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An Evaluation of a Media Literacy Program Training Workshop for Late Elementary School Teachers

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Abstract

The present study examined the efficacy of a media literacy education, substance abuse prevention training workshop for late elementary school teachers. Analyses revealed that the randomly assigned intervention ($n = 18$) and control ($n = 23$) teachers were similar in demographic characteristics and pre-training beliefs and knowledge. Teachers who participated in the workshop reported stronger beliefs in the importance of and familiarity with media literacy education and scored higher on a direct assessment of media deconstruction skills than teachers in the control group. Teachers reported positive program assessment ratings. This randomized controlled trial provides evidence that a one-day teacher training workshop on media literacy education is effective at improving teachers' beliefs and knowledge about media literacy that are relevant for successful student outcomes.

Keywords: Media literacy, teacher training, substance abuse, elementary school, prevention

In our current media-saturated environment, youth between the ages of 8 and 18 spend an average of over 7 ½ hours a day involved with media activities such as watching TV, listening to music, and playing video games (Rideout, Foehr, and Roberts 2010). In this growing information era, critical thinking skills are necessary to help youth navigate a complex and fast-changing information environment and to prepare them for a future in the 21st century workplace and community. Also, youth are frequently exposed to many media messages that promote risky, unhealthy behaviors including substance use (e.g., advertising: Gentile and Walsh 2001; DiFranza et al. 1991; television: Christenson, Henriksen, and Roberts, 2000; movies: Sargent et al. 2006; Glantz, Kacirk, and McCulloch 2004; popular music: Primack et al. 2008). Notably, media literacy education programs have been shown to be effective strategies to help protect youth from harmful outcomes (see Bergsma and Carney 2008; Hobbs 1998). Increasingly, educators and administrators recognize that teaching media literacy skills is a critical part of education in today's world. In fact, all 50 states have incorporated media literacy objectives into public education curriculum standards and almost three-quarters of states have media education goals mandated for health

and consumer education classes (Kubey 2002). Thus, it is important that teachers receive training in media literacy in order to serve as skillful 21st century educators.

Current Practices in Media Literacy Education for Teachers

Despite the efforts at incorporating media literacy education into course objectives, teachers have been left, for the most part, with the responsibility of meeting these guidelines on their own. Teachers often create and incorporate media literacy education into their classes without having had any formal training in media literacy themselves and without utilizing evidence-based programs or curricula. Schools of Education do not typically list courses on media literacy for degree requirements. In fact, the results of a survey designed to probe the availability of media literacy instruction in U.S. Institutions of Higher Education found that of the 242 colleges or universities that had a representative respond to the survey, only 65% (158) of these institutions offered courses on media literacy (Stuhlman and Silverblatt 2007). Further, only 34 of those courses were offered under the discipline of Education as opposed to other disciplines like Communication or Media Studies. As Renee Hobbs (2004) asserted, "most teachers

simply have not had the time (or the perceived need)... to understand how to use media texts or media issues to promote critical thinking” (56). Similarly, Torres and Mercado (2006) state that “the inclusion of critical media literacy as part of the foundations of education, and hence a component of the core curriculum of teacher education, is long overdue” (278). While media literacy as a field of study is rapidly growing in importance, it is not necessarily clear that educators receive sufficient instruction in basic media literacy skills and media literacy education pedagogy. Thus, there is currently a gap between best practice recommendations to employ evidence-based programs, the objectives that teachers are expected to meet as outlined in educational standards, and the actual curricula and training opportunities available.

Benefits of Media Literacy Instruction for Youth

Many administrators and educators would agree that one of the main goals of education is to help youth develop critical thinking abilities. The pedagogical practices encouraged in media literacy education are closely aligned with the practices recommended for developing critical thinking skills in that they provide youth with a more active filter to process media images and messages. One specific set of critical thinking skills that is emphasized in media literacy education involves breaking down media messages in order to understand their underlying persuasive elements and is known as media deconstruction skills. For instance, in order to promote critical thinking, teachers must challenge students to ask questions about the target text (Fisher 2007). Similarly, media literacy education is in large part about the development of media skepticism. In addition, students must also be motivated to reflect upon their educational experiences and engage in “thinking about thinking,” also known as metacognition (Fisher 2007; Burke, Williams, and Skinner 2007). Students who recognize the importance of critical thinking skills are more likely to use these skills. Critical thinking skills regarding media messages are also important for health outcomes. In fact, less advanced critical thinking skills predict higher rates of current use and future use of alcohol and tobacco in adolescents, even after controlling for other sources of influences including parents and peers (Scull et al. 2010).

Critical thinking about media messages has several potential applications for school-based programs. One method commonly employed is to use media literacy education as a strategy to help protect youth

from making harmful consumer-related choices (see Bergsma and Carney 2008; Hobbs 1998). Substance abuse prevention goals have been reached with success through the use of media literacy education (Scharrer 2003). For example, a media literacy education lesson designed for third grade students produced both short- and long-term effects on alcohol expectancies (Austin and Johnson 1997). Similarly, a follow-up study conducted an average of one year after a media literacy program found that students (aged 12-18) who participated in the program were better able to produce counter-arguments to beer advertisements, suggesting that media literacy education can affect the cognitive processing skills of youth (Slater et al. 1996). In addition, a recent evaluation of an alcohol and tobacco prevention media literacy education program for middle school students found that after completing the program, all students strengthened their critical thinking skills and previous substance users reported a reduced intent to use alcohol or tobacco products in the future compared to students in the control group (Kupersmidt, Scull, and Benson 2010). These studies provide compelling evidence that media literacy is a vital component of a substance abuse prevention plan.

A Late-Elementary School-Based Media Literacy Program: Media Detective

Kupersmidt, Scull, and Austin (2010) developed and evaluated a 10-session media literacy, substance use preventive intervention program for 3rd-5th graders called Media Detective (MD). MD uses an engaging detective theme to teach students critical thinking skills and reduce their susceptibility to media persuasion. The MD program is based upon the Message Interpretation Process (MIP) Model (Austin and Meili 1994; Austin and Johnson 1997a; 1997b). The MIP model provides a framework for understanding the cognitive processes associated with the interpretation of media messages, such that the similarity of media portrayals to self, the realism of the media portrayals, and the desirability of the media portrayal contribute to the level of identification with the media message (Austin and Freeman 1997). For instance, ads are intended to bypass critical viewing and provoke an emotional response. MD was designed to strengthen students’ logical responses to media messages and raise students’ awareness of their emotional responses by teaching cognitive mediation strategies to use when analyzing media messages. In turn, this encourages a

healthy skepticism that challenges the claims made by media producers and advertisers and provides students with the skills necessary to produce their own media messages.

The first half of the curriculum teaches student media detectives to utilize five clues when encountering a media message such as an advertisement. These clues provide a framework for students to analyze, interpret, and personally evaluate the message(s) in the ad. The five clues (italicized below) represent commonly accepted deconstruction questions endorsed by the National Association for Media Literacy Education (NAMLE) and the Center for Media Literacy (CML), including: identifying the purpose of the message (i.e., to sell a *product* or idea), understanding the impact of the message on defined groups (i.e., *target audience*), identifying and analyzing techniques of persuasion (i.e., a *hook* used to grab attention), and analyzing and evaluating the content of the message (i.e., uncovering implied or *hidden messages* and identifying the *missing information* about the health consequences of the message). Students not only learn the clues and how to apply them in their analysis, but they also learn to provide a logical rationale for their responses. Thus, an additional critical thinking skill that was achieved through deconstruction activities was substantiating conclusions with evidence from the media message.

Once students acquire basic media literacy deconstruction skills, they practice applying these skills to deconstructing or breaking down advertisements for a wide range of products including clothes and food. Students then practice deconstructing ads for alcohol and tobacco products in whole class discussions, small group activities, and individual writing assignments. The curriculum culminates in a media advocacy activity involving the creation of a counter-ad by each student, evaluation of several counter-ads created by their peers in a written assignment, and writing about what they learned in the MD program in a journal. The program was not designed to teach every media literacy skill or all content knowledge about media literacy or introduce every media channel. We assume that new objectives and media literacy skills will be introduced to students at developmentally appropriate ages across a K-12 curriculum.

The Present Study

Despite advances in research on the effects of media literacy education on students, researchers know less about the effects of media literacy education on

teachers. Therefore, this forms the main goal of the present study. This paper reports on the results of a small randomized controlled study examining the effectiveness of teacher training about media literacy education in general, as well as about the MD program in particular, for increasing teachers' beliefs about the importance of media literacy education, self-reported familiarity with the field of media literacy education, and direct assessments of teachers' media literacy skills. Additionally, we collected information on teachers' program assessment given the pioneering nature of this empirical work.

Method

Content of the Media Detective Teacher Training Workshop

Researchers of evidence-based programs continually cite teacher training as a critical component of effective program implementation (Bishop, Giles, and Bryant 2005; Domitrovich and Greenberg 2000). In order to prepare teachers to implement the MD program, all intervention teachers participated in an eight-hour in-person training workshop guided by use of a printed manual created by the program developers. The manual provided the teacher trainers with goals, objectives, and activities designed to increase general knowledge of the subject-matter content knowledge, curricular knowledge, and pedagogical knowledge. All three of these skills have been suggested as being important for the adequate training of teachers to competently teach a new academic discipline or curriculum (Fang 1996 as cited in Shulman 1998).

1. Media Literacy Theory: The training workshop introduced the importance of critical thinking skills for substance abuse prevention, the role of media literacy in those skills, and the role of MIP skills in the program. Media literacy is a relatively new academic subject and many teachers have not received formal media literacy education; hence, a uniform knowledge base about the effects of media consumption on children, the importance of being media literate in today's society, and how to support children's media literacy skills cannot be assumed. We hypothesized that by increasing teachers' message interpretation processing skills, teacher effectiveness at understanding and discussing media messages with their students will be increased. Also, by providing teachers with background about the MIP model and how it relates to program content, we hypothesized that teachers will exhibit better fidelity to

the program structure, will be able to better adapt their teaching style to fit the model, and that any potential departures from the program would be better informed.

2. Program Mechanics: The training workshop included a description of the scope and sequence of the curriculum as well as the program materials (i.e., Teacher Manual, illustrative and interactive posters, CD of media examples). Trainers explained the pedagogical approach used in each media literacy activity. This familiarization provided teachers with a rationale for how the program was designed. Also, teachers actually experienced parts of the program, which was designed to deepen their media literacy knowledge as well as increase their feelings of self-efficacy for teaching the program. Furthermore, trainers provided teaching tips based on their previous teaching experience and observations of program implementation.

3. Competence: Hobbs and Frost (2003) examined high school teachers who implemented media literacy in their classrooms for one year and found that at the close of the study, teachers reported still being uncomfortable analyzing and having their students analyze advertisements. This important finding is consistent with our observations that media literacy skills are challenging to master, even for adults. Media literacy skills require the ability to engage in both abstract and flexible thinking while applying a general analytic rubric to the deconstruction of specific media message examples. Educators need to feel comfortable and confident in order to successfully include media literacy approaches, topics, and activities into the classroom (Hobbs and Frost 1999). As a skill, critical thinking requires practice (van Gelder 2005). Thus, the training guided teachers on how to teach the five Media Detective clues to students, and provided scaffolded practice in deconstructing all ads used in the MD program using the five clues.

4. Fidelity: The training included a discussion of the importance of fidelity of program implementation. In a study of program implementation and effectiveness, the complete delivery of preventive intervention curricula was associated with positive program outcomes (Ennett et al. 1994). Evidence-based programs implemented with greater fidelity are more likely to achieve program goals and objectives and more likely to achieve the student results found in the original evaluation of the program's effectiveness (Ringwalt

et al. 2003). Despite the benefits of fidelity, real-world implementation of evidence-based program does not occur in a controlled environment and classroom teachers rarely implement programs strictly according to the program manual (Hobbs 2004; Ringwalt et al. 2003). Teachers implementing these programs benefit from guidance regarding the importance of faithful program implementation along with techniques to help establish and monitor fidelity.

Participants

Teachers of third through fifth grade classrooms in central NC schools (18 intervention teachers, 23 control teachers) were recruited to participate in a larger study of the effectiveness of the Media Detective program. In some cases, multiple teachers from the same school agreed to participate in the study. After the recruitment phase, teacher participants were randomly assigned to treatment groups at the school level to avoid contamination effects within the same school buildings. Teachers in schools assigned to the intervention group did receive the Media Detective Teacher Training Workshop and taught the Media Detective program. Teachers in schools assigned to the control group did not participate in the Media Detective Teacher Training Workshop and did not teach the Media Detective program as part of this research study. Control teachers were offered training and program materials at the conclusion of the randomized control trial. Both intervention and control teachers received \$50 for completing the two training questionnaires. Intervention teachers received \$25/hour for attending the 8-hour Media Detective Teacher Training Workshop. There were 17 female teachers and 1 male teacher in the intervention group and 22 female teachers and 1 male teacher in the control group. The intervention group consisted of 16 Caucasians and 2 African-Americans. The control group consisted of 22 Caucasians and 1 Asian-American. There was one Hispanic teacher in the control group; all other teachers considered themselves non-Hispanic. Only one teacher in the control group reported that they had taught media literacy to students before in the past. No teachers in the intervention group had reported teaching media literacy before.

Measures

Familiarity with media literacy. Teachers responded to the question, "How familiar are you with media literacy?" using the choices "1 = Not at all familiar", "2 = Somewhat familiar", "3 = Familiar", and "4 = Very familiar."

Belief in the importance of media literacy. Teachers responded to the question, "How important do you think the topic of media literacy is for elementary school education?" using the choices "1 = Not at all important", "2 = Somewhat important", "3 = Important", and "4 = Very important."

Media deconstruction skills ($\alpha = .94$). Teachers completed a performance measure of critical thinking about media messages by deconstructing one alcohol and one tobacco print advertisement using the following prompt as a guide: "Tell me about this advertisement in the space below (the more detail the better)." A general prompt rather than a specific prompt (e.g., Analyze this ad.) was used to assess the dimensions that the participants naturally used when describing an ad, the depth of the analysis of their descriptions, and the rationales provided for their observations. If too much direction had been provided in the prompt, then the measure could potentially function as an intervention, essentially cueing participants to use specific critical thinking skills elicited from a specific prompt when describing the ad.

The resulting qualitative data from the prompt were coded using five coding categories designed to contribute to an aggregate score used to assess teachers' overall ability to deconstruct media messages. The use of specific terminology or phrasing in responses to the prompt (e.g., mention of the code name) was not related to the scoring system or evaluations of the quality of responses. The Product code ($\alpha = .94$) relates to the ability to recognize the product being advertised in an ad, and ranged from a low of 0 (no mention of the product) to a high of 3 (provides detailed information of the product). The Target Audience code ($\alpha = .92$) refers to the ability to recognize the target audience of a particular ad, and ranged from a low of 0 (no mention of the target audience) to a high of 3 (mentions three or more target audience characteristics). The Purpose code ($\alpha = .98$) involves the understanding that the intent of advertising is to sell products for profit and was scored on a scale ranging from a low of 0 (no mention of the purpose) to a high of 2 (mention of the financial of the purpose of the ad). The Ad Hook code ($\alpha = .97$) relates to the understanding of how advertisements attract viewers' attention and was scored on a scale of 0 (no ad hooks identified) to 1 (notes one or more ad hooks). The Hidden Message code ($\alpha = .97$) refers to the ability to recognize implied messages in ads and the response scale ranged from a low of 0 (no mention of the hidden message) to a high of 2 (states a hidden

message related to the ad hook). The Missing Information code ($\alpha = .90$) involves the ability to recognize the information that advertisers purposefully leave out of their advertisements and was scored on a scale ranging from a low of 0 (no mention of missing information) to a high of 2 (provides a specific negative consequence about alcohol or tobacco use). The Visual Elements code ($\alpha = .93$) relates to the understanding of how advertisers use graphic elements (such as font, color, and placement of items such as warning labels) to capture attention or to make the product seem more appealing, and was scored on a scale ranging from a low of 0 (no mention of visual elements) to a high of 2 (mentions a visual element and the reason for using it). Together, the scores across each coding category were summed to create an overall Deconstruction Skills composite variable, where scores could range from 0 to a total maximum possible score of 16 with higher scores indicating more advanced media deconstruction skills.

A trainer coder scored these responses using a qualitative coding system, and twenty percent of the responses were scored by another coder in order to establish reliability of the measure. Reliability and validity for this measure has also been reported in a previous study of middle school students (Scull et al. 2010) where similar reliability estimating procedures were followed.

Program assessment variables. On the post-training questionnaire, intervention teachers indicated if the training was useful or not useful and rated the presenters on knowledge, preparedness, and organization (scale of "Not at all", "A little", "Somewhat", "Very much", and "Extremely"). In addition, teachers commented on the most enjoyable or effective part of the training as well as the least enjoyable or effective part of the training. Finally, teachers listed three things that they learned in training that they would incorporate into their teaching.

Procedure

Intervention and control teachers were provided with the self-administered pretest questionnaire and asked to mail the questionnaire back to the researchers using a self-addressed stamped envelope. Intervention teachers then participated in the training workshop; control teachers did not. The self-administered posttest questionnaire was distributed to intervention teachers as they were leaving the completed workshop. A research assistant provided the control group teachers with the posttest questionnaire approximately two weeks after

teachers completed the pretest questionnaire. Both intervention and control teachers were asked to mail back the posttest questionnaire in a self-addressed stamped envelope. The average interval between pretest and posttest questionnaires for the intervention group ($M=28$ days, $SD=15$ days) was comparable to the interval between pretest and posttest questionnaires for the control group ($M=32$ days, $SD=15$ days).

Results

Preliminary analyses – Effectiveness of group randomization

Analyses revealed that intervention and control groups were approximately equal at the pretest assessment. One-tailed t-tests established that there were no significant differences ($t = 1.03$; $p > .05$) in the amount of teaching experience between control teachers ($M = 12.45$ years, $SD = 10.87$) and intervention teachers ($M = 10.75$ years, $SD = 10.49$). Additionally, the analyses did not reveal differences between intervention teachers ratings of their familiarity with media literacy ($M = 2.00$, $SD = .59$) as compared with control teachers ($M = 1.70$, $SD = .63$; $t = 1.93$; $p > .05$). Likewise, intervention teachers reported about equal levels of belief in the importance of media literacy ($M = 3.17$, $SD = .62$) as control teachers ($M = 3.00$, $SD = .90$; $t = 1.18$; $p > .05$). The analyses revealed that intervention and control teachers received approximately equal scores on the measure of media deconstruction skills ($M = 10.50$, $SD = 2.71$; $M = 9.48$, $SD = 4.52$, respectively; $t = 1.34$; $p > .05$).

Main analyses

A series of three, one-tailed t-tests were conducted for two levels of condition (intervention versus control group) and the results can be seen in Table 1. At the posttest assessment, there were several notable differences between the two groups of teachers. Intervention teachers, who attended the teacher training workshop, reported stronger beliefs in the importance of media literacy as compared with control teachers ($t=4.43$; $p < .0001$). Additionally, intervention teachers had higher ratings of familiarity with media literacy as compared with control teachers ($t=6.61$; $p < .0001$). Finally, intervention teachers received better scores on the measure of media deconstruction skills as compared to the control teachers ($t=2.64$; $p < .05$).

Table 1: Means (M) and Standard Deviations (SD) on teachers' post-test media literacy scores.

Teacher Outcome	Control	Intervention
	<i>M (SD)</i>	<i>M (SD)</i>
Belief in the importance of media literacy education	3.00 (.90)	3.89 (.32)
Familiarity with media literacy	1.91 (.67)	3.44 (.78)
Media deconstruction skills	9.00 (4.55)	11.72 (2.80)

control ($n = 23$); intervention ($n = 18$)

Intervention teachers also provided qualitative feedback about the training. When asked to list three things that they will incorporate into their teaching, nearly all of the teachers discussed the importance of teaching students the pervasiveness and the persuasive intent of media messages. All teachers agreed that the training was useful. In general, teachers stated that the training was effective at solidifying their prior knowledge about advertising and media literacy, helping them analyze ads at a much deeper level, and teaching the language and concepts associated with the program. Furthermore, teachers agreed that the ample use of media examples combined with the methodical and sequential nature in which the material was presented produced a very effective training. A large number of the teachers agreed that practicing media literacy skills with a variety of media examples used in the training workshop were the most enjoyable and effective parts of the training. Almost all agreed “very much” (17%) or “extremely” (83%) with the statement that the presenters were knowledgeable, prepared, and organized.

Discussion

Non-empirical research and resources exist that demonstrate how teacher education programs support skill-building in ways that may benefit students (e.g., Woodcock 2009; Benson 2008; Unsworth 2008). However, empirical research and resources has rarely been used to assess teacher education programs in media literacy. Therefore, this study is important because it is the first randomized controlled trial that evaluates the impact of training teachers about media literacy on teachers' media literacy skills. Although the sample was relatively small and few outcome measures were used, the findings were robust and consistent in providing initial evidence that attendance at a one-day teacher training workshop designed to prepare late elementary school teachers for implementing a media literacy,

substance use prevention program improves teacher outcomes that are relevant for successful instruction of students in a prevention and education program that teaches students media literacy skills.

Teachers and other educators might expect that given the pervasiveness and persuasiveness of media messages in our society and the cognitive sophistication of adults that teachers wouldn't benefit from or need direct instruction on media literacy skills. Adults might be viewed as being media literate simply as a function of maturation and experience. In contrast, these findings are consistent with the findings reported by Hobbs and Frost (2003) regarding the challenges associated with developing critical media analysis skills in teachers and argue for the importance of direct instruction in media literacy education. Importantly, in this study, media literacy skills were measurable in adults as well as malleable, demonstrated by increases in the quality of teachers' media deconstruction skills as a function of participation in the training. Thus, one preliminary conclusion is that training in media literacy skills and training for conducting media literacy education programs requires professional development experiences, which are already considered a standard in other academic disciplines such as in reading or mathematics instruction.

Specifically, participation in the training workshop increased teachers' beliefs in the importance of media literacy. Media literacy education is a relatively new academic discipline. Over time, teachers and other educators are developing an increasing understanding of the relevance and importance of being literate and conscious of media messages. This heightened awareness of and conviction about teaching media literacy skills to students can contribute to increasing the fidelity of implementation of evidence-based curricula. For example, teachers' beliefs about the importance of other academic disciplines such as reading comprehension are related to their actual classroom practices (Richardson, Anders, Tidwell, and Lloyd 1991). There are literally thousands of isolated, engaging media literacy activities or lesson plans with clear instructions that can be found in books and on the internet. However, there are relatively few curricula and even fewer curricula that have been rigorously evaluated. As the discipline of media literacy education matures, it will hopefully include curricula based upon a well-articulated theoretical or conceptual model, with a defined scope and sequence, containing recursive activities, with normed measures of media literacy skills that can be reliably

measured, and with positive academic and/or health-related student outcomes that have been empirically validated. Subsequently, teachers and students should increasingly appreciate the importance of education in this academic discipline.

Pre-intervention training is one of the most common strategies for increasing quality of implementation in prevention programs through familiarizing educators with program content, skills, and methods (Dusenbury, Brannigan, Falco, and Lake 2004). In this case, the MD teacher training workshop increased teachers' familiarity with the subject of media literacy suggesting greater preparedness to implement the program with fidelity. Notably, the results reported from the randomized control trial of the MD program (Kupersmidt, Scull, and Austin 2010) were that teachers implemented the program with high fidelity. There were several indices of implementation fidelity including the fact that teachers reported teaching an average of 86% of the program topics and teachers who participated in the teacher training workshop reported little variation in the amount of the program topics that they implemented with students. Finally, an intraclass correlation coefficient (ICC) was calculated for each child outcome variable using teacher as the nested variable. Overall, the ICCs were exceptionally low, which suggests that the changes in student outcomes, both media literacy-related and health, were not likely attributable to having a specific teacher provide the program. Teachers' compliance with the program implementation guidelines may be partially attributable to their participation in the training workshop that was evaluated in this study. In addition, this pattern of findings is consistent with reports that teacher training is important for producing high-quality implementation of education curricula (Basch 1984) and preventive intervention programs (Payton et al.2000).

There are several limitations of this study. First, this study utilized a relatively small sample of teachers with a small number of measures. Future research might utilize a larger sample with a more extensive evaluation of the impact of training on a wider range of measures. Although this study included an assessment of media literacy deconstruction skills, there is a need for development of psychometrically strong measures of other critical thinking skills in adults, in general, and about the media, in particular. Another limitation of the study is the mono-method assessment of teacher outcomes. Inclusion of direct observational data on classroom teaching practices would complement these

findings and provide reliable methods to better assess teaching quality and program implementation, based upon training. Finally, the strength of the MIP model for understanding media message processing warrants a careful and expanded examination of the cognitive mediators of teacher media literacy knowledge acquisition.

Despite these limitations, the strength of the experimental method and the results provide support for the use of training workshops to increase teachers' media literacy skills, motivation and interest in the topic, and fidelity of implementation of a school-based program. One practical concern is that time and funds to support participation in in-person professional development of teachers is limited. A promising direction for future research is to evaluate the effectiveness of online, on-demand media literacy courses for teachers.

In conclusion, media literacy education, even for trained, professional educators, is effective in changing attitudes, knowledge, and self-reported behavior. The use of a randomized experimental design of a relatively small study provides strong causal evidence for the effectiveness of using manualized, theoretically-driven professional development experiences for positively effecting teachers' skills. This study underlines that fact that investment in evidence-based media literacy teacher education and training is an important component of building effective media literacy instruction for our Nation's youth.

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References

- Austin, E.W. and C. Freeman. 2006. "Effects of Media, Parents and Peers on African-American Adolescents' Efficacy Toward Media Celebrities." *Howard Journal of Communication* 8: 275-290.
- Austin, E.W. and K.K. Johnson. 1997a. Effects of general and alcohol-specific media literacy training on children's decision making about alcohol. *Journal of Health Communication* 2: 17-42.
- . 1997b. Immediate and delayed effects of media literacy training on third graders' decision making for alcohol. *Health Communication* 9: 323-349.
- Austin, E.W. and H.K. Meili. 1994. "Effects of Interpretations of Televised Alcohol Portrayals on Children's Alcohol Beliefs." *Journal of Broadcasting & Electronic Media* 38: 417-435.
- Barkley, S.G. 2001. "Online Learning for Teachers." *Streamlined Seminar* 20: 3-4.
- Basch, C.E. 1984. "Research on Disseminating and Implementing Health Education Programs in Schools." *Journal of School Health* 54: 57-66.
- Benson, S. 2008. "A Restart of What Language Arts Is: Bringing Multimodal Assignments into Secondary Language Arts." *Journal of Advanced Academics* 19(4): 634-674.
- Bergsma, L. and M. Carney. 2008. "Effectiveness of Health-promoting Media Literacy Education: A Systematic Review." *Health Education Research* 23: 522-542.
- Bishop, D.C., S.M. Giles, and K.S. Bryant. 2005. "Teacher Receptiveness Toward Web-based Training and Support." *Teaching and Teacher Education* 21: 3-14.
- Burke, L.A., J.M. Williams, and D. Skinner. 2007. "Teachers' Perceptions of Thinking Skills in the Primary Curriculum." *Research in Education* 77: 1-13.
- Christenson, P.G., L. Henriksen, and D.F. Roberts. 2000. *Substance Use in Popular Prime-Time Television*. Office of National Drug Control Policy, Mediascope Macro International, Inc.
- DiFranza, J.R., J.W. Richards, P.M. Paulman, N. Wolf-Gillespie, C. Fletcher, R.D. Jaffe, and D. Murray. 1991. "RJR Nabisco's Cartoon Camel Promotes Camel Cigarettes to Children." *Journal of the American Medical Association* 266: 3149-3153.
- Domitrovich, C., and M. Greenberg. 2000. "The Study of Implementation: Current Findings from Effective Programs That Prevent Mental Disorders in School-aged Children." *Journal of Educational & Psychological Consultation* 11: 193-221.
- Dusenbury, L., R. Brannigan, M. Falco, & A. Lake. 2004. "An Exploration of Fidelity of Implementation in Drug Abuse Prevention Among Five Professional Groups." *Journal of Alcohol and Drug Education* 47: 4-18.
- Ennett, S.T., N.S. Tober, C.L. Ringwalt, and R.L. Flewelling. 1994. "How Effective is Drug Abuse Resistance Education? A Meta-analysis of Project DARE Outcome Evaluations." *American Journal of Public Health* 84: 1394-1401.
- Fang, Z. 1996. "A Review of Research on Teacher Beliefs and Practices." *Educational Research* 38: 47-65.
- Fisher, R. 2007. "Teaching Thinking in the Classroom." *Education Canada* 47: 72-74.
- Gentile, D.A., and D.A. Walsh. 2001. "Frogs Sell Beer: The Effects of Beer Advertisements on Adolescent Drinking Knowledge, Attitudes, and Behavior." Paper presented at the biennial conference of the Society for Research on Child Development, Minneapolis, MN, April 2010.
- Glantz, S.A., K.W. Kacirk, and C. McCulloch. 2004. "Back to the Future: Smoking in Movies in 2002 Compared with 1950 Levels." *American Journal of Public Health* 94(2): 261-263.
- Hobbs, R. 1998. "The Seven Great Debates in the Media Literacy Movement." *Journal of Communication* 48: 16-32.
- Hobbs, R. 2004. "A Review of School-based Initiatives in Media Literacy Education." *American Behavioral Scientist* 48: 42-59.
- Hobbs, R. 2005. "Strengthening Media Education in the Twenty-first Century: Opportunities for the State of Pennsylvania." *Arts Education Policy Review* 106: 13-23.
- Hobbs, R., and R. Frost. 1999. "Instructional Practices in Media Literacy Education and Their Impact on Students' Learning." *Atlantic Journal of Communication* 6: 123-148.
- Hobbs, R., and R. Frost. 2003. "Measuring the Acquisition of Media Literacy Skills." *Reading Research Quarterly* 38: 1-27.

- Kubey, R. 2002. "Think. Interpret. Create: How Media Education Promotes Critical Thinking, Democracy, Health, and Aesthetic Appreciation." In *Thinking Critically about Media: Schools and Families in Partnership*. Chicago, IL: Cable in the Classroom
- Kupersmidt, J. B., T. M. Scull, and E. W. Austin. 2010. "Media Literacy Education for Elementary School Substance Use Prevention: Randomized Efficacy Study of Media Detective." *Pediatrics* 126(3): 525-531. doi:10.1542/peds.2010-0068.
- Kupersmidt, J. B., T. M. Scull, and J. W. Benson. Forthcoming. Improving Media Message Interpretation Skills to Promote Healthy Decision Making About Substance Use: The Effects of the Middle School Media Ready Curriculum." *Journal of Health Communication*. (in press)
- Payton, H.W., P.A. Graczyk, D.M. Wardlaw, M. Bloodworth, C.J. Tompsett, & R.P. Weissberg. 2000. "Social and Emotional Learning: A Framework for Quality School-based Prevention Programs." *Journal of School Health* 70(5): 179-185.
- Primack, B.A, M.A. Dalton, M.V. Carroll, A.A. Agarwal, and M.J. Fine. 2008. "Content Analysis of Tobacco, Alcohol, and Other Drugs in Popular Music." *Archives of Pediatric and Adolescent Medicine* 162(2): 169-175.
- Richardson, V., P. Anders, D. Tidwell, & C. Lloyd. 1991. "The Relationship Between Teachers' Beliefs and Practices in Reading Comprehension Instruction." *American Educational Research Journal* 28: 559-586.
- Rideout, V.J., U.G. Foehr, and D.F. Roberts. 2010. *Generation M2: Media in the Lives of 8-18 Year-Olds*. Menlo Park, CA: The Henry J. Kaiser Family Foundation.
- Ringwalt, C., S. Ennett, R. Johnson, L. Rohrbach, A. Simons-Rudolph, A. Vincus, and J. Thorne. 2003. "Factors Associated with Fidelity to Substance Use Prevention Curriculum Guides in the Nation's Middle Schools." *Health Education & Behavior* 30: 375-391.
- Sargent, J.D., T.A. Wills, M. Stoolmiller, J. Gibson, and F.X. Gibbons. 2006. "Alcohol Use in Motion Pictures and Its Relation with Early-onset Teen Drinking." *Archives of Pediatrics & Adolescent Medicine* 67(1): 54-65.
- Scharrer, E. 2003. "Making a Case for Media Literacy in the Curriculum: Outcomes and Assessment." *Journal of Adolescent & Adult Literacy* 46: 354-358.
- Scull, T.M., J.B. Kupersmidt, A.E. Parker, K.C. Elmore, and J.W. Benson. 2010. "Adolescents' Media-related Cognitions and Substance Use in the Context of Parental and Peer Influences." *Journal of Youth & Adolescence* 39(9): 981-998.
- Shulman, L.S. 1986. "Paradigms and Research Programs in the Study of Teaching." In *Handbook of Research on Teaching*, ed. M. Wittrock, 1-36. New York: Macmillan.
- Slater, M., D. Rouner, K. Murphy, F. Beauvais, J. Van Leuven, J., and M. Domenech-Rodriguez. 1996. "Adolescent Counterarguing of TV Beer Advertisements: Evidence for Effectiveness of Alcohol Education and Critical Viewing Discussions." *Journal of Drug Education* 26: 143-158.
- Strasburger, V.C. 2001. "Children and TV Advertising: Nowhere to Run, Nowhere to Hide." *Journal of Developmental & Behavioral Pediatrics* 22: 185-187.
- Stuhlman, L. and A. Silverblatt. 2007. "Media Literacy in U.S. Institutions of Higher Education: Survey to Explore the Depth and Breadth of Media Literacy Education." Retrieved on April 14, 2010 from <http://www.webster.edu/medialiteracy/Media%20Literacy%20Presentation2.ppt>
- Torres, M. and M. Mercado. 2006. "The Need for Critical Media Literacy in Teacher Education Core Curricula." *Educational Studies* 39: 260-281.
- Unsworth, L. 2008. "Multiliteracies, E-literature and English Teaching." *Language and Education* 22(1): 62-75.
- Van Gelder, T. 2005. "Teaching Critical Thinking: Some Lessons from Cognitive Science." *College Teaching* 53: 41-46.
- Woodcock, C. 2009. "Fight the Dragons: Using Online Discussion to Promote Critical Literacy in Teacher Education." *Contemporary Issues in Technology & Teacher Education* 9(2): 95-116.