community wide program that is multileveled and has multiple components implemented in its method of approach (Komro, et.al., 2008).

STAR also focuses on teaching students social resistance skills. STAR has been developed to be used with students in 5th through 8th grade. It is a multicomponent intervention using family, community, and the media. The Social Competence Promotion Program (also known as the Social Development Project) comprises 27 sessions that center on teaching social problem solving; this problem solving training includes education on social resistance skills as well (Dusenbury, Mathea, & Lake, 1997). Similar topics are covered in these curricula, such as life skills training, social resistance skills, personal and social skills, and problem solving skills (Dusenbury, Mathea, & Lake, 1997). The greater hope is that policy-wide changes will be made that will change the overall school and community-wide atmosphere in how drug education is thought of and viewed (Soole, Mazerolle, & Rombouts, 2008). The Blueprint and Strengthening Families programs also adhere to this model.

Social Influences

Programs involving an emphasis on social influences focus on a normative approach, which establishes a standard of behavior for teens. Normative approaches demonstrate to teens that actual rates of drug use among young adults are lower than they think. They challenge teens' beliefs that college students all drink and drink a lot. Through healthy peer modeling, teens learn that drug use is not that prevalent nor is it accepted by all people. More accurate substance use norms are established by replacing and correcting misinformation with accurate knowledge (Coggans, 2006). Students are invited to engage in critical thinking about how substance use is portrayed and understood in society through the media; the goal is for students to become critical readers of the messages the media portrays (Cahill, 2007). One such media intervention was the Truth Campaign, which encouraged teens to be critical thinkers about how the tobacco industry portrays smoking in the media. The Truth Campaign attempted to make teens aware of how they have been manipulated by the tobacco industry. Teens are also taught to develop skills to resist the influence of peer pressure, and their knowledge about the negative consequences of drug use is increased (Soole, Mazerolle, & Rombouts, 2008). Social influences are one of the components included in the Blueprint program.

Skills Training

Life Skills Training helps teens to develop a range of skills that will help to prevent them from using drugs and help them to be effective in resisting drugs. Some skills taught are resisting social pressure, increasing self-esteem and confidence, enhancing self-mastery, learning to be assertive and communicate effectively, making

responsible choices, and learning to use techniques to help them problem-solve, cope with, and manage their social anxiety (Coggans, 2006). These skills assist students in developing critical thinking and applying their learning to real-life situations, which can help them to have a sense of ownership over their actions. Within the skills training intervention, programs focus on different skills to be trained. Affective education focuses on interpersonal development. Resistance skills training focuses on knowledge dissemination and refusal skills. Generic skills training focuses on teaching students life skills such as decision making, problem solving, and communication. Competency enhancement focuses on interpersonal skills, life skills, and resistance skills combined (Soole, Mazerolle, & Rombouts, 2008). Skills training is another component of the Blueprint program.

Interactivity

Programs promoting interactivity emphasize that drug education be non-judgmental, interactive, and engaging. These programs involve a high amount of student-to-student interaction and student-to-teacher interaction; the learning process is hands-on and active. Interactive teaching techniques are implemented to help engage students in the learning process (Soole, Mazerolle, & Rombouts, 2008; Stead et. al., 2010). Interactivity can also include actively involving students in the evaluation of drug use, and therefore making the students co-investigators in determining the consequences of drug use. One way that these types of programs engage students is through the use of role play. Students are invited to participate and collaborate in a scenario where a decision must be made about using drugs. Students are brought into contact with their peers to

explore and engage in communicating ideas and encouragement, which facilitates the learning of drug refusal skills (Midford, 2007). Interactivity is also part of the Blueprint program.

Harm Reduction

It should be noted that harm reduction is a relatively new program model that remains controversial, and its effectiveness is yet to be seen. In this model, there is an emphasis on balance; facilitators neither want to be too strict nor too lenient. As described by the International Harm Reduction Association (IHRA), harm reduction as a whole refers to the “programs, policies, and practices that aim to reduce the adverse health, social, and economic consequences of the use of legal and illegal psychoactive drugs” (McKeganey, 2011, p. 183). A few core principles that the harm reduction approach is based on are focusing on reducing risk and harm, as well as challenging policies and practices that could promote harm. Harm reduction approaches also promote the idea that programs and intervention efforts should be evidenced based, cost effective, incremental, include dignity and compassion, contain universality and interdependence of rights, and have transparent accountability and participation (McKeganey, 2011). In a harm reduction program all options, choices, and pros/cons related to substance use are provided to students. The harm reduction model provides harm minimization strategies for those students who wish to continue using drugs and alcohol. It incorporates mechanisms and techniques to identify and help students whose drug use has become harmful (Cahill, 2007). One such program that adheres to these principles is the School Health and Alcohol Harm Reduction Project (SHAHRP). It adheres to these principles in

its effort to promote harm minimization, reducing the harm from drugs that teens may be exposed to or experience.

Social Cognitive Theory

Another approach that has been used in the development of drug education programs is Social Cognitive Theory. This theory advocates that the core principles and foundations set forth by Albert Bandura should be implemented in drug education programs to help them reach their full range of effectiveness and potential. These key aspects are: knowledge about the risks of drug use and the benefits of healthy living and abstinence; self-efficacy, or having confidence in one's own ability to motivate oneself and achieve one's goals; setting standards of living for oneself; outcome expectations, or evaluating and considering all the possible outcomes, consequences, and options to help one make an informed decision; perceived facilitator's techniques, skill sets, and resources that one can access to help the students and facilitators achieve their goals; and impediments that might prevent one from achieving his or her goals. All of these principles play a key role in facilitating behavior change (Sharma, 2005). This theory was implemented in a research study on drug education effectiveness. Students were given pre-test and post-test measurements on their drug use and self-efficacy, as well as their expectations, intentions, norms, and attitudes about drug use. The results of the study showed that students engaged in drug education programs based on social cognitive theory had a higher degree of involvement in the program and the facilitators were more successful in engaging students in drug prevention activities (Sharma, 2005). No one program strictly adheres to this theory, but similar components are used in the programs.

Personal Construct Theory

The central aspect of this theory is based on George Kelley's work on individuality and how people construct events differently; we all live in unique worlds. This theory focuses on cognition and the different ways in which people make decisions, think, and interpret the world around them. According to this theory, we all are attempting to organize the facts of our experiences. We are all scientists testing the accuracy of these facts and hypotheses. We perform experiments through our actions and if the results or consequences seem to confirm our hypothesis, then we know our interpretation of an event was correct; we do this to better understand ourselves, the world and others (Castiglioni, 2011). Since each event is uniquely interpreted, it is also uniquely experienced. However, we also share some constructs with one another, which joins us together in similar cultural groups.

This theory is also based on relativist inquiry, which treats behavior as an experiment rather than an end result. Human nature is seen as intrinsically motivated and that people act for positive reasons. Human nature is used to explain drug behavior in that young people use drugs either to fulfill a need or they are driven by a stimulus (drug availability). It is hypothesized that young people use drugs as a way of making meaning of their world and their existence. Therefore, it is believed that there is a reason for one's drug use and this reason holds meaning for the individual. This theory emphasizes tolerance, openness, and understanding; there is no judgment. Included in this theory is the idea that young people are less experienced, but not deficient at making decisions. Young people are understood through the experience of being a young person. This intervention focuses on an approach that is self-reflective rather than didactic, and is

believed to help uncover the teen's personal beliefs and motivations rather than having an expert give him or her versions of life that are prescriptive rather than investigative.

The program that is most associated with this theory is Drugsbridge (Mallick & Watts, 2007b). Drugsbridge aims to empower students to feel that they have the ability and capability to make informed decisions and choices about drugs. Another core aim of Drugsbridge is to facilitate free-flowing and open discussions between parents and young people about drugs. Drugsbridge fits with the personal construct theory in that it emphasizes a humanistic approach to drug education.

CHAPTER 5

DRUG EDUCATION PROGRAMS

Blueprint

Blueprint was the first multi-component drug education program to be delivered on a large scale in the United Kingdom. The Blueprint development process was led by the Home Office in partnership with the Department of Health, Department of Education, and Department of Skills. The lesson plans and parent resources were developed by educational writers and trainers and then reviewed by curriculum experts and reading specialists to match the reading and comprehension levels to the target population. Teachers were trained on the materials and provided research in line with the materials. Blueprint is focused on five main components: schools, parents, media, health policy, and community. This program defines drug use as “a substance people take to change the way they feel, think or behave, which includes not only illegal drugs but also medicines, volatile substances, alcohol, tobacco and caffeine” (Stead, Stradling, Macneil, Mackintosh, & Minty, 2007). This program was designed for school children ages 11-13, as well as for their parents, teachers, and community educators. Blueprint includes skills training, social influences/normative education, interactivity, and cultural sensitivity. There are themes that the Blueprint program intervention targets such as retailer education and training, youth education, proof of age schemes, test purchasing, prosecutions, and media communications. Specific lesson plans are developed for each age group. The Blueprint program was initiated with four aims: reduce the number of young people using drugs, delay the onset of drug use, minimize the harm caused by

drugs, and enable those who have concerns about drug use to seek help (Stead, Stradling, Macneil, Mackintosh, & Minty, 2007).

The Blueprint program has been examined and evaluated for its effectiveness and fidelity. Five aspects were looked at to determine the program's effectiveness: adherence to the program (did the program deliver the intervention it proposed), exposure (how were the students exposed to the curriculum), participant responsiveness (engagement of students in program), quality of program delivery (effectiveness of teachers), and program differentiation (impact of curriculum elements). The researchers gathered the data by having 16 observers directly observe the classrooms in which the Blueprint lessons were being taught. The observers went to every single session conducted. The researchers also conducted qualitative interviews with staff, students, and a drug advisory board. Students filled out an impact survey assessing their reactions to the program.

The authors found that, as instructors became more comfortable with the structure of the curriculum, they were more likely to modify the lesson plan for the day so as to include the time to educate the students on drug use. From the interviews with the teachers, the researchers found that the teachers felt the allotted timeline was not sufficient to cover everything in detail. Overall, the authors found that the majority of the teachers did adhere to teaching the main components of the Blueprint program. Student attendance at these programs was also very high, with a 95% attendance rate (Stead, Stradling, Macneil, Mackintosh, & Minty, 2007). This finding is important to note, as it shows the program's effectiveness in its implementation to reach and educate students on drug use.

The authors also found that awareness of all drugs, legal and illegal, was increased after the program for students ages 13-15, with 90% of the students having heard or remembering a majority of the drugs learned about. As the students became older, they reported increasing perceptions of believing that their peers and young adults used drugs and alcohol; the students' perceptions of drug use increased from 8% to 24%. Perceptions of the acceptability of drug use also increased as students aged; with 76 % of students aged 14 – 15 believing that drinking alcohol was acceptable. It appears that usage of certain drugs such as cigarettes and alcohol did increase during students' time in the program. For students aged 11-12, only 23% had ever smoked by the time students were 14 – 15 years of age; 55% had ever smoked cigarettes. As for alcohol consumption, for students aged 11-12, 40% reported having ever had more than a sip of alcohol; by the time student were 14-15 years old, this percentage had increased to 77 percent (Blueprint Evaluation Team, 2007). It appears that the program is effective in its ability to get students, parents, and teachers involved in drug education, but may not be effective in reducing teen's long-term rates of drug usage or their normative beliefs about drug use being widely accepted. Further evaluation of the Blueprint program needs to be done to conclusively determine the program's effectiveness.

Strengthening Families

Strengthening Families was developed in the United States in the mid 1980s by Dr. Kumpfer. Strengthening Families has been evaluated in two large-scale randomized controlled trials in Iowa. Pilot runs of the Strengthening Families program have been done in Georgia and Poland. Specifically for the trials run in Iowa, nurses who were

trained by staff at Iowa State University delivered the manualized intervention. These sessions were held at community locations throughout Iowa and Wisconsin.

Strengthening Families was developed to close the gap between parents' and teens' understanding of drugs and drug use (Mallick, 2007). It is theorized that these differences in understanding mainly result from teens' and their parents' different perspectives regarding drug use and communication. The purpose of this program is to build problem-solving skills for both parents and their teens. The program is designed to enhance family communication, increase protective factors within the family, and decrease risk factors within the family (Semeniuk et al., 2010). This program was designed by the Substance Abuse and Mental Health Services Administration (SAMHSA) and is designated as a SAMHSA model program. It has also undergone extensive review by the National Registry of Evidenced Based Programs and Practices (Semeniuk et al., 2010).

Strengthening families focuses specifically on high-risk families and has two versions of its program: one for 6 – 12 year olds and their families, and one for 12-18 year olds and their families. There are three components to this program: parent training, children's skills training, and family skills training (Kumpfer, Molgaard, & Spoth, 1996). Part of this program is video based, but all aspects of the program are delivered by trained facilitators. It is a seven-week program with one session a week. Parents, students, and facilitators meet at the students' schools who are involved in the program. There are also four optional booster sessions available to families after the program has concluded. The sessions are very structured and highly interactive. Weekly sessions last a few hours. During the first hour the children and parents are divided in to separate groups, and in the last hour they come together to practice the new skills and principles

they have learned. In these sessions, several topics are discussed and explored: discipline, family management, stress reduction, resistance skills, problem solving skills, and communication (Coombes, Allen, Marsh, & Foxcroft, 2009; Okulicz-Kozaryn & Foxcroft, 2012).

One assessment of Strengthening Families focused on evaluating the problem-solving aspect of the program (Semeniuk et al., 2010). The study examined whether or not the problem-solving behaviors were hostile, negative, neutral, or positive. Problem solving behaviors observed were the individuals' perception of their own behaviors and attitude, their confidence in their abilities, whether they used an approach or avoidance style, and their perception of personal control. These behaviors were measured using the Iowa Family Interaction Rating Scale. The scale was used to measure how the individual (parent and child) solved problems and how the family as a unit solved problems. The authors found that problem-solving skills were not greatly improved for the teens individually. However, the families did seem to be progressing in their communication and problem-solving skills. They also found that parents had difficulty relinquishing control of their children and allowing them to make a majority of decisions on their own. They did find that the teens seemed to adapt to the new skills more quickly than the adults (Semeniuk et al., 2010).

In another study of the Strengthening Families Program, 1650 7th grade students from 36 rural communities in the Midwest were evaluated (Gorman, Conde, & Huber, 2007). These 36 schools were divided into 12 matched sets and then randomly assigned to one of three study conditions: the Strengthening Families Program with a combination of the Life Skills Training Program, the Life Skills Training Program alone, and a

minimal contact control group. The Life Skills Training Program is a classroom based program, which is universal in nature and focuses on teaching students social skills; it has a total of 15 sessions with a series of booster sessions. While the Strengthening Families Program only has seven total sessions, when combined with the Life Skills Training Program there are a total of 15 lessons. Students completed the initial 15 lesson plans in the program. Outcomes for students in the program were evaluated with an 18-month follow-up survey.

The data showed that alcohol and marijuana use initiation rates were lower among the students who had participated in the Strengthening Families program than students who had not. At a 30-month follow up survey, the students who had participated in the Strengthening Families Program were still engaging in drug and alcohol use at much lower rates than their peers. While this study seems to show the positive effects of the Strengthening Families Program on drug prevention, other researchers have questioned the method of data analysis that the researchers used. Criticisms of the study were that the results were analysis-dependent, the results of the data were not as robust as the original researchers believed, and that the researchers used a one-tailed significance test, thus leading to the conclusion that further research still needs to be done to test the effectiveness of this program (Gorman, Conde, & Huber, 2007).

Drugsbridge

The Drugsbridge program has been implemented mostly in youth clubs and community centers in London. When this program is being implemented there are usually four facilitators involved in the program delivery. The four facilitators are typically the

designers of the Drugsbridge program, a drug outreach worker, a researcher, and a senior youth worker. The rationale of Drugsbridge is to improve communication and interactions between parents and teens. Teens and parents work and learn side-by-side using a participative and interactive approach. This program uses a constructivist method for teaching and learning. An effort is made to show both parties the power of democracy and debate. This constructivist method allows teens to be involved in the decision making process and not feel as though their parents and teachers are always the ones who have the final word in a discussion. In this program, parents and teens are also educated about drugs and drug use. Support is given to parents in their task of helping their teens develop into healthy autonomous people (Mallick, 2007). An approach of empowerment is used to help teens develop knowledge, skills, and values that will help them to make well-informed and responsible decisions (Mallick & Watts, 2007b). Part of this approach is affective and person-centered, which contextualizes drug issues within the comprehensive holistic scope of personal, social, and health education (Mallick, 2007). A goal of this program is that parents and teens will be able to effectively communicate about drugs with one another and to bridge the gap between each generation's perspectives on drug use (Mallick & Watts, 2007b). In the sessions, information is provided that puts drug use into perspective. Drug use is defined and distinguished so that teens can understand the difference between experimental, recreational, and harmful drug use. Parental and adolescent roles are covered in sessions, including the nature of parent-child relationships and how they will change throughout adolescence. Teaching methods used are group work, interactive discussions, self-characterizations, and role play (Mallick, 2007).

A pilot run of this program was examined using action research and participative inquiry methods (Mallick, 2007). Action research is used to examine education interventions and how applicable they are in real world settings. Participative inquiry methods encourage participants to give and receive valid information and to make free and informed choices, as well as allow participants to be informed about the results of the study and their involvement. Qualitative analyses were conducted with the data collected from interviews and research; some written materials were collected and analyzed as well, such as participant journals, open-ended questionnaires, and written program evaluations. Several things that the participants found particularly useful and effective included being joined together in a group of unrelated parents and teens, being able to attend the program with both generations because it encouraged honest discussions, the equality and respect felt between the groups, and the development of a more balanced perspective for all parties (Mallick, 2007). Currently, there are no studies evaluating the effectiveness of the Drugsbridge program in reducing rates of drug use among teens and adolescents. Further research needs to be done on this program to conclude whether or not the program is effective.

School Health and Alcohol Harm Reduction Project

The School Health and Alcohol Harm Reduction Project (SHAHRP) is an Australian school based harm reduction education program. SHAHRP has been implemented in other countries as well, such as Ireland. Teachers are trained and provided manuals for the delivery of the SHAHRP education program. Resilience education informs the curriculum of SHAHRP. The intervention method is based on

social learning theory. This program comprises eight to ten lesson plans, depending on a student's grade level. Students are assigned tasks that are sometimes to be worked on at school and other times at home. Students learn about drug use through modeling, imitation, and reinforcement from peers and authority figures. Teaching methods include coaching and modeling. In this program, it is ensured that the needs of students are met, such as interactivity, being connected with the community, and having social support. Topics and salient issues are thoroughly covered; essential knowledge on drugs, skills training, and social influences is provided; learning and teaching activities are interactive; negotiation skills and autonomy are enhanced; problem-solving skills and social competence are taught; a sense of purpose is instilled; and social pressures and norms are critiqued. The goal of the program is to foster resiliency. The rationale is that if students can recognize negative peer influences in their lives, they will be better able to develop behaviors that help them to positively counteract such influences (Midford et al., 2012).

One study evaluated student growth as a result of this program using a self-completed questionnaire (Midford et al., 2012). The questionnaire was used to collect information on a student's knowledge, patterns and context of drug use, and attitudes about drug use. Feedback from evaluators, teachers, and students in the program was also assessed. The researchers are in the preliminary stages of determining the effectiveness of this program and are going to continue to do more research to fully evaluate this program. One preliminary finding was that students recognizing harms associated with drug use was seen as a valid indicator of the program's effect (Midford et al., 2012).

In a non-randomized controlled trial of an adaption of SHAHRP intervention that was delivered in schools in Northern Ireland, it was found that it was beneficial to convey

to students harm reduction messages (Mckay, McBride, Sumnall, & Cole, 2012). In this study eight schools received SHAHRP education delivered by teachers, 12 schools received SHAHRP from external facilitators, and nine control schools received the Northern Irish alcohol education curriculum used by most schools. Those who were in the SHAHRP programs reported increased knowledge about alcohol and its effects, safer alcohol-related attitudes, and less alcohol consumption. The researchers found that those students participating in a program with an outside facilitator had more desirable outcomes than the other groups in the areas of knowledge and attitudes, harm perception, and levels of alcohol consumption. Overall, those students who participated in SHAHRP were found to be engaging in fewer harm-related behaviors, had the greatest growth in safer attitudes towards alcohol, and developed a greater knowledge about alcohol use (Mckay, McBride, Sumnall, & Cole, 2012).

CHAPTER 6

PROGRAM DELIVERY MODALITIES

Drug prevention programs for teens may be delivered in a variety of settings, such as in schools, churches, community centers, and on the internet. School based programs are important, as this is the community and institution that has the most frequent contact with teens besides their parents. Research has shown that it is important that schools and teachers provide effective drug education which should include: the increasing knowledge of the facts and information about drugs, the information on the risks of drug use, assistance in learning the techniques and skills necessary to make responsible decisions or refusal of drugs, and to raise awareness among students and parents about drug related issues (Cahill, 2007; Stigler, Neusel, & Perry, 2011). In drug prevention programs that are based in school settings, the teacher is the key to effective delivery of information (Cahill, 2007; Stigler, Neusel, & Perry, 2011). For this type of setting, it is necessary that teachers receive appropriate training before running a school based drug education program. Teachers are facilitators instead of instructors in this model (Cahill, 2007; Stigler, Neusel, & Perry, 2011). Drug prevention programs based in school settings currently are the most supported by research.

While there are drug education programs based in the community and in local churches, there is no current research on either of these modalities. As most of the research done on these modalities is from the 1970s, this may be an area to examine for future research. One newer setting for providing drug education and prevention has been the internet. One drug education program that is delivered through the use of the internet is based on a harm reduction and social influence approach. This particular program is

focused on harm minimization and making an informed choice. The Climate Schools: Alcohol Module is a “computer-delivered school-based alcohol misuse prevention program” (Clare-Newton, Vogl, Teesson, & Andrews, 2011, p. 1652). The program was developed using the internet in an effort to engage more teens and adolescents in drug education by using cartoon dramas to depict information and hypothetical scenarios. A preliminary evaluation of this program found that the Climate Schools program was effective in reducing average consumption of alcohol, binge drinking, positive expectancies about alcohol use, and alcohol use related harms for up to one year following the intervention.

After a preliminary evaluation of the Climate Schools program, it was modified to include illicit drugs such as marijuana, as well as booster sessions. The development of this program progressed through different stages. Program developers ensured that the intervention methods, psychoeducation, and research were current and supported by the literature. The program developers also made sure to consult with teachers, students, and health professionals so as to develop a prevention program that would be based on relevant information and effective intervention methods, and would be entertaining for students. The program was also developed so that it could be easily implemented into a school curriculum. The revised Climate Schools program is aimed at targeting students ages 12-14. There are six lessons on alcohol and six lessons on cannabis in the initial phase of the program for which scripts were developed (Clare-Newton, Vogl, Teesson, & Andrews, 2011). In a final evaluation of the program, researchers found that students who participated in the Climate Schools course did show increases in alcohol and cannabis knowledge immediately afterward and at a 12 month follow-up. The course was also

found to be related to decreases in cannabis use, binge drinking, and average alcohol consumption. Overall, the course seemed to be a fairly effective drug education and intervention program (Champion, Newton, Barrett, & Teesson, 2013; Newton, Teesson, Vogl, & Andrews, 2010).

CHAPTER 7

**FACTORS INFLUENCING THE SUCCESS OF DRUG EDUCATION
PROGRAMS**

There are many factors that may influence the effectiveness of drug education programs for children and adolescents. Several of the factors to be taken into account are peer influences, gender, cultural background, age, developmental stage, and sexual orientation. Of note may be the impact of peer influences on males and females. One study looking at the impact of social disapproval and peer influence on cannabis use found that social disapproval had a greater impact on young females than young males (Butters, 2004). In this research, gender seemed to be significantly tied to higher levels of drug use. While approximately equal numbers of males and females were moderate cannabis users, over two-thirds of students who reported high levels of cannabis use were males. Among students already using cannabis, adolescent males were found to be almost two times as likely to progress to high-risk levels of cannabis use as females. The researchers stated that this finding shows a pattern of riskier drug use behavior among teen males. The researchers also found that for female adolescents using cannabis, having a social group that had low levels of drug use significantly reduced their odds of increasing their levels of cannabis use, while for adolescent males the reduction was less pronounced (Butters, 2004).

In fact, there are a number of gender differences among adolescent males and females. Results of the Monitoring the Future study, which is annual nationwide survey of 8th, 10th, and 12th graders suggest that overall males tend to be more involved in illicit and heavy drug use than females (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

Marijuana use is highest among males in 8th, 10th, and 12th grade and daily marijuana use among males is two times higher than it is among females. In 8th grade, females appear to have higher usage rates of amphetamines, but by 10th grade male usage rates are higher than females. It is suggested that the higher rates of amphetamine use among females in 8th grade may be due to the fact that many females could be using amphetamines as a weight loss supplement. Daily alcohol use is highest among 12th grade males, with rates being around 3%, while daily alcohol use for 12th grade females is around 1%. Males were also found to be more likely to drink more than one alcoholic beverage in one sitting, with 27% of 12th grade males reporting drinking five or more alcoholic beverages in a row compared to 20% of females. However, 8th grade females did show the same rates as males of being drunk in the past month, with each being around 3%. Males also have been found to use cigarettes in heavier quantities than females, with approximately 15% of males and 10% of females reporting smoking cigarettes in the past 30 days. The use of smokeless tobacco seems to be a predominantly male behavior. Fourteen percent of 12th grade males reported using smokeless tobacco in the past 30 days, while only 1.6% of females reported using smokeless tobacco within the same time period (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

In a research study conducted on Mexican adolescent males and females in Guanajuato, Mexico, gender roles and expectations appeared to put males and females at different levels of risk for drug use females (Kulis, Marsiglia, Ayers, Calderon-Tena, & Nuno-Gutierrez, 2011). Gender roles specifically for Mexican adolescents can be tied in to cultural factors such as machismo or marianismo. Machismo for young males promotes independence, strength, and success. When overly encouraged, machismo

could lead to risk taking, hyper-masculinity, and aggression. Marianismo for young females encourages family responsibility, interdependency, and patience, but sometimes can lead to females being overly submissive. Gender roles and cultural factors such as these have important implications for substance use and prevention. When looking at how males and females responded to different drug education programs, their drug use trends, and perceptions about drug use, it appears that males were more frequently exposed to substances than females. Males also reported using the strategies and skills that they learned in the prevention programs more often than females (Kulis, Marsiglia, Ayers, Calderon-Tena, & Nuno-Gutierrez, 2011). It is important to note the differences in drug use trends among males and females as these trends may indicate that males and females are more susceptible to certain types of drugs and may need extra education or increased efforts in intervention on the different types of drugs that each gender uses more often.

Along with gender differences in trends in drug use, there are also age differences in trends in drug use. Trends in drug use across age and developmental stage are closely tied together. Adolescence can be time where one engages more frequently in risk taking behaviors and sensation seeking thus leading to engaging in more activities or behaviors that lead to feelings of pleasure and reward. Interactions with peers also become particularly important and adolescents begin to spend more time with their peers than with their family members. Adolescents' peers may have more influence over their decision making than their parents during this time (Doremus-Fitzwater, Varlinskaya, & Spear, 2010). Overall, it appears that as age increases, so does exposure to and use of drugs. These increases could be due to developmental stage. During adolescence, adult

supervision is reduced and adolescents begin to spend more unsupervised time with their peers. One study examined these changes and trends found to occur during adolescence (Goncy & Mrug, 2013). The authors found that younger adolescents were more likely to use alcohol at home whereas older adolescents drank more often outside the home. As their age increased so did their rates of using cigarettes and marijuana after school and on weeknights. However, alcohol use remained the same in terms of setting in which it was used across all age groups for weeknights and after school hours. On the weekends, alcohol consumption did appear to increase with age (Goncy & Mrug, 2013).

Lesbian, gay, transgender, and bisexual teens may also be impacted differently by drug education programs. There is evidence that supports the hypothesis that lesbian and bisexual females are at a greater risk for alcohol and drug use disorders than heterosexual females (Green & Feinstein, 2012; Amadio, Adam & Buletza, 2008). Alcohol use seems to be more prominent among lesbian and bisexual females, while drug use seems to be more prominent among gay and bisexual males. Research seems to suggest that substance use patterns among the LGBTQ population follows social learning theory perspectives. Social learning theorists posit that there is a connection between one's drinking habits and one's perceptions of others' drinking habits (Green & Feinstein, 2012). The researchers suggest there are several social learning theory variables that could be leading to drinking habits and patterns in the LGBTQ population. Studies have indicated that members of the LGBTQ community may be at increased risk for drug or alcohol use in part because LGBTQ communities have centered on activities involving drinking and drug use with engagement at clubs, parties, and bars, thus making it harder to find and socialize with peers who do not drink or avoid triggers for substance use (Green &

Feinstein, 2012). The perceived normality of drug and alcohol use in the LGBTQ population could increase the chance of heavy drug and alcohol use (Green & Feinstein, 2012). Finally, the authors suggest that stress related to being a sexual minority could be linked with elevated substance use.

Social-cultural factors also seem to be related to patterns of drug use in this population. Substance related norms may be different in the LGBTQ population for each gender and age group. In the authors' research, they have found evidence that age, gender, bisexuality, affiliation with gay culture, sexual minority stress, whether one's entire social network knows of one's sexual orientation, and HIV status have been correlated with substance use patterns in the LGBTQ population (Green & Feinstein, 2012). It appears that being older and being female are not as significant protective factors against substance use problems for the LGBTQ population as they are for heterosexuals. Currently there appears to be more research on drug use and substance use among gay and bisexual males in terms of most effective treatment and intervention methods; more research is needed to gain a better understanding of how lesbian and bisexual females can best benefit from drug education programs. In addition, it appears that most of the research done on the LGBTQ population has been focused on treatment/intervention and understanding risk factors for drug use and protective factors deterring drug use; not as much research has been done on prevention efforts geared specifically toward LGBTQ populations (Green & Feinstein, 2012).

It is also important to understand how a teens' cultural background may influence his or her patterns of drug use and what drug education intervention methods may be most effective for teens from different cultural backgrounds. One study conducted in

Australia examined six different adult cultural groups living in Sydney: Chinese, Vietnamese, Italian, Pacific Islander, Arabic-speaking, and Hispanic (Donato-Hunt, Munot, & Copeland, 2012). The researchers found that acculturation was not a significant predictor of drug use. Out of the six groups studied, the Italian group had the highest percentage of daily alcohol consumption. The Arabic-speaking group had the highest proportion of participants who abstained from alcohol. Being male was a significant predictor of weekly alcohol consumption for Vietnamese participants. They also found that more men smoked cigarettes than women. Vietnamese men, Pacific Islander men and women, and Italian men had higher rates of daily smoking than the general population. Being male was a significant predictive factor for daily smoking for Chinese and Vietnamese participants. Vietnamese participants who were born in Vietnam were more likely to smoke daily than Vietnamese participants born in Australia. The authors concluded that cultural norms continue to limit drug use for some cultural groups (Donato-Hunt, Munot, & Copeland, 2012). While this study was conducted with adults, it is still important to note the impact of culture on rates of drug use as it may also apply to teens and adolescents and have implications for how effective drug education programs would be for students from different cultural backgrounds.

Researchers examining the impact of culture on drug research and drug education programs have proposed a few factors or theories that may influence the effectiveness of drug education programs for adolescent African American females. One theory examined was the Afrocentric theory (Corneille, Ashcroft, & Belgrave, 2005). An Afrocentric worldview comprises the beliefs, views, assumptions, and understanding that African Americans hold about the world. It is suggested that African Americans value spirituality,

interpersonal relationships, communalism, expressive communication, and verve. Verve is reflected in behavior that is creative and rhythmic. Verve can be seen in the way a person talks, acts, and creates; it is an improvisational style. Those who have verve are more interested in novel/simultaneous stimuli rather than single/routine stimuli (Corneille, Ashcroft, & Belgrave, 2005). African Americans also value their cultural and ethnic identity. African Americans' self-worth has been linked to a number of attributes: good health, social support, helping behaviors, adaptive coping behaviors, and academic achievement (Corneille, Ashcroft, & Belgrave, 2005). These values can be promoted through cooperative and interdependent learning strategies such as role playing, team building, and problem-solving. Suggestions for other educational tools to be incorporated in a drug education program with African American students are activities that emphasize students' use of verve, such as music, poetry, and art. This application of incorporating specific elements of African Americans cultural background into a drug education program can be applied to cultural groups in general; it is important to take note of the individual things that each cultural group values and responds best to while trying to effectively incorporate them into a drug education program (Corneille, Ashcroft, & Belgrave, 2005).

In a study of ethnic minority urban youth in Chicago, researchers found that for students in this population, value-added education promoted protective factors while reducing problem behaviors (Tobler, Komro, Dabroski, Aveyard, & Markham, 2011). Value-added education is a contextual measure of a school's socioeconomic student makeup. When a school performs better than expected on academic achievement and attendance rates, that school is viewed as having good community support, good support

for the students, and good control over its educational resources. When the school promotes curriculum development, instructional skills, and the school body as a whole, it is hypothesized that the school indirectly promotes health behaviors in its students. This type of value-added education was associated with significantly decreased odds of recent cigarette use and marijuana use (Tobler, Komro, Dabroski, Aveyard, & Markham, 2011).

CHAPTER 8

SYNTHESIS OF STUDIES

A preliminary analysis of the literature suggests that certain factors from each of the different drug education programs would be important to include in a comprehensive drug education program that is implemented in schools. From the literature, it appears that interactive programs that are intensive in their training (meaning they last from 10 – 30 sessions) and include skills training and competency enhancement appear to be the most effective in drug education and prevention (Cuijpers, 2002). Interactivity is important because it provides opportunities for contact between peers, teachers, parents, schools, and the community. Interactivity can create an encouraging environment where students feel comfortable expressing their thoughts and feelings, as well as participating in group activities. The effectiveness of interactivity in drug education programs is increased when combined with a social influence approach. There are a number of components included in a social influence approach, such as life skills training (which includes learning about coping, communication, affectivity, and assertiveness) and community involvement (Cuijpers, 2002).

The range of drugs covered by all drug education programs should be comprehensive as well, and not limited to just illicit drug use (Soole, Mazerolle, & Rombouts, 2008). It is important to cover both illicit and licit drugs as the rates of use for both types of drugs are of concern. It is not enough to educate on and prevent the use of alcohol and tobacco, but on marijuana, cocaine, and ecstasy as well (Soole, Mazerolle, & Rombouts, 2008). Comprehensive drug education programs take a multifaceted approach by addressing the different (e.g., peers, media, school, the community, and family)

avenues in which teens and adolescents can be pressured or influenced to engage in risk taking behaviors such as drug use (Johnson, et. al., 1990).

The delivery of the drug education information depends on who is educating the students and the personal connection that students are able to develop with the educator (Skager, 2007). The characteristics of the leaders are important to the effectiveness of the drug education program in reducing and preventing drug use. Characteristics found to be important are conscientiousness, sociability, respectfulness, and individuation (differentiating individuals from one another) (Skager, 2007). If leaders have these characteristics, then young people are more likely to internalize the information they have learned when they have developed a positive connection with the teacher (Skager, 2007).

Including a normative approach in a drug education program could also be beneficial. In a meta-analytic study done on influential factors in school based drug education programs, a normative approach was found to be one of the most important mediators in whether or not a drug education program was found to be effective (Cuijpers, 2002). The normative approach should focus on social prevalence knowledge, social acceptability knowledge, normative expectations about older peers' actual usage rates of drugs and alcohol, and friends reactions to drug use (Cuijpers, 2002). It may also be beneficial to include adolescents' older peers in the program. The older peers would not have to be in charge of leading the program; they would help out more by being present and available to the students and the program leader to assist in facilitating the education program and discussions (McBride, 2003).

CHAPTER 9

TREATMENT RECOMMENDATIONS

What the literature shows is that schools and communities have been variable in the prevention, education, and intervention they have provided and in how these programs have been implemented in the schools. It also shows us what has been lacking in drug education for students, such as family and community involvement, teachers with the training to teach drug education courses, and information and education at the elementary school level. Another area that has been lacking in drug education is the involvement and collaboration of psychologists, public health officials, policy makers, educators, and social scientists. It is important for the schools and communities to be united in their efforts to prevent drug use among teens and adolescents. One way to present a united front will be to devote more research and education efforts toward understanding teen and adolescent drug use. It is important that the drug education programs we are implementing have a strong research base; one way to ensure this is to have psychologists and social scientists more involved in researching, developing, implementing, and evaluating drug education programs. It is also important that the education programs be tailored to the specific audience in terms of gender, age, culture, and development. It is also important to cover all drug and substance use areas, not just alcohol, tobacco, and marijuana; prescription drug use, illicit drug use, and inhalant use have remained stable in terms of usage over the past few years and should be addressed in drug education programs with students (Skager, 2007).

It is not sufficient to give information alone to students. It is also important to understand how adolescents make decisions. There are many factors that influence how

adolescents and teens make decisions, such as gender differences, age differences, cultural variations, an adolescent's knowledge and experience with the situation (with more experience comes greater feedback from the environment), peer affiliations, and brain development. There are several cultural factors that have been shown to influence how adolescents make decisions, including their ability to be autonomous, to look towards their future goals, and to value academic achievement (Halpern-Felsher, 2009). Adolescents also vary in their decision making strategies depending on if they are from a collectivistic cultural background or an individualistic cultural background (Halpern-Felsher, 2009). Furthermore, biological maturation affects decision making. In adolescence the pre-frontal cortex is not fully developed (Halpern-Felsher, 2009). The pre-frontal cortex is important in helping carrying out executive functions such as planning, decision making, and impulse control. The pre-frontal cortex continues to develop throughout young adulthood. Having a better understanding of how adolescents make decisions will help educators and policy makers to be better able to develop drug education programs that specifically target these aspects of how adolescents make decisions (Halpern-Felsher, 2009).

The amount of perceived risk from drug use and the amount of perceived benefits from drug use have been shown to influence a teen in his or her decision to use alcohol (Goldberg, Halpern-Felsher, & Millstein, 2002). Perceived benefits of alcohol are seen to be an important predictor of drinking behaviors. When adolescents have more experience with alcohol use, they perceive there to be greater benefits to drinking and fewer risks to drinking. Perceiving greater benefits of alcohol use is a stronger predictor of long-term alcohol use than the perceived risks of alcohol use, the age of the adolescent or teen, and

his or her level of experience with alcohol use (Goldberg, Halpern-Felsher, & Millstein, 2002). It is possible that adolescents who have had largely positive experiences with alcohol use will base their decision to continue drinking alcohol on these experiences rather than the negative consequences they have learned about in school (Goldberg, Halpern-Felsher, & Millstein, 2002). These findings are important to note as it may suggest where increased prevention efforts should be targeted toward elementary school children who have not yet tried to use substances. Programs could be developed for each period of development wherein one program may be more focused on intervention whereas another may be more focused on prevention. It may be helpful to have a program delivered prior to adolescents' initial experimentation with drugs as well as during the time period where adolescents may experience their initial exposure to drugs and alcohol. This first phase is sometimes referred to as the early relevancy stage or an inoculation phase, where initial knowledge about drug use and beginning skills for dealing with refusing drugs are important and may seem more applicable (McBride, 2003). The latter phase is sometimes referred to as the later relevancy stage. During this stage, prevalence of drug use increases as the context in which one is exposed to drug use changes. The initial knowledge and skills gained in the first stage can be built upon by educating adolescents on situations that may be more relevant and applicable to them at that phase in life (McBride, 2003).

It may also be helpful to address the short term and long-term consequences of drug use, focusing on making the long-term consequences more tangible and relevant to adolescents and teens. When adolescents try a drug once and do not experience the consequences they have learned about, they may believe there are fewer risks associated

with drug use than they had thought or were told about. Adolescents may experience cognitive dissonance because of these two opposing experiences and work toward reducing this dissonance (Morrell, Song, & Halpern-Felsher, 2010). In an intervention program, it may be better to approach students' perceived positive consequences of drug use by examining this discrepancy between what they are told and what they actually experience, instead of focusing almost exclusively on the negative aspects of drug use, which is what most current interventions do (Goldberg, Halpern-Felsher & Millstein, 2002).

Another possible way to address this issue, which relates specifically to nicotine use, may be to educate teens and adolescents on the process of addiction and how quickly addiction can occur. It has been traditionally thought by adolescents that addiction is more a problem that occurs in adulthood and not during adolescence (Rugkasa, Knox, Sittlington, Kennedy, Treacy, & Abaunza, 2001); they also appear to believe that addiction only occurs after a prolonged period of use and does not happen if they only have a few cigarettes (Rugkasa et al., 2001). More recent research has suggested quite the opposite process of addiction; that addiction and even symptoms of withdrawal can be experienced before one begins to smoke more frequently (Doubeni, Reed, & DiFranza, 2010). While this may prove to be an effective intervention with nicotine use, more research is needed before applying this method of intervention to other types of drug and substance use.

The knowledge students receive should be accompanied with an emphasis on the risk and protective factors involved in substance and drug use. From the literature, it is suggested that teaching drug refusal skills, correcting normative expectations about the

pervasiveness of substance use, and increasing competency skills all touch on these risk and protective factors involved with drug and substance use (Botvin & Griffin, 2007). Competency skills involve enhancing resistance, resilience, self-image, decision making, problem-solving, coping skills, effective communication strategies, assertiveness and stress management. This information is best presented in a number of interactive methods such as discussion groups, group activities, role-playing, and hypothetical scenarios (Botvin & Griffin, 2007).

There are a number of things that should be considered when creating and developing a drug education program. The strategies described below are recommended by the Center for Substance Abuse Prevention (CSAP). CSAP funded and implemented 100 school based drug prevention programs from 1986 to 1997. Those programs were assessed to determine which factors and methods were found to be the most influential in educating students about drug use as well as decreasing levels of drug use. From this study they found several things to be beneficial such as establishing good connections with leaders and businesses in the community when increasing community involvement in a school's drug education program (Zavela, 2002). When in the development phase of a drug education program, the program elements should be evaluated by focus groups so as to receive feedback from students, teachers, experts in the field, and parents on what will be the most effective and beneficial in a drug education program (Zavela, 2002). Those going to be involved in the delivery and facilitation of the drug education program should be adequately trained on the content and materials involved. Those facilitating the drug education program should also involve and inform all staff and faculty on the drug education program as well as the changes that it may bring. Finally, the content of the

program should be appropriate for the ages, cultural background, developmental stages, and gender of the children to whom the program will be delivered (Zavela, 2002).

References

- Amadio, D. M., Adam, T., & Bulezza, K. (2008). Gender differences in alcohol use and alcohol-related problems: Do they hold for lesbians and gay men? *Journal of Gay & Lesbian Social Services, 20*(4), 315-327.
- Baker, P. J. (2006). Developing a blueprint for evidence-based drug prevention in England. *Drugs: Education, Prevention, and Policy, 13*(1), 17-32.
- Benjamin, R. M. (2012). A report of the surgeon general: Preventing tobacco use among youth and young adults. Retrieved from http://www.cdc.gov/tobacco/data_statistics/sgr/2012/consumer_booklet/pdfs/consumer.pdf
- Blueprint Evaluation Team. (2007). *Blueprint drugs education: The response of parents and pupils to the programme*. Retrieved from <http://www.stir.ac.uk/media/schools/management/documents/finalreport.pdf>
- Botvin, G. J., & Griffin, K. W. (2007). School-based programmes to prevent alcohol, tobacco and other drug use. *International Review of Psychiatry, 19*(6), 607-615.
- Butters, J. E. (2004). The impact of peers and social disapproval on high-risk cannabis use: Gender differences and implications for drug education. *Drugs: Education, Prevention & Policy, 11*(5), 381-390.
- Cahill, H. W. (2007). Challenges in adopting evidence-based school drug education programmes. *Drug and Alcohol Review, 26*(6), 673-679.
- Castiglioni, M. (2011). Departing from classical logic: A logical analysis of personal construct theory. *Journal of Constructivist Psychology, 24*(2), 93-121.
- Center for Disease Control. (2012). Alcohol and Public Health. Retrieved from <http://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm>
- Center for Disease Control. (2011a). Trends in the Prevalence of Alcohol Use National YRBS: 1991–2011. Retrieved from http://www.cdc.gov/healthyyouth/yrbs/pdf/us_alcohol_trend_yrbs.pdf
- Center for Disease Control. (2011b). Tobacco Use: Targeting the Nation's Leading Killer at a Glance, 2011. Retrieved from <http://www.cdc.gov/chronicdisease/resources/publications/aag/osh.htm>
- Champion, K. E., Newton, N. C., Barrett, E. L., & Teesson, M. (2013). A systematic review of school-based alcohol and other drug prevention programs facilitated by computers or the Internet. *Drug & Alcohol Review, 32*(2), 115-123.

- Clare-Newton, N., Vogl, L., Teesson, M., & Andrews, G. (2011). Developing the climate schools: Alcohol and cannabis module: A harm-minimization, universal drug prevention program facilitated by the internet. *Substance Use & Misuse, 46*(13), 1651-1663.
- Coggans, N. (2006). Drug education and prevention: Has progress been made? *Drugs: Education, Prevention & Policy, 13*(5), 417-422.
- Coombes, L., Allen, D., Marsh, M., & Foxcroft, D. (2009). The Strengthening Families Programme (SFP) 10-14 and substance misuse in Barnsley: The perspectives of facilitators and families. *Child Abuse Review, 18*(1), 41-59.
- Corneille, M. A., Ashcroft, A. M., & Belgrave, F. Z. (2005). What's culture got to do with it? Prevention programs for African American adolescent girls. *Journal of Health Care for the Poor and Underserved, 16*(4), 38-47.
- Cuijpers, P. (2002). Effective ingredients of school-based drug prevention programs: A systematic review. *Addictive Behaviors, 27*(6), 1009.
- U.S. Department of Health and Human Services. (2006a). Alcohol or other drug use prevention. Retrieved from http://www.cdc.gov/healthyyouth/shpps/2006/factsheets/pdf/FS_AlcoholOrOtherDrugUsePrevention_SHPPS2006.pdf
- U.S. Department of Health and Human Services. (2006b). Family and Community Involvement. Retrieved from http://www.cdc.gov/healthyyouth/shpps/2006/factsheets/pdf/FS_FamilyAndCommunity_SHPPS2006.pdf
- Donato-Hunt, C., Munot, S., & Copeland, J. (2012). Alcohol, tobacco and illicit drug use among six culturally diverse communities in Sydney. *Drug & Alcohol Review, 31*(7), 881-889.
- Doremus-Fitzwater, T. L., Varlinskaya, E. I., & Spear, L. P. (2010). Motivational systems in adolescence: Possible implications for age differences in substance abuse and other risk-taking behaviors. *Brain & Cognition, 72*(1), 114-123.
- Doubeni, C. A., Reed, G., & DiFranza, J. R. (2010). Early course of nicotine dependence in adolescent smokers. *Pediatrics, 125*, 1127-1133.
- Dusenbury, L., Mathea, F., & Lake, A. (1997). A review of the evaluation of 47 drug abuse prevention curricula available nationally. *Journal of School Health, 67*(4), 127-132.
- Ellickson, P. L. (2014). You've shown the program model is effective. Now what? *New Directions For Youth Development, (141)*, 95-105.

- Ennett, S. T., Tobler, N. S., Ringwalt, C. L., & Flewelling, R. L. (1994). How effective is drug abuse resistance education? A meta-analysis of project dare outcome evaluations. *American Journal of Public Health, 84*(9), 1394-1401.
- Fryar, C. D., Merino, M. C., Hirsch, R., & Porter, K. S. (2009). Smoking, alcohol use, and illicit drug use reported by adolescents aged 12-17 years: United States, 1991-2004. *National Health Statistics Reports, 15*.
- Green, K., & Feinstein, B. (2012). Substance use in lesbian, gay, and bisexual populations: An update on empirical research and implications for treatment. *Psychology of Addictive Behaviors, 26*(2), 265-278
- Goldberg, J. H., Halpern-Felsher, B. L., & Millstein, S. G. (2002). Beyond invulnerability: The importance of benefits in adolescents' decision to drink alcohol. *Health Psychology, 21*(5), 477-484.
- Goncy, E. A., & Mrug, S. (2013). Where and when adolescents use tobacco, alcohol, and marijuana: Comparisons by age, gender, and race. *Journal of Studies on Alcohol & Drugs, 74*(2), 288-300.
- Gorman, D. M., Conde, E. E., & Huber, J. C. (2007). The creation of evidence in 'evidence-based' drug prevention: A critique of the Strengthening Families Program plus Life Skills Training evaluation. *Drug & Alcohol Review, 26*(6), 585-593.
- Halpern-Felsher, B. (2009). Adolescent decision making: An overview. *The Prevention Researcher, 16*(2), 3-7.
- Johnson, C., Pentz, M., Weber, M., Dwyer, J., Baer, N., MacKinnon, D., Hansen, W. B., & Flay, B. (1990). Relative effectiveness of comprehensive community programming for drug abuse prevention with high-risk and low-risk adolescents. *Journal of Consulting & Clinical Psychology, 58*(4), 447-456.
- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2013). *Monitoring the Future national results on drug use: 2012 Overview, Key Findings on Adolescent Drug Use*. Ann Arbor: Institute for Social Research, the University of Michigan.
- Kann, L., Brener, N. D., & Wechsler, H. (2007). Overview and summary: School health policies and programs study, 2006. *Journal of School Health, 77*, 385-397.
- Komro, K., Perry, C., Veblen-Mortenson, S., Farbaksh, K., Toomey, T., Stigler, M., & ... Williams, C. (2008). Outcomes from a randomized controlled trial of a multi-component alcohol use preventive intervention for urban youth: Project Northland Chicago. *Addiction, 103*(4), 606-618.

- Kulis, S., Marsiglia, F. F., Ayers, S. L., Calderon-Tena, C. O., & Nuno-Gutierrez, B. L. (2011). Gender differences in drug resistance skills of youth in Guanajuato, Mexico. *Journal of Primary Prevention, 32*(2), 113-127.
- Kumpfer, K. L., Molgaard, V., & Spoth, R. (1996). The Strengthening Families Program for the prevention of delinquency and drug use. In R. V. Peters and R. McMahon (Eds.), *Preventing childhood disorders, substance abuse, and delinquency* (pp. 241-267). Thousand Oaks, CA: Sage.
- Lynam, D. R., Milich, R., Zimmerman, R., Novak, S. P., Logan, T. K., Martin, C., & ... Clayton, R. (1999). Project DARE: No effects at 10-year follow-up. *Journal of Consulting and Clinical Psychology, 67*(4), 590-593.
- Mallick, J. (2007). Parent drug education: A Participatory Action Research study into effective communication about drugs between parents and unrelated young people. *Drugs: Education, Prevention & Policy, 14*(3), 247-260.
- Mallick, J., & Watts, M. (2007a). Drugsbridge: A humanistic approach to drug education. *Research in Education, (78)*, 110-128.
- Mallick, J., & Watts, M. (2007b). Personal construct theory and constructivist drug education. *Drug and Alcohol Review, 26*, 595-603.
- McBride, N. (2003). A systematic review of school drug education. *Health Education Research, 18*(6), 729-742.
- McBride, N., Farrington, F., Midford, R., Meuleners, L., & Phillips, M. (2004). Harm minimization in school drug education: Final results of the School Health and Alcohol Harm Reduction Project (SHAHRP). *Addiction, 99*(3), 278-291.
- McKeganey, N. (2011). From harm reduction to drug user abstinence: A journey in drug treatment policy. *Journal of Substance Use, 16*(3), 179-194.
- Midford, R. (2007). Drug education and other prevention programmes for students. *Drug & Alcohol Review, 26*(6), 573-575.
- Midford, R., Cahill, H., Foxcroft, D., Lester, L., Venning, L., Ramsden, R., & Pose, M. (2012). Drug education in Victorian schools (DEVs): The study protocol for a harm reduction focused school drug education trial. *BMC Public Health, 12*(1), 112-118.
- Morrell, H. E. R., Song, A. V., & Halpern-Felsher, B. L. (2010). Predicting adolescent perceptions of the risks and benefits of cigarette smoking: A longitudinal investigation. *Health Psychology, 29*(6), 610-617.

- Munro, G., & Midford, R. (2001). Zero Tolerance and drug education in Australian schools. *Drug and Alcohol Review, 20*(1), 105-109.
- Newton, N. C., Teesson, M., Vogl, L. E., & Andrews, G. (2010). Internet-based prevention for alcohol and cannabis use: Final results of the Climate Schools course. *Addiction, 105*(4), 749-759.
- Okulicz-Kozaryn, K., & Foxcroft, D. R. (2012). Effectiveness of the Strengthening Families Programme 10-14 in Poland for the prevention of alcohol and drug misuse: Protocol for a randomized controlled trial. *BMC Public Health, 12*(1), 319-322.
- Rosenbaum, D. P., Flewelling, R. L., Bailey, S. L., Ringwalt, C. L., & Wilkinson, D. L. (1994). Cops in the classroom: A longitudinal evaluation of drug abuse resistance education (DARE). *Journal of Research in Crime and Delinquency, 31*(1), 3-31.
- Rugkasa, J., Knox, B., Sittlington, J., Kennedy, O., Treacy, M. P., & Abaunza, P. S. (2001). Anxious adults vs. cool children: Children's views on smoking and addiction. *Social Science & Medicine, 53*, 593-602.
- Semeniuk, Y. Y., Brown, R. L., Riesch, S. K., Zywicki, M. M., Hopper, J. J., & Henriques, J. B. (2010). The Strengthening Families Program 10–14: Influence on parent and youth problem-solving skill. *Journal of Psychiatric & Mental Health Nursing, 17*(5), 392-402.
- Sharma, M. (2005). Enhancing the effectiveness of alcohol and drug education programs through social cognitive theory. *Journal of Alcohol & Drug Education, 3*-7.
- Skager, R. (2007). Replacing ineffective early alcohol/drug education in the United States with age-appropriate adolescent programmes and assistance to problematic users. *Drug & Alcohol Review, 26*(6), 577-584.
- Soole, D. W., Mazerolle, L., & Rombouts, S. (2008). School-based drug prevention programs: A review of what works. *Australian & New Zealand Journal of Criminology (Australian Academic Press), 41*(2), 259-286.
- Stead, M., Stradling, R., Macneil, M., Mackintosh, A., & Minty, S. (2007). Implementation evaluation of the Blueprint multi-component drug prevention programme: Fidelity of school component delivery. *Drug & Alcohol Review, 26*(6), 653-664.
- Stead, M., Stradling, R., MacNeil, M., MacKintosh, A., Minty, S., McDermott, L., & Eadie, D. (2010). Bridging the gap between evidence and practice: A multi-perspective examination of real-world drug education. *Drugs: Education, Prevention & Policy, 17*(1), 1-20.

- Stigler, M. H., Neusel, E., & Perry, C. L. (2011). School-based programs to prevent and reduce alcohol use among youth. *Alcohol Research & Health*, 34(2), 157-162.
- Strengthening Families Program. (2012). About SFP. Retrieved from <http://www.strengtheningfamiliesprogram.org/index.html>
- U.S. Department of Health and Human Services (2012). Preventing tobacco use among youth and young adults: A report of the surgeon general. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health (2014). The Health Consequences of Smoking—50 Years of Progress. A Report of the Surgeon General. Retrieved from <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/index.html#execsumm>.
- West, S. L., & O'Neal, K. K. (2004). Project D.A.R.E. outcome effectiveness revisited. *American Journal of Public Health*, 94(6), 1027-1029.
- Zavela, K. (2002). Developing effective school-based drug abuse prevention programs. *American Journal of Health Behavior*, 26(4), 252-265.