FACTORS THAT CONTRIBUTE TO IMPLEMENTATION FIDELITY OF A SCHOOL-BASED SUBSTANCE ABUSE PREVENTION PROGRAM: FROM RESEARCH TO “REAL WORLD” SETTING

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FACTORS THAT CONTRIBUTE TO IMPLEMENTATION FIDELITY OF A
SCHOOL-BASED SUBSTANCE ABUSE PREVENTION PROGRAM: FROM
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I would like to dedicate my thesis to my husband, EJ. Without his love, support and encouragement the completion of this work would not have been possible.
ACKNOWLEDGEMENTS

I would like to take this opportunity to thank my advisor, Margaret C. Stephens, for her guidance and support throughout the process. Her knowledge and experience were invaluable to me. I would also like to thank Dr. Zili Sloboda and Dr. Peter J. Leahy for being my official readers and also my mentors in not only my thesis but in my professional career as well. I want to thank Dr. Richard C. Stephens for his great wisdom and being able to straighten me out. For Dr. Daniel Coffey and Dr. Julia Beckett for taking what I know as very precious time and reading my thesis as well as attending my defense. I appreciate the outside perspective and fresh eyes. I want to thank my friends and co-workers who contributed by advise, mental support or just plain words of encouragement towards the completion of my thesis. I want to thank my parents for always believing in me and supporting EJ and I through our education endeavors. Finally, to my children Bailey and Mackenzie, for being the lights of my life.
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Drug prevention research has been conducted since the 1960s (Botvin 1990). However, since the 1990s there has been a more concerted effort to bring drug prevention into schools, specifically with curricula designed to change the psychosocial behaviors of adolescents (Botvin 1990). Although there were many curricula that claimed effectiveness, it has been difficult for school administrators to know which would most benefit their students. National panels and councils of experts were created to review the evidence for researched programs to determine which were effective; assisting school administrators in their decisions (Petrosino 2003). The passage of No Child Left Behind (NCLB) in The Safe and Drug-Free Schools and Communities (Title IV, Part A) 2001 requires “…school districts nation wide to implement drug and violence prevention programs of demonstrated effectiveness” (NCLB, 2001). Although the guidelines and lists are helpful in choosing an effective program, there are still more challenges.

Research findings indicate that although school administrators are choosing evidence-based programs; they are not being implemented in the way they were designed (Fagan & Mihalic, 2003; Hallfors & Godette, 2002). Studies have demonstrated that higher implementation of a program results in higher positive outcomes for students (Hansen, Graham, Wolkenstein & Rohrbach, 1991; Pentz, et al., 1990). As a result, over the past 10 years the field of substance abuse prevention research has been increasingly concerned with
studying program implementation and effectiveness (Fagan & Mihalic, 2003; Fixsen, Naoom, Blasé, Friedman & Wallace, 2005; Rohrbach, Dent, Skara, Sun & Sussman, 2007; Dane & Schneider, 1998). The question is what happens when the prevention curriculum is taken from the research setting to the “real world” setting?

Implementation fidelity examines the extent to which a program is delivered as it was designed. There are several dimensions to implementation fidelity including whether the target audience is receiving the program, the materials utilized, the amount of program exposure of the intended recipients and adherence of the deliverer to the program as designed (Dusenbury, Branningan, Falco & Hansen, 2003; Fullan and Pomfret, 1977; McGraw et al., 2000; Moncher & Prinz, 1991; Rohrbach, Grana, Sussman and Valente, 2006). Recent studies have shown that certain attributes of schools and instructors can affect implementation fidelity (Fagan & Mihalic, 2003; Dusenbury et al., 2003; Dane & Schneider, 1998; Harachi, Abbot, Catalano, Haggerty & Fleming, 1999; Ringwalt et al., 2003; Rohrbach, Graham & Hansen, 1993). Specifically, the training and attributes of the instructor have a critical influence on the implementation fidelity of a program (Basen-Engquist, O’Hara, Lovato, Lewis, Parcel & Gingiss, 1994; Fagan & Mihalic, 2003; Rohrbach, et al. 1993; Perry, Murray & Griffin, 1990; Ringwalt et al., 2003; Rohrbach et al., 2006; St. Pierre & Kaltreider, 2004).

In this study, the role of the instructor in implementation fidelity will be explored. Specifically, two similar groups of instructors who were trained on the same curriculum by two different training groups using different methodologies will be examined. One group was trained in a research setting by the designers of the curriculum while the other group was trained by the organization that is now disseminating the curriculum in the “real world” condition. First, the two groups will be compared on their measures of implementation
fidelity: content coverage, instructional strategy and appropriate time on task. Then, factors will be examined that may be associated with any differences observed; specifically on measures of instructor enthusiasm for the program, years as an instructor and level of educational attainment of the instructor. Because the two groups are similar, yet trained in two different settings, examining these factors will help to explain if the training has a direct effect on implementation fidelity or whether it is moderated by the instructor attributes.
CHAPTER II
LITERATURE REVIEW

The study of implementation fidelity has long been a focus of prevention researchers. Implementation is part of Diffusion Theory which “is the process by which members of a social system learn about, decide about and act on ideas, practices or objects that they perceive as new” (Hallfors & Godette, 2002 p 462). By examining how the program is delivered, researchers can better interpret and understand outcomes produced by the program (Dane & Schneider, 1998; Dusenbury, et al., 2003; Fixsen et al., 2005; Fullan & Pomfret, 1977; Hall & Loucks, 1977; Saunders, Evans & Joshi, 2005; Sobol, et al., 1989; Wandersman, et al., 1998). Implementation is part of Diffusion Theory. One common mistake when implementation fidelity goes unmeasured is to confuse desirable outcomes with high implementation and less desirable outcomes with low implementation without data supporting these conclusions. Monitoring and measuring implementation fidelity can not only aid in discovering program failures but also allow for improvement before program end to ensure better outcomes. If implementation fidelity is measured throughout a program and it is discovered that it is not high, the program managers can intervene to aid in higher implementation fidelity and ensure higher program outcomes.

Failure of a program may actually be attributed to dose or quality of intervention. Without measuring implementation fidelity, program failure may be attributed to the program itself, which is often an incorrect conclusion. Another important aspect to studying
implementation fidelity is gaining an understanding of how it can be improved when disseminating an evidence-based program (Dusenbury, et al., 2003). Fidelity assessments have administrative or policy purposes as well as research purposes. Measuring how adequately a program has been implemented can provide administrators with assurances to give to policy-makers that services are being executed as planned and are reaching the target population (Mowbray, Holter, Teague & Bybee, 2003). Assessments of implementation can also allow the opportunity to change or correct deficiencies before too much time or money is lost (Pressman & Wildavsky, 1973).

How to Measure Implementation Fidelity

Measuring implementation fidelity can be accomplished in several ways but Dusenbury, et al. (2003) point out there is no commonly agreed upon definitions or measures. Dane and Schneider (1998), and in Dusenbury, et al. (2003), discuss five ways to measure fidelity: 1) adherence to program (content coverage); 2) dose (time on task); 3) quality of program delivery (instructional strategy); 4) participant responsiveness (student behavior); 5) program differentiation. Although all five measures are recommended to assess implementation fidelity, Dusenbury, et al. (2003) were unable to find a study of drug abuse prevention that utilizes all of them. Moncher and Prinz (1991) suggest quantity and duration of sessions and the frequency, intensity and sequencing as measures of implementation fidelity. McGraw et al. (2000) suggest the measures of implementation fidelity as: quantity (proportion of curriculum covered and the actual time spent) and quality (proportion of individual activities conducted as intended and proportion of plans and material not modified).
To collect these data, classroom observations and surveys have been utilized in many settings. The majority of studies that have measured implementation fidelity have found that classroom observations are the most reliable and valid method of gaining information about implementation in a school setting but these methods can be cost prohibitive. Self-report methods have also been employed to measure fidelity; however, researchers have found subjects either over- or under-estimate actual events such as content covered, time spent on activities and dose (Fullan & Pomfret, 1977; Moncher & Prinz, 1991; Rohrbach, et al., 2006).

Elements Associated with High Implementation Fidelity

Key elements that have been associated with high implementation fidelity include: teacher training; program characteristics such as small group activities and more student interaction; teacher characteristics, such as years of experience, enthusiasm and “buy-in” of the curriculum; and organizational characteristics such as support from all levels of administration (Dane & Schneider, 1998; Dusenbury, et al., 2003; Ringwalt et al., 2003; Rohrbach, D’Onofrio, Backer & Montgomery, 1996).

In a study by Harachi, et al. (1999) it was found the effects of teachers’ instructional skill is directly related to the students’ ability for interaction and assimilation. A study by Rohrbach, et al. (1993) found high implementers reported fewer years of teaching experience. The study also demonstrated those teachers with fewer years of teaching experience had higher enthusiasm, felt better prepared to teach and were more actively involved in teacher training.

The enthusiasm of an instructor has also been demonstrated to correlate with implementation of the curriculum (Ringwalt et al., 2003; Rohrbach, et al., 1993; Rohrbach, et
Enthusiasm can be defined as teacher morale, commitment to trying the innovation, attitudes toward the innovation, motivation to implement, etc. In a study by Rohrbach et al. (1993) it was found that less experienced teachers have higher fidelity to the curriculum. The study also found these less experienced teachers were more active in teacher training, more enthusiastic about the program and felt better prepared to teach. This finding was corroborated in another study by Rohrbach et al. (2006). The study revealed the instructors’ commitment to trying the innovation; attitudes toward the innovation; comfort with approach; good teaching skills; and self-efficacy to implement the innovation were factors associated with high implementation.

Fagan and Mihalic (2003) also found that “During interviews, we learned that some instructors who did not want to teach the program deleted material, either to save time or because they thought the material was inappropriate or unnecessary” (p. 246). This finding gives credence to the importance of instructor enthusiasm for the innovation or curriculum. Without that enthusiasm, steps may be skipped to expedite the teaching. When teachers take the liberty of eliminating sections, critical elements of the program could be missed and consequently the program will produce less of an effect on their audience.

Research to “Real World”

Studies have shown a discrepancy from research setting delivery of a curriculum to the natural or “real world” setting delivery of a curriculum (Fagan & Mihalic, 2003; Hallfors & Godette, 2002; Rohrbach et al., 2007; Rohrbach et al., 2006; Rohrbach et al., 2003). Programs, specifically drug and alcohol abuse prevention curricula, have been studied in a research setting and have found positive outcomes yet when diffused into the “real world”,
the outcomes are different than in the research settings (Hallfors & Godette, 2002; Rohrbach et al., 2006; St. Pierre & Kaltreider, 2004). The evaluation of implementation fidelity may help explain any differences found between the research setting and the mass distribution of the curriculum.

Purpose of Study

The purpose of the proposed research is to examine the possible difference in implementation fidelity between research trained officers- instructors and officer-instructors trained in a regular or “real world setting”. It will look at the extent to which instructors of a universal substance abuse prevention curriculum adhere to the structure, process and content intended by the developers in a regular classroom situation compared to implementation of the program in a research setting which used instructors trained by the research staff and curriculum developers. This research will also examine the relationship between the instructors’ experience, enthusiasm for the curriculum and education achievement to three measures of fidelity - content coverage, instructional strategy and time on task. Examining these relationships may help account for reasons of high implementation fidelity outside of training.
CHAPTER III

METHODOLOGY

The Adolescent Substance Abuse Prevention Study (ASAPS)

The Adolescent Substance Abuse Prevention Study (ASAPS), funded by the Robert Wood Johnson Foundation, is a rigorous classical experimental design evaluation of Take Charge of Your Life, a newly designed prevention program delivered by Drug Abuse Resistance Education (D.A.R.E.) officers that targeted students when they were in the 7th grade and again when they were in the 9th grade. ASAPS was conducted in 83 school districts (with 83 clusters of high and low stress high schools and their 122 feeder middle schools) located in six metropolitan areas (Detroit, Houston, Los Angeles, Newark, New Orleans and St. Louis). The program began in the 2001-2002 school year with a cohort of 7th graders who were surveyed twice in the 7th and 9th grade (the curriculum was taught in these years) and once in the 8th, 10th and 11th grade (2005-2006). One school district in the inner city and other districts within a 50-mile radius around the inner city district were randomly selected and then recruited to participate in the study. Once letters stating agreement to participate in the study were received from district superintendents, school principals and police departments within the respective jurisdiction, school clusters were

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1 The description of the Adolescent Substance Abuse Prevention Study is taken from a template developed by the study group to provide uniformity of reporting for this large evaluation study.
randomly assigned to one of two conditions: 1) receive the TCYL curriculum or 2) to continue with the substance abuse prevention program in place in their school, to provide a new program, or not to provide any program at all. Forty-two high schools and their 63 feeder middle schools were assigned to the control condition while 41 high schools and their 59 feeder middle schools were assigned to the treatment condition. At baseline, 19,200 7th graders with positive parental consents and student assents (56.3 percent of those considered eligible from school rosters at the beginning of the 2001-2002 school year) participated in the study. Of these, 11,118 attended the treatment schools and 8,082 attended the control schools.

_The Center for Substance Abuse Prevention (CSAP) Study_

In 2003, the Robert Wood Johnson Foundation and The University of Akron agreed to transfer the copyright for the 7th grade curriculum of the Take Charge of Your Life program to D.A.R.E. America. To address concerns expressed by the Robert Wood Johnson Foundation that the curriculum could be delivered with fidelity, D.A.R.E. America agreed to conduct a second implementation fidelity study to confirm the quality of the transition of the TCYL curriculum from a research setting into a real world setting. To conduct this second study, The University of Akron received funding from the Center for Substance Abuse Prevention (CSAP grant HHSP233200200904P) to go into the field and observe D.A.R.E. officers trained by D.A.R.E. America and to compare data collected from these observations to the ASAPS Implementation Fidelity data.

The 7th grade curriculum will be the focus of this study. Although data were collected in the ASAP study of officers teaching both 7th and 9th grade curricula, officers
were not observed teaching the 9th grade curriculum in the CSAP study. The 9th grade curriculum is not widely used by D.A.R.E. America due to lack of demand and resources. Therefore, observation data will be used from officers teaching the 7th grade curriculum of the ASAP study and the observations of officers teaching the 7th grade curriculum in the CSAP study.

The 7th Grade Curriculum

The 7th grade curriculum consists of ten lessons. TCYL draws heavily from both current education and substance abuse prevention research and emphasizes normative beliefs about the prevalence and social acceptability of the use of tobacco, alcohol, inhalants, marijuana and other drugs; the perceptions of the consequences associated with the use of these substances; and the acquisition of social skills including communication skills, decision making skills and resistance strategies. The program is designed to address substance use through problem-driven organizers that were drawn from focus groups of middle and high school students and from the participants themselves.

The program content is intertwined throughout the lessons to help students form an understanding of the risks involved when substances are used, particularly by young people whose bodies and brains are still developing. The lesson content also supports students’ understanding that most adolescents do not use substances on a regular basis; and provides opportunities for students to practice the social and communication skills that enable them to resist the use of substances.

The program fosters interaction and active learning through large and small group discussions and role play to stimulate students to “try on” and think through problematic
situations guided by the D.A.R.E. officer-instructors. The program’s spiral structure allows
concepts and skills to be revisited throughout the lessons such that the skills are introduced,
revisited and practiced in increasingly more complex problem situations.

Homework is assigned so that students can further refine the skills and
understandings being developed in the classroom and to keep parents fully informed about
the lessons and their students’ work. Follow-up in-class sessions weave the homework and
class activities into a meaningful sequence of learning activities.

ASAPS Implementation Fidelity Study Methodology

Within the national ASAP study a sub-study was conducted to measure the
implementation fidelity of the officers delivering the curriculum. Officer-instructors were
observed in the classroom. Two key lessons (2nd and 6th in sequence) were selected for
observation from the 7th grade curriculum because of their focus and the different
instructional strategies required. The first lesson observed (Lesson 2) includes the types of
activities, didactic instructional strategies, and level of student engagement similar to the
D.A.R.E. officers’ previous experiences. On the other hand, the second lesson observed
(Lesson 6), focuses on skills building and its activities are more student-centered and highly
interactive requiring a different set of instructional strategies and facilitation techniques.
These two lessons also emphasize key elements of the curriculum’s theoretical foundation
with Lesson 2 focusing on the effects of drugs on the body and Lesson 6 building decision-
making skills.

Instructors were observed teaching each of the two selected lessons twice. The
lessons chosen for observation were sequential and neither the first class of instruction nor
the last class of instruction for that day. Each instructor was observed a total of 4 times in each observation year. Standardized observation coding sheets were created for each of the lessons being observed. Trained independent raters, who were university employees, recorded for each activity whether the activity and its sub-activities were covered, the amount of time involved with that activity, the officer’s instructional strategy (from a check-off list—non-interactive, lecture/listen, ask questions, discuss, model, or facilitate), and the students’ behavior (also from a check-off list—non-interactive, lecture, answer questions, discuss, model, or problem solving).

Officer Sample - ASAPS

Officers for the ASAP Study who were involved in the D.A.R.E. program at schools in each city assigned to the treatment condition were involved in the study. If a D.A.R.E. officer was not available, one was recruited from a neighboring agency to assist in the implementation of the curriculum or an officer from the school districts’ police agency was trained in the D.A.R.E. program D.O.T. (D.A.R.E. Officer Training) and then in the new curriculum. Officers were required to have completed the basic D.A.R.E. Officer Training by D.A.R.E. America. They trained at The University of Akron in the new curriculum content and teaching styles. There were 58 officers who were observed teaching the 7th grade curriculum in the ASAP study. All 58 were observed to some degree. There were only 40 officers that were observed teaching both Lesson 2 and Lesson 6 twice for each lesson. The other officers were either not observed on one of the two lessons because they team taught or two observations of each lesson were not obtained for various reasons.
Officer Training - ASAPS

Officer instructors for ASAPS were those who were already D.A.R.E. officers in their respective agencies or were recruited from police departments in ASAPS treatment-assigned districts. They completed DOT training to be D.A.R.E. certified before completing the ASAPS officer training. The training of instructors for the ASAP study, which occurred in the fall of 2001 for the 7th grade curriculum, consisted of 3 days of training and focused on understanding the lessons and developing skills to teach the respective lessons. There were a total of six 3-day sessions with 67 officers receiving training for the 7th grade curriculum. The training included lectures, practice, discussion and feedback in small and large group settings. At the start of the training for each lesson, a prevention specialist explained the role of the lesson in substance abuse prevention and how that lesson fits into *Take Charge of your Life* curriculum.

Careful planning and instruction were taken into consideration when training the officers as the new curriculum employs instructional strategies that are quite different from those emphasized by D.A.R.E. America in prior curricula. The officers were asked to make a switch from a curriculum that was didactic to one that was interactive, from one that was instructor-focused to one that was student-focused, and to one that allowed time to practice and master resistance skills. Moreover, the curriculum team emphasized the importance of understanding the curriculum design and theory to be effective instructors of this new curriculum.

Each officer was provided a manual which included detailed instructions for teaching each lesson (including teaching style and specific goals of each activity). Also included were
supplemental resources in the areas of substance abuse prevention, adolescent development, pedagogy and current drugs of abuse.

Generally the format was to review each lesson with officers separated into teams to practice teaching the lesson and to critique each other. Then officers were convened into a large group where each team took a turn at teaching a lesson with each officer within the team having an opportunity to be the instructor/facilitator. The larger group then provided feedback on content coverage style and rapport.

The principal philosophy of the training was to have officers best understand and be able to teach the program: to have ample opportunities to have significant dialogue about the design of the curriculum and content of each lesson; to observe demonstrations by colleagues as to how the lessons are intended to be taught; and to teach each of the lessons and receive instructive feedback about their teaching.

After the officers were in the field, they were encouraged to contact the training staff if they had any questions or concerns. Many officers called once – early in their teaching assignments, to clarify content, ask for suggestions on specific classroom management issues or simply to share their experience with the new curriculum.

*Training of observers - ASAPS*

The observer training for ASAPS was imbedded in a larger data collection training for site managers and reflected a trainer of trainers approach. Regional Coordinators were trained and then these “trainers” trained site staff. The observers were site staff responsible for the consent process, student surveys as well as the officer observations. The total training was two days with approximately two hours spent on the implementation fidelity
training. A video of Lesson 2 was reviewed and a practice exercise was done for Lesson 6 concluding with a discussion. The Regional Coordinators then returned to their region with a video of each lesson. They were to use them to help train their staff on observations. It is uncertain how much time each Regional Coordinator spent on the training, but according to verbal reports, training averaged two hours.

CSAP Implementation Fidelity Study - Officer Sample

The CSAP study originally proposed a sample of 60 -70 officers that were trained by D.A.R.E. America in the TCYL curriculum but who did not teach for the ASAP study. Ultimately, 40 officers were observed from the various regions of New Jersey, Louisiana, Michigan, Texas, Missouri and Ohio. These regions were the same regions as the ones used for the ASAP Study with the exception of Ohio. Ohio was substituted for California as a region for logistical reasons. The California region was Los Angeles but there were no longer D.A.R.E. officers teaching the 7th grade curriculum in that or any nearby area. However, in Ohio there were a significant number of officers teaching the 7th grade curriculum a reasonable distance from The University of Akron. Thus the officer sample is a convenience sample. That is, the officers we observed were officers that we could reach, that were teaching the 7th grade curriculum and were willing to participate in the study.

D.A.R.E. America provided a list of officers in the study states who were trained in the 7th grade TCYL curriculum. As agencies on the list were contacted, it became apparent that even though they had been trained to teach the 7th grade curriculum, many were not teaching it, and therefore could not participate in the CSAP study. Contact was made with each state D.A.R.E. agency to refine the list of trained officers to only those that were
actually teaching the TCYL curriculum. This helped to limit our scope of contact however, finding a group of officers teaching in the same geographic location still proved difficult. Out of necessity, we expanded the geographic parameter in order to be able to find enough officers to participate.

In total, 286 policing agencies were called – 39 in Ohio, 51 in Texas, 93 in Missouri, 36 in Michigan, 30 in New Jersey, and 37 in Louisiana to locate officers currently teaching the TCYL D.A.R.E. Middle School Curriculum. Table 1 offers a description of why officers did not participate.

Table 1. Reasons why agencies were not observed

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of Policing Agencies</th>
<th>Percent of Total Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never returned calls from study staff</td>
<td>73</td>
<td>25.5%</td>
</tr>
<tr>
<td>No DARE program offered</td>
<td>29</td>
<td>10.1%</td>
</tr>
<tr>
<td>Teaching 7th grade but did not call back w/schedule</td>
<td>27</td>
<td>9.4%</td>
</tr>
<tr>
<td>Only elementary program taught</td>
<td>86</td>
<td>30.1%</td>
</tr>
<tr>
<td>Missed lesson 2 (By the time we contacted them, they had started teaching)</td>
<td>4</td>
<td>1.4%</td>
</tr>
<tr>
<td>7th grade offered only in spring (beyond study timeline)</td>
<td>25</td>
<td>8.7%</td>
</tr>
<tr>
<td>Observed</td>
<td>25</td>
<td>8.7%</td>
</tr>
<tr>
<td>We trained the current officer (Could not use for this study)</td>
<td>6</td>
<td>2.1%</td>
</tr>
<tr>
<td>Modified curriculum (not teaching it how trained because of block schedule)</td>
<td>3</td>
<td>1.0%</td>
</tr>
<tr>
<td>Did not want to participate</td>
<td>8</td>
<td>3.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>286</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Training was similar for both the ASAPS and the D.A.R.E. America trained officers. Typically under D.A.R.E. America, officers who wish to become D.A.R.E. officers apply for the position at their law enforcement agency. Once approved, requesting officers complete
an extensive application process, including an interview by a panel of experts within D.A.R.E. America. Accepted candidates are required to attend an intensive two week, 80 hour session of the D.A.R.E Officer Training (DOT) program, generally, at their state training location. The current training prepares each instructor to teach three D.A.R.E. curricula: the elementary curriculum that reaches students from kindergarten to the 4th grade; the 5th grade curriculum; and the 7th grade *Take Charge of Your Life* curriculum. The training is standardized throughout the nation and TCYL is part of the DOT program provided by each state D.A.R.E. organization.

Training by D.A.R.E. America is an on-going process with new classes of trainees occurring all the time. In the newly designed D.A.R.E. America training program, each trainee receives a DOT kit which includes all the instructional materials, placards, handouts, videos and related items they need while teaching the Kindergarten through 4th grade, and the 5th grade and 7th grade curricula. D.A.R.E. officer training consists of three phases. The first phase which is led by an education specialist, usually a public school teacher, lasts three days. It involves instruction on a series of educational components explaining the theory of learning, presentation skills, facilitative instruction, classroom management, and cognitive-based learning. During this phase, an experienced D.A.R.E. instructor specifically trained to teach DOT and referred to as a “Mentor” focuses on the concept of prevention. The second phase, lasting about three days, is spent specifically on the 5th grade curriculum; and finally the third phase, again about three days, is spent on the 7th grade curriculum. Each curriculum training session includes review, discussion and presentations of the lessons either individually or in small groups (teams) led by a specially trained Mentor. The trainees

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2 A Mentor is a D.A.R.E. instructor with at least two years teaching experience and has successfully completed an additional 40 hours of Mentor Officer Training (MOT).
are given opportunities to teach several components of the lessons with frequent feedback and evaluation. Upon completion of the DOT all trainees will have had a review, discussion or actual presentation of all lessons. On the 9th day of training DOT students enter an active classroom to teach an actual lesson to children.

After the training and evaluation is successfully completed, graduating D.A.R.E. instructors are required to complete an on-line review component within 90 days after the graduation. The online review is reflective of the content and information received in their DOT training. Tests are administered at the completion of both the elementary and middle school online courses with a grade of at least seventy percent required to ensure competency and command of the content.

While the D.A.R.E. officers are in the field teaching, they have continued resources from their unit or commanding officer whom they can go to for advice and feedback. In addition they have access to their DOT trainers. They are also encouraged to attend regional, state or national D.A.R.E. conferences for boosters and updates in the field (CSAP report).

*Training of observers – CSAP study*

The trainings for the observers of the two studies were similar. In both trainings, trainers outlined the importance of measuring implementation fidelity and the importance of the role of the observer. The observation instrument was explained in detail including the purpose of the information for each part, definitions of terms and correct completion.

The training for officer observations of the CSAP study was a 2-day stand-alone training. The observers may have been people that were trained for the ASAP study or new
staff members. The lessons were first reviewed on paper and summarized to help the staff remember the order of the activities. Then a video of each lesson was viewed and evaluated to check content order and discuss the difference of coverage and instructional strategy. The video was then reviewed again using the observation instrument. The results of the observations were discussed and an understanding and agreement of definitions was made. At the end of the training, the observers knew the lessons, understood the instrument and were able to come to agreement of definitions of actions within the activities.

*Instruments - ASAPS and CSAP study*

Data were obtained from two key data collection forms: Observation forms and Officer Assessment forms. Observers used a standardized form to note whether activities for each lesson were covered (content coverage), the length of time spent for each activity and the instructional strategy used by the officer in each activity (non-interactive, lecture, ask questions, discuss, model and facilitate). The form also captured student behavior during each activity (non-interactive, listen, answer questions, discuss, model and problem solve) and classroom organization (individual, small groups and whole class). Lastly, the observers were asked to rate the instructors on the following 6 questions, using a 5-point Likert scale (agree, kind of agree, neutral, kind of disagree, and disagree): (1) Was the instructor enthusiastic? (2) Did the students appear to be comfortable talking with the officer? (3) Did the students and officer smile and laugh while staying on task? (4) Did the instructor appear to listen attentively? (5) Did the officer seem well prepared to teach? And (6) did the students understand the officer’s directions, explanations, and questions. During training,
officers were told about the observations and signed informed consents agreeing to be observed.

There are differences between the ASAP study and the CSAP study forms. First, D.A.R.E. America changed the order of activities slightly for Lesson 6 affecting the CSAP form. Second, on the ASAPS form, the sum amount of time for the activity was recorded; on the CSAP form, a start time and end time was recorded and the total time calculated later. Finally, the ASAPS instrument allowed only one choice for each area of instructor strategy whereas the CSAP instrument allowed for multiple choices.

In both studies, the officers were observed for two consecutive classes of each lesson, neither of which would be the first nor last class of the day whenever possible. Each officer would then be observed a total of 4 times – twice for Lesson 2 and twice for Lesson 6.

The officer assessment form was the same for both studies. It contained questions as to whether the officer understood the purpose and content of the lesson; whether they felt comfortable dealing with this age group and if this lesson was appropriate for this age group; if they had enough training and preparation for the lesson, etc. The officers’ responses were on a Likert scale: disagree, kind of disagree, neutral, kind of agree and agree. The only difference between the two forms was that a few questions were added about officer training on the CSAP study forms.

Data Collection – ASAPS and CSAP study

Data were collected in two parts. The first part occurred during the ASAP study (fall 2001 – spring 2002) on officers teaching the TCYL curriculum in schools participating in the
treatment aspect of the study. Although 58 officers were observed, only 40 officers were observed teaching both Lessons 2 and 6 twice.

The second part of data collection was during the CSAP study (January – December 2006). This included observing 40 officers in LA, MI, MO, OH and NJ that were trained by D.A.R.E. America to teach the TCYL curriculum and were currently instructing and agreed to participate in the study.

Measures – ASAPS and CSAP Study

Content coverage is measured in two steps. First, a variable was created for each activity in each of the four observed lessons (two observations of Lesson 2 and two observations of Lesson 6) indicating whether that activity was covered by the observed officer. Each activity was coded as either “covered” (coded “1”) or “not covered” (coded “0”). For each observed lesson, a sum of all the number of activities that the observers marked as “covered” within each lesson was divided by the total number of activities (in each lesson). This produced a score indicating the percentage of activities covered in each lesson and observation (possible range from 0% to 100%). In both studies (ASAPS and CSAP) Lesson 2 contained 16 activities. Lesson 6 contained 21 activities in the ASAP Study, but only 16 activities in the CSAP study. A mean score for each lesson was computed by adding the two observation percentage scores and dividing by two.

Overall Instructional Strategy is measured in a similar manner. First, each activity was coded as to whether the officer used the appropriate instructional strategy (as per the training manual); a score of “1” indicates the appropriate style was utilized, a “0” indicates an inappropriate style was used or the activity was not covered at all. Then, a sum-score was
computed and divided by the total number of activities in the lessons to produce a percentage score. A mean score for each lesson was computed by adding the two observation percentage scores and dividing by two. This score can be interpreted as the mean percentage of activities (in each lesson) taught using the appropriate instructional strategy.

*Overall Time on Task* is measured using the recorded number of minutes spent on each activity. The total number of minutes for each activity was compared to the recommended number of minutes in the training manual. For each activity, if the time actually spent on the activity was within two minutes of the recommended time, the officer received a score of “1”, indicating s/he spent the appropriate amount of time on that activity. If s/he spent greater or less than two minutes of the recommended time on an activity a score of “0” was assigned. If the activity was not covered, a score of “0” for time on task was assigned for that activity. The scores for time on task were summed for each observation in each lesson and divided by the total number of activities to produce a score indicating the percentage of activities that had the correct amount of time devoted to them. A mean score for each lesson was computed by adding the two observation percentage scores and dividing by two.

*Officer enthusiasm* is measured using the responses in four questions from the officer assessment form. Those questions are: Question 6: I believe that the content of this lesson is right on target for these kids. Question 7: I believe that the content of this program is right on target for the purpose of the program. Question 13: I think this lesson will have the intended impact on students’ decisions about substance use. Question 14: I believe that the method of teaching this lesson is effective. The officers responded with a Likert scale of: disagree, kind of disagree, neutral, kind of agree, and agree (These answers are given the
scores of 0, 1, 2, 3, and 4 respectively). For each lesson, all 4 questions were summed and then divided by 4 to reach an enthusiasm score (Possible range 0 to 4).

The officer was asked to complete an assessment form for each lesson. There are two possible forms for each officer. Since the assessment form was an optional survey, it was not always completed for both lessons or by all officers. There were 36 ASAPS trained officers who completed the assessment for Lesson 2 and 35 for Lesson 6. There were 24 D.A.R.E. American trained officers who completed the assessment for Lesson 2 and 20 who completed it for Lesson 6.

*Experience as a D.A.R.E. officer* is a self-reported continuous variable of the number of years self-reported as a D.A.R.E. officer. It was included in the questionnaire given to the officers following their training in the ASAP Study or before they were observed in the CSAP study. Because this information was not mandatory, it was not obtained from all officers. Thirty-three of 40 officers responded from the ASAP study and 34 officers of 40 responded from the CSAP study.

*Educational attainment* is an ordered categorical question that asked about the highest level of education achieved. The choices were: GED, HS Diploma, Assoc. Degree, Bachelor’s, Master’s and PhD. Again this was not a mandatory question and so 33 of 40 officers responded from the ASAP study and 31 of the 40 officers responded from the CSAP study.
CHAPTER IV

RESULTS

The analysis was conducted in two parts. First the ASAPS trained officers were compared to the D.A.R.E. American trained officers to see if there were differences in education, years as a D.A.R.E. officer, enthusiasm and their scores on implementation fidelity (Instructional strategy, content coverage and appropriate time on task). Because the variables have non-normal distributions, a Mann-Whitney U test was used to compare the rank scores of the officers.

Then the ASAPS trained officers and the D.A.R.E. America trained officers were tested as individual groups to see if there were correlations between enthusiasm, years as a D.A.R.E. officer and education to the measures of implementation fidelity (Instructional strategy, content coverage and time on task). On examination of the data, the test thought to be most appropriate was a Spearman’s rho.

Table 2 shows the demographics for the two groups. A Chi-square was conducted on gender indicating no significant difference (p=.20). For the age, race and education variables, a Tau-C produced no significant relationship between the two groups. Overall, both groups tended to be white and male with the mean age of 40 years.
Table 2. Demographics of ASAPS and D.A.R.E. America trained officers

<table>
<thead>
<tr>
<th>Demographics</th>
<th>ASAPS trained officers (n=40)</th>
<th>D.A.R.E. America trained officers (n=40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>81%</td>
<td>91%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>14%</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>78%</td>
<td>65%</td>
</tr>
<tr>
<td>Female</td>
<td>22%</td>
<td>35%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS diploma</td>
<td>14%</td>
<td>29%</td>
</tr>
<tr>
<td>Some college</td>
<td>31%</td>
<td>3%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>22%</td>
<td>26%</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>19%</td>
<td>32%</td>
</tr>
<tr>
<td>Some graduate school</td>
<td>6%</td>
<td>-</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Age (mean)</td>
<td>40 years</td>
<td>40 years</td>
</tr>
</tbody>
</table>

*p<.05

Table 3 demonstrates the mean and standard deviation for the two groups’ content coverage, instructional strategy, appropriate time on task and enthusiasm. D.A.R.E. America officers had a higher mean ($\bar{x} = .63$) on instructional strategy for Lesson 2. Otherwise, ASAPS trained officers scored higher in all other categories. However, Mann-Whitney-U test for independent samples was run for a difference between the two groups on these measures; significant differences in mean rank scores were produced for content coverage of Lesson 2 (p=.04) and 6 (p=.02), and appropriate time on task for Lesson 2 (p=.01). ASAPS trained officers were significantly higher on their content coverage for Lesson 2 and 6 and conducted more activities in the appropriate amount of time in Lesson 2 than the D.A.R.E. America trained officers.
Table 3. Description of differences between ASAPS and D.A.R.E. America officers on measures of implementation fidelity

<table>
<thead>
<tr>
<th></th>
<th>Lesson 2*</th>
<th></th>
<th>Lesson 6*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Content Coverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASAPS</td>
<td>.79</td>
<td>.18</td>
<td>.75</td>
<td>.17</td>
</tr>
<tr>
<td>D.A.R.E.</td>
<td>.72</td>
<td>.17</td>
<td>.63</td>
<td>.22</td>
</tr>
</tbody>
</table>

| Instructional Strategy                |           |          |           |          |
| ASAPS                                | .60       | .18      | .51       | .19      |
| D.A.R.E.                             | .63       | .18      | .46       | .18      |

| Appropriate Time on Task             |           |          |           |          |
| ASAPS                                | .50       | .19      | .37       | .22      |
| D.A.R.E.                             | .39       | .21      | .30       | .16      |

| Enthusiasm                           |           |          |           |          |
| ASAPS                                | 3.6       | .49      | 2.9       | 1.1      |
| D.A.R.E.                             | 3.3       | .62      | 2.6       | 1.1      |

*p<.05

With the exception of content coverage and appropriate time on task for Lesson 2, both groups of officers were the same in all categories.

The groups were examined separately using a Spearman’s Rho to see if there was a correlation between enthusiasm, years as a D.A.R.E. officer and level of education to content coverage, correct instructional strategy and appropriate time on task. The ASAPS trained officers had no significant correlations in any of the categories (Table 4).
Table 4  Comparison of ASAPS officers’ enthusiasm, years as a D.A.R.E. officer and level of education to measures of implementation fidelity

<table>
<thead>
<tr>
<th></th>
<th>ASAPS trained officers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Coverage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enthusiasm</td>
<td>Years as a D.A.R.E. officer</td>
</tr>
<tr>
<td>Lesson 2</td>
<td>r</td>
<td>.273</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.107</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>r</td>
<td>-.178</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.307</td>
</tr>
<tr>
<td>Instructional Strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesson 2</td>
<td>r</td>
<td>.257</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.130</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>r</td>
<td>-.056</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.749</td>
</tr>
<tr>
<td>Appropriate Time on Task</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesson 2</td>
<td>r</td>
<td>.133</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.438</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>r</td>
<td>.056</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.755</td>
</tr>
</tbody>
</table>

Higher levels of enthusiasm have been associated with higher scores on content coverage, instructional strategy and appropriate time on task. This is not the case for ASAPS trained officers. There is no association between these variables. It has also been thought that less experienced instructors have higher scores on content coverage, instructional strategy and appropriate time on task. Again, there is no association between the variables for ASAPS trained officers. And finally, while officers who have achieved higher levels of education tend to have higher scores on content coverage, instructional strategy and appropriate time on task these differences are not significant. The characteristics of enthusiasm of an officer, how long an officer has been a D.A.R.E. officer and educational attainment have no association with the scores of content coverage, correct instructional strategy and appropriate time on task for ASAPS trained D.A.R.E. officers.

The same tests were conducted on the variables for the D.A.R.E. America trained officers and no significant correlations were found as well (Table 5).
Table 5. Comparison of D.A.R.E. America trained officers’ enthusiasm, years as a D.A.R.E. officer and level of education to measures of implementation fidelity

<table>
<thead>
<tr>
<th>D.A.R.E. America trained officer</th>
<th>Enthusiasm</th>
<th>Years as a D.A.R.E. officer</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content Coverage</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesson 2</td>
<td>r</td>
<td>.203</td>
<td>-.080</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.290</td>
<td>.653</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>t</td>
<td>.203</td>
<td>-.014</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.319</td>
<td>.936</td>
</tr>
<tr>
<td><strong>Instructional Strategy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesson 2</td>
<td>r</td>
<td>.182</td>
<td>-.119</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.345</td>
<td>.502</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>r</td>
<td>-.163</td>
<td>-.127</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.426</td>
<td>.476</td>
</tr>
<tr>
<td><strong>Appropriate Time on Task</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesson 2</td>
<td>r</td>
<td>-.006</td>
<td>-.136</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.975</td>
<td>.443</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>r</td>
<td>.356</td>
<td>-.228</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>.074</td>
<td>.195</td>
</tr>
</tbody>
</table>

The same hypotheses of associations with higher levels of enthusiasm, lower number of years as a D.A.R.E. officer and higher educational attainment with content coverage, correct instructional strategy and appropriate time on task were tested. These characteristics are not associated with the scores of content coverage, correct instructional strategy and appropriate time on task for D.A.R.E. America trained officers.
CHAPTER V
SUMMARY AND DISCUSSION

The ASAPS trained officers and D.A.R.E. America trained officers were compared to each other on demographics, enthusiasm, content coverage, instructional strategy and appropriate time on task. The groups were essentially the same in demographics, enthusiasm, instructional strategy for Lessons 2 and 6 and appropriate time on task for Lesson 6. However, the ASAPS trained officers scored higher on content coverage on Lessons 2 and 6 and appropriate time on task in Lesson 2 than the D.A.R.E. America trained officers. This demonstrates there are some differences between research trained officers and officers who were trained under usual circumstances. With this disparity, there could be lower student outcomes in the D.A.R.E. America trained group than originally found in the research group. If this is the case, the program may not be as effective as originally designed and tested therefore not reaching the evidence-based standards on which the program was chosen. This creates a paradox in the school setting. They may choose an evidence-based program but if it is not implemented with fidelity, it may negate the outcomes intended. We did not test students’ outcomes so this hypothesis is not tested in this study.

Characteristics of enthusiasm, years as a D.A.R.E. officer and level of educational attainment were examined to see if there was an association to measurements in implementation fidelity (content coverage, instructional strategy and appropriate time on
There were no associations in either the ASAPS trained officers or the D.A.R.E. America trained officers. In this study, enthusiasm of an officer, years as a D.A.R.E. officer and educational attainment of an officer have no bearing on the level of implementation fidelity of the TCYL curriculum. It is interesting to note this is contrary to what had been found in some studies. Fewer years as an instructor and higher levels of enthusiasm were found to be correlated with high implementation fidelity. However, because there is no association and because the two groups are essentially the same in demographics and enthusiasm, the variable that could be strongly attributed to the differences in content coverage in Lessons 2 and 6 and appropriate time on task for Lesson 2 is the training. The trainings were only examined superficially; therefore it cannot be certain that they were identical. If the trainings do differ on a deeper level it could be the reasons for the differences on content coverage and appropriate time on task. The knowledge of those differences, if they do exist, could be utilized to help strengthen other trainings and possibly lead to higher implementation fidelity when transferring curricula to the “real world” setting. It would be worth examining the trainings more closely.
REFERENCES


