



Teaching teachers to just say “know”: Reflections on drug education

Kenneth W. Tupper*

Department of Educational Studies, University of British Columbia, #308–90 Regatta Landing, Victoria, British Columbia, Canada V9A 7R2

Received 28 August 2006; received in revised form 21 August 2007; accepted 29 August 2007

Abstract

Psychoactive substance use by students is common in many countries, obliging schools to deliver drug education. However, some jurisdictions do not prepare teachers for engaging their students in honest, knowledge-based education. This article looks at the history and queries the purposes of contemporary drug education. It compares current approaches to drug education with those of other “vice” issues addressed in the history of public schools, such as sex education and temperance education. It critically challenges the question of knowledge definition and production related to psychoactive substances. Finally, some of the theoretical groundings on which to base teacher education for drug education are considered.

© 2007 Elsevier Ltd. All rights reserved.

Keywords: Drug education; Prevention; Drug use; Harm reduction; Teacher education

1. Introduction

Psychoactive substance use has been a perennial aspect of human cultural behaviour and seems unlikely to stop in the foreseeable future. Almost all human cultures since pre-historic times have engaged in non-medical drug use to stimulate, sedate or elate (Escobedo, 1999). It is open to question, then, whether societies and governments should be fixated on how to extirpate drugs from human cultures and eradicate them from the earth,¹ or whether we should

learn (and teach) how to live with drugs in such a way as to maximize their benefits and minimize their harms. The policy goal of harm reduction thus challenges not only the health, criminal justice and social service systems, but also the education system, schools, and teachers.

This paper addresses the question of how teachers might best be prepared for doing drug education at a time when the wisdom of drug prohibition is being questioned at international policy tables, when innovative drug policy directions—such as harm reduction—diverge from the traditional abstinence-at-all-costs focus, and when a greater variety of illegal drugs are cheaper and more easily available to young people than ever before. It begins with a brief history of drug education and compares this with another “vice” issue in schools, sex education. It then turns to the question of what aims and purposes are realistic for drug education, exploring

*Home: +1 250 477 7772.

E-mail address: ktupper@telus.net

¹United Nations—Press Release SG/SM/6586 GA/9412, June 8, 1998—from the General Assembly 20th Special Session, Secretary-General Kofi Annan: “It is time for every nation to say ‘no’ to drugs. It is time for all nations to say ‘yes’ to the challenge of working towards a drug-free world” (<http://www.un.org/ga/20special/presrel/sgsm6586.htm>).

the conceptual distinction between education and prevention. This leads to a discussion of knowledge about drugs and issues relating to its formal production. Finally, it considers some of the theoretical options for what pre-service programmes can offer student teachers to assist them in anticipating the challenges they will face in addressing drug use and some of its associated problems in schools and classrooms.

2. The challenges of “vice” education: sex, drugs and progressivism

The public school has since its mid-19th century inception been contested terrain in struggles over how to address “vice” issues such as psychoactive substance use and sexuality. Debates about how teachers should address these topics take on emotionally and morally charged dimensions that are bound up in firmly held beliefs about childhood, the body, pleasure and autonomy. The current tension between abstinence and harm reduction as goals for drug education has parallels with the histories of both sex education and alcohol education. A consideration of past trends in sex and alcohol education illuminates the dilemmas facing teachers tasked with drug education and the underlying challenges inherent in the legacy of progressivism.

As with drug education, sex education was spawned through a coupling of public health with moral regulation, particularly 19th century concerns with physical and social hygiene (Sethna, 2004). The social construct of “adolescence” was a central concept in the advancement of sex education in schools in the 20th century (Moran, 2000), as it was with drug education. An early tension identified in sex education was the intuitive appeal of attempting to scare youth into abstinence (at least until marriage) through exaggerated and lurid descriptions of potential consequences of sexual behaviours (e.g. contraction of venereal diseases or purported harms of masturbation) and the need to acknowledge that sexuality could be a healthy and pleasurable part of adult life. Although it was known in the medical community that prophylaxis—such as condom use and post-coital hygiene practices—could mitigate the risk for venereal diseases, such information was not communicated to the general youth population (Moran, 2000). The analogy with harm reduction and drug education is apparent, as silence about pleasure and how to minimize risks

from drug use may be motivated by a fear of sending the wrong (i.e. pro-drug) message (Beck, 1998; Moore, *in press*).

The challenges facing those tasked with educating about intrinsically pleasurable activities such as sex or psychoactive substance use may in part arise from the legacy of progressivism in public schooling. Although progressivism may not be explicitly identified as such in today’s teacher education programmes, it remains a strong theoretical undercurrent in public schooling with roots in early 19th century romanticism and the pedagogical and psychological theories of thinkers such as Herbert Spencer, John Dewey and Jean Piaget (Egan, 2002; Reese, 2001). Progressivism emphasizes learning in accordance with “natural” developmental principles and teaching through activities that engage students in real-world experiences. For progressivism, knowledge gained by “doing” rather than “learning” is esteemed as more memorable, rewarding and valuable. However, the inductive progressivist approach poses a dilemma for education about sexuality and drugs. On the one hand, progressivist principles demand engaging students in first-hand experiences with the subject; on the other, providing such experiences with sex or drugs is regarded as morally reprehensible. Thus, teachers charged with delivering didactic lessons about sex or drugs may find this task at odds with the underlying philosophy guiding most else of what they do.

Sex education remains a contested pedagogical domain, especially in jurisdictions with strong conservative religious communities (Irvine, 2004); however, it has seen some considerable evolution over the past century (Lewis & Knijn, 2002; Pilcher, 2005). Today, the secular pedagogical approach taken towards sexuality is one of disseminating sound scientific information in an interactive and dialogic manner with sensitive and credible facilitators. Academic research generating knowledge in the field today is less bound by the ideological constraints emphasizing abstinence-at-all-costs and rigid heterosexual normativities that directed it in past eras. Curiosity, honesty and inquiry in classrooms are encouraged without an undercurrent of hypocritical value judgements, and abstinence is promoted as a safe and healthy option without being imposed as a norm from which any deviance is deemed sociopathic or ruinous. Rather, educators assume that students either already are sexually active, or will be engaging in some type of sexual behaviour at some point in the future. Both rights

and responsibilities pursuant to sexual behaviours are emphasized, and students are taught how to protect themselves from harms that can sometimes result from sexual activity. However, these changes in sex education in the 20th century have not been matched in another “vice” educational domain, drug education, as a brief look at its history reveals.

Contemporary drug education traces back to the late 19th century, when temperance groups such as the Women’s Christian Temperance Union (WCTU) began to see the nascent institution of public schooling as a vehicle for furthering their anti-alcohol cause. At the time, the purported effects of alcohol consumption, its legality and women’s suffrage were issues conflated by social activists and moral entrepreneurs, who blamed drinking for many contemporary problems, including the exclusion of women from political life (Paulson, 1973). Although alcohol use was the primary focus of the WCTU’s attention, they also condemned tobacco, opium and other drug use and advocated abstinence from all mind-altering substances (with the possible exception of caffeine, which is not mentioned in their literature) (WCTU, n.d.). As part of its activities, the WCTU prepared and endorsed classroom resource materials under the name “Scientific Temperance Instruction,” which had considerable implementation success throughout North America (Zimmerman, 1999). In Canada, “by the turn of the century most provinces had some form of temperance teaching in schools” (Sheehan, 1984, p. 103). However, the Scientific Temperance Instruction movement failed to sustain itself and its use in schools had gradually tapered off by the 1920s (Mezvinisky, 1961). Alcohol prohibition also had some success in a number of jurisdictions, but it too eventually lost public and political support.

The decline of Scientific Temperance Instruction did not end the moral-based social engineering efforts made in the name of drug education. In 1926, the US hosted a World Conference on Narcotic Education, which brought together international experts to discuss how best to promulgate intolerance for drug use and an ethic of abstinence in response to what was regarded as a burgeoning crisis of drug addiction and crime (Middlemiss, 1926). The 1930s saw an increased uptake of the medium of cinema to communicate to a mass audience the purported evils of drugs such as marijuana and cocaine (Schaefer, 1999). The 1950s and early 1960s were a period of relatively little

education about any drugs other than alcohol (and to some extent tobacco) (Wepner, 1984), but the WCTU’s legacy continued to influence alcohol education through the mid-20th century. Zimmerman (2002) notes that what alcohol education was done in the US in the early 1960s came almost exclusively from a teetotalist perspective.

However, the total abstinence approach to alcohol education faced a significant challenge as support grew for the disease model of alcoholism. The implication of the disease model was that only some few individuals were at risk for addiction, that most people could use alcohol safely and moderately (Gusfield, 1996). Educators committed to scientifically informed practices embraced this new understanding. And certainly some corporations, who actively sought to increase profits by promoting consumption of drugs such as alcohol (not to mention tobacco and a cornucopia of psychoactive pharmaceuticals), did not object to this tack being adopted in educational efforts (Holder & Edwards, 1995; Pennock, 2007). As with sex education, the field of alcohol education was thus divided between those who supported change based on health science innovations and those who remained committed to conservative moral codes.

With the rise in illegal drug use among young people that occurred in most developed countries in the 1960s, the perceived need to scare young people away from experimentation with these substances again became a prominent issue for education. However, changing attitudes about drugs—including increased cross-cultural and historical awareness of human drug use and postmodern sensibilities of tolerance—made it more difficult to uphold the arbitrary distinction between alcohol and “drugs,” defined more through past legal and policy contingencies than through scientific or public health considerations. As Courtwright (2005) observes, in the 20th century, “in both western medicine and in western popular culture, alcohol and tobacco effectively split off from other drugs, to the point that the ordinary understanding of the word ‘drugs’ came to exclude, rather than include, these substances” (p. 110). The place of alcohol in today’s drug education programmes is somewhat ambiguous, as conventional social mores dictate that, despite its toxicity and liability to inebriate, it can be used safely and responsibly by adults. The question of whether this logic may extend to some or all currently illegal substances is a significant dilemma for contemporary drug education.

Various prevention programmes and public awareness campaigns have been developed by legions of researchers in the past few decades, yet none has shown to have any exceptional success at achieving the stated goals of reducing the prevalence of drug use among adolescents (Caulkins, Rydell, Everingham, Chiesa, & Bushway, 1999; Cohen, 1996; Gandhi, Murphy-Graham, Petrosino, Chrismer, & Weiss, 2007; Hawthorne, 2001). As Room (2000) puts it, with regard to alcohol and drug education, “popular approaches are ineffective, effective approaches are politically impossible” (n.p.). In many developed countries, trends in illegal drug use among students are steady or increasing (Hibell et al., 2004). In the United States, illegal drugs are widely available and used in schools (National Centre on Addiction and Substance Abuse, 2007), and slight decreases in self-reported illegal drug use by teens in recent years have been contemporaneous with increases in the non-medical use of potent pharmaceutical psychoactive substances (Johnston, O’Malley, Bachman, & Schulenberg, 2007; Partnership for a Drug-Free America, 2006).

Despite evidence of the ineffectiveness of such simplistic admonitions as “just say no,” the quest for abstinence continues to dominate agendas in drug education and school-based drug use prevention. In some jurisdictions, this has led to such practices as regularly searching schools with drug-sniffing police dogs (Gottfredson & Gottfredson, 2001), urine testing students to detect the use of illegal drugs (Roberts & Fossey, 2002), uncritically perpetuating drug war ideology in learning resources (Tupper, in press; Author, in press), and denying students the right to talk about alternatives to bellicose drug policy orthodoxy (Friesen, 2007). However, such extreme forms of social control in public schools are pedagogically and ethically questionable, raising the question of what lengths governments may go to in their quests for “drug-free” societies. Liberal democratic states were founded on principles of liberty, autonomy and freedom of speech, basic notions of freedom that are flourishing in political rhetoric but sometimes seem to be floundering in constitutional and educational practice (Chomsky, 2003). Accordingly, some have suggested that a more appropriate goal for drug education is to achieve a reduction in harms from use instead of focussing solely on abstinence (Brown & Horowitz, 1993; Midford, McBride, & Munro, 1998; Poulin & Nicholson, 2005; Rosenbaum, 2002).

3. Purpose and aims of drug education

Why drug education should be in the curriculum at all is a fundamental question. Psychoactive substance use is a reality in contemporary modern society, and this fact cannot be ignored or wished away. Despite a century of prohibition and decades of an escalating war on (some) drugs, schools remain a primary retail distribution point for illegal drugs in many countries (Devoe et al., 2003; Lowry et al., 1999). Furthermore, young people in contemporary western societies are exposed to a wide variety of explicit and implicit marketing efforts promoting indulgence gratification and the consumption of ostensibly pleasure-inducing material goods—including substances that alter mood, consciousness or behaviour, such as tobacco, alcohol, caffeine and sugar (Eckersley, 2005; Taylor, 2000). And since at least the 1960s, some youth subcultures have resisted parental and government authority on drugs and celebrated the consumption of illegal substances such as cannabis and ecstasy (Blackman, 2004; Golub, Johnson, & Dunlap, 2005). Since governments derive considerable fiscal benefits from the taxation of legal psychoactive commodities, one might suppose they have at least a fiduciary responsibility to educate young people—in a credible and honest way—about the risks and benefits of psychoactive substance use. To not do drug education would seem a dereliction of responsibility by governments with an interest in public health and welfare.

What forms drug education should take and what outcomes should be demanded of it, however, are a matter of considerable debate. Is drug education to prevent any and all use of psychoactive substances *per se*? Or is it to inculcate an ethic of moderation and safety? Is it to provide young people with knowledge of historical and cross-cultural uses of drugs? To what extent is there a political dimension to drug education—for example, reinforcing or challenging the assumptions upon which current drug policies and laws are based? Are the public and politicians, who may “look at schools as instruments for dealing with the ills of society” (Bietsa & Miedema, 2002, p. 176), obliging schools to become *de facto* therapeutic institutions to ameliorate problems in part generated, or at least exacerbated, by other government policies or social trends? (see also Tyack, 1979).

The question of aims of drug education leads to a corollary question about the conceptual difference

between “prevention” and education. Although often used interchangeably, these terms do not denote the same things. “Prevention” is steeped in the ideology of social control and public health, borrowing terminology from the field of communicable disease prevention. The discourse of prevention carries an implicit assumption about the pathogenic nature of psychoactive substances, casting youth as “at-risk” and potential victims of disease. Examples include terms such as “etiology” of drug use, “primary” and “secondary” prevention, “inoculating” children against drug use, providing “booster” programmes as they mature, and “treatment” for those who choose other than to just say no. Prevention has been cited as failing to embrace complexity and the notions of cultures or contexts of drug use (Blackman, 2004; Duff, 2003). And despite the authoritative messages of prevention, seldom is there a clear articulation of what exactly is hoped to be prevented. Is it all use *per se*, or merely the subset of use that constitutes “abuse”? Unfortunately, “use” and “abuse” (or its euphemistic alternative, “misuse”) are often used synonymously and without distinction, especially with respect to illegal drugs. For the rest of this article, when appropriate, the term “(ab)use” is used to denote a purposeful ambiguity.

The degree of contrast between prevention and education depends on how one construes the educational project, an endeavour that has been interpreted as having varying aims and purposes in different places and times. Egan (1997) identifies three major aims of education at the foundation of modern Western schooling, each of which is incompatible with the others. In one respect, schools attempt to homogenize young people by socializing them into the norms and conventions of society, producing citizens who fulfill cultural expectations and unquestioningly perpetuate these central values. At the same time, school curricula still follow a Platonic programme of seeking truth and finding a rational and privileged view of reality. Finally, schools follow Rousseau’s programme (translated in modern education to progressivism and Piaget’s developmentalism) of allowing young people to develop their individual potentials according to natural processes of psychological growth. Beyond what Egan (1997) identifies, schools are increasingly tasked with other ends, including the instrumentalist project of improving public health, of which preventing drug (ab)use among youth is a part (Hagquist & Starrin, 1997). This further complicates

education and adds another tension to the mix of aims that may work at cross purposes.

The values of liberal democratic societies are enshrined in political institutions and agendas, including those of education. As Apple (2004) notes, “the structuring of knowledge and symbol in our educational institutions is intimately related to the principles of social and cultural control in a society” (p. 2). Apple’s observation is made in a critical vein, to draw attention to the political and economic forces at work in what forms of knowledge and power are reproduced through the hegemonies inherent in contemporary schooling. However, the concept of control evokes one of the most cherished and fundamental value in liberal democratic societies—often formally articulated in national constitutions—that of freedom. In this light, then, education may also be seen as a project of freedom, choice and informed decision-making, especially when contrasted with the concept of indoctrination.

A recent example of schools attempting to repress unorthodox thoughts about drugs is the case of a 10th-grade student in Saskatchewan, Canada, who was suspended for disobeying a student lockdown after he fomented a protest against being told not to discuss the merits of cannabis prohibition at school (Friesen, 2007). The student claimed he had never seen, let alone used marijuana, but was deemed to have been “promoting” drug use by speaking about his research into the relative harms of different drugs and drug policies; he had concluded that alcohol was more detrimental to physical and social health than cannabis and that cannabis prohibition was more harmful than the substance itself. Rather than taking an educational opportunity to engage students in an important social question and encouraging critical thinking, administrators chose, presumably in the name of prevention, to muzzle the student instead. Such actions appear to ignore the educational premise that pre-determined behavioural or belief outcomes about contested social issues cannot simply be decreed. Rather, in the democratic educational project, teachers and students share (or co-construct) knowledge, engage in honest, meaningful dialogue, critically evaluate options, and work to foster an ability to anticipate and analyze possible consequences of different actions.

The distinction between drug education and drug (ab)use prevention is further elucidated by the notion of “technical rationality.” Schön (1983) describes technical rationality as a model of professional

activity that “consists in instrumental problem solving made rigorous by the application of scientific theory and technique” (p. 21). In education, technical rationality is a utilitarian approach that emphasizes rational, scientific means to achieving extrinsic educational goals such as measurable targets set by the state. Drug (ab)use prevention is dominated by technical rationality. As Blackman (2004) notes, the guiding frame of prevention “results in drug education being understood not as a process but as an outcome: successful drug education is thus measured by predefined performance targets of behavioural change” (p. 158). Success for prevention is quantified by prevalence statistics, such as decreases in the percentage of students who report lifetime or past year substance use, or increases in those who report perceived danger in illegal drug use. Yet, as Winter (2000) observes, “[s]uch extrinsic ends are predetermined and may be seen as outputs or targets which... overlook education as being ridden with strongly contextualized moral and political issues” (p. 155). The instrumentality and technical rationalism of prevention do not account for other factors—such as the amount of a substance used, the cultural, social or other contexts of use, the harms (or lack thereof) of use—that acknowledge the complexity of drug use issues and can be admitted in education.

4. Knowledge in drug education

Even when drug education is distinguished from the more instrumental concept of prevention, there remains the related philosophical issue of how knowledge about drugs is produced, constructed and organized. Education may involve many things—emotional growth, socialization, self-actualization, skill development—but perhaps most fundamentally it is about knowledge (Whitehead, 1929). Indeed, Shulman (2004) cites content knowledge as the most primary of the sources for the teaching knowledge base: “teaching necessarily begins with a teacher’s understanding of what is to be learned” (p. 227). In Canada, the British Columbia College of Teachers’ (2004) *Standards for the Education, Competence and Professional Conduct of Educators in British Columbia* (2004) and the British Columbia Ministry of Education’s *Planning 10 Integrated Resource Package* (2004)—the province’s drug education curriculum—both identify “knowledge” as intrinsic to teachers’ professionalism and to students’ prescribed learning

outcomes. Likewise, in Great Britain, the Office for Standards in Education (2005) identifies the criterion of “an appropriate level of knowledge about drug education” (p. 16) first on its list of what constitutes “good” drug education. Knowledge is understood to be integral to education, including drug education.

Yet we cannot simply accept knowledge as unproblematic. Indeed, as Britzman (1991) observes, “[t]o counter the dominant view of knowledge as neutral and capable of ‘speaking for itself,’ knowledge must be approached as problematic in its social construction, and the problem of representation, interpretation, and meaning—that is, the question, how do we know what we know—must become a central theme in disciplinary studies and in school classrooms” (p. 43). Knowledge cannot be taken as something objective or given; facts cannot be separated from values. This is especially pertinent with respect to knowledge about illegal drugs, as prohibitionist drug policies constrain what questions are conceived, asked and funded by researchers in the academy, the traditional domain of authoritative knowledge production (Nusbaumer & Reiling, 2007).

Danish criminologist Jorgen Jepsen perceptively notes that “the war on drugs is also a war against alternative definitions and descriptions of reality” (quoted in Goldberg, 1999, p. 4). In academia, a refusal to adhere to precepts aligned with drug war orthodoxy in some fields can mean professional isolation, less likelihood of publication in conservative peer-reviewed journals and rejection of research grant applications by major funding bodies such as the US National Institute on Drug Abuse (NIDA) or Substance Abuse and Mental Health Services Administration. However, some scientists and researchers have begun to speak out about political influence on research agendas and programmes involving illegal drugs (Grob, 2000; Laniel, 1999; Pearson, 2004; Thoumi, 2002). And the ideological impetus for the control of knowledge goes beyond its mere production. Reinerman (2005) documents some of the Orwellian directives of US government officials affecting librarians, professional organizers, preservers and retrievers of text-based knowledge. These include calls to destroy “outdated” documents deemed inconsistent with current bellicose thinking about illegal drugs and NIDA memoranda (or, perhaps more appropriately, *diktats*) on approved language about drugs and drug use. The knowledge base for drug education in schools

cannot help but be constrained by the political circumstances of its production and dissemination. This poses challenges that are highly relevant to discussions about preparing teachers for drug education in schools.

The importance of US policy in the production and dissemination of knowledge about drug education and prevention internationally is considerable. Indeed, the US assertion of political influence in the domain of illegal drugs has for a number of decades been a powerful constraint on a variety of policy and practice options for other countries. This may take the form of overt (i.e. militaristic) pressure, but often it happens in more subtle ways. Influence in channels of international relations (e.g. through bilateral trade negotiations or, more formally, through such institutions as the United Nations' Office on Drugs and Crime) is another way the US may assert its drug policy hegemony (Fazey, 2003). With less economically affluent countries, it can happen through offers of economic incentives or resources in the form of foreign aid. One good example of this is the US Agency for International Development's Narcotics Awareness and Education Project, which provided training, technical assistance and financial support to drug (ab)use prevention efforts in developing countries (Kirsch, 1995). Academic literature on drug education is heavily dominated by US-based research, which has been found to comprise as much as 90% of the studies collected for an international systematic review (White & Pitts, 1998). Teacher education programmes engaging in preparation for drug education cannot ignore the broader context of the politicization of knowledge in this field.

5. Teacher education for drug education

The degree to which teachers need to be prepared to engage in drug education in schools may vary among jurisdictions. In British Columbia, Canada, none of the major teacher education institutions—the University of British Columbia, Simon Fraser University and the University of Victoria—includes drug education as a core component of its curriculum, despite the fact that teachers may be mandated to deliver drug education as part of their professional duties when they begin teaching. This situation is not unique: Harris (1998) notes an almost identical problem for teacher education programmes in the United Kingdom, and Midford (2007) reports that in Australia, after a period of

some improved teacher training for drug education in the mid-1990s, the momentum for professional development in this area has slowed in recent years.

It is little wonder that teachers willingly turn their classrooms over to other professionals for assistance in delivering drug education. Law enforcement officers are often the ones who step in fill the instructional gap, through such programmes as Drug Abuse Resistance Education (DARE). Although shown to be ineffective at reducing drug (ab)use (Lyman et al., 1999; West & O'Neal, 2004), DARE continues to be popular among politicians, parents and teachers. However, police officers engaging in drug education is akin to nuns doing sex education: the systemic values they represent cannot help but undermine their authority and credibility. By not preparing professional teachers to do drug education, teacher education programmes put their graduates in a situation where they are more likely to feel the need to abdicate their educational responsibilities and turn over the delivery of drug education classes to police officers.

Assuming that university teacher education programmes were to see a need to incorporate drug education as a core component of their curricula, how would they best do this? What do teachers need to know and what experiences do they need to have in order to be prepared to deliver drug education in classrooms? In this section, I explore how the conceptualization of drug education as prevention might constrain the way teachers are prepared for it. This discussion will consider the historical shifts Cochran-Smith and Fries (2005) identify in the framing of the “problem” of teacher education and how they have happened with respect to drug education. Then I take up the question of teacher preparation for drug education in relation to Shulman's (1986) discussion of content knowledge and Schön's (1983) concept of reflective practice.

Cochran-Smith and Fries (2005) identify three major approaches to framing the issue of teacher education: as a training problem (dominant from the late 1950s to the early 1980s), as a learning problem (dominant from the early 1980s to the early 2000s) and as a policy problem (dominant in the past decade). With respect to drug education, however, especially insofar as it is constituted through the paradigms of criminal justice, public health and the discourses of “prevention,” the problem of preparing teachers has in many ways remained one of training. Yet, prevention programmes and research are often conceived and

delivered by health researchers, not educational researchers. As [Brown \(2001\)](#) observes, “If the number of research presentations addressing drug education at the largest educational research support organization in the United States is considered, there is an even smaller ratio of educational participation. Over a seven-year period in the 1990s, of approximately 10,300 programme sessions presented at the American Educational Research Association’s (AERA) annual conference, 19 addressed drug education.” (p. 87).

The importance of teacher training in the prevention project is put bluntly by [McBride \(2003\)](#): “To ensure that school-based implementers have adequate knowledge and skills, and are comfortable delivering drug education programmes, a certain type and level of training is required. *Training should directly train the teacher involved with the classroom delivery* [italics original]” (p. 739). The construction of the teacher (drug) education problem as one of training is also borne out in the concept of fidelity, defined by [Dusenbury, Brannigan, Falco, and Hansen \(2003\)](#) as “the degree to which teachers ... implement programs as intended by the program developers” (p. 240). As [Cuijpers \(2003\)](#) describes, “a major concern in the dissemination of effective programmes is implementation fidelity. Many teachers and other professionals working in daily practice are not easily convinced to work with a standard protocol developed in research” (p. 15). Likewise, [Ringwalt et al. \(2003\)](#) assert—in a research paper devoted to fidelity—that “[a]dherence to curricula... may be most important” (p. 376). A critical take on the concept of fidelity is that it is tantamount to “teacher-proofing” prevention programmes, demanding that professional educators instruct according to rigidly prescribed didacticism. It clearly shows the degree to which teacher education is constructed as a training problem with respect to drug education. Nevertheless, despite the drive to train teachers to deliver rigid programmes with undeviating rigour, some researchers argue that the promise of school-based prevention has been overstated ([Brown, D’Emidio-Caston, & Pollard, 1997](#); [Caulkins et al., 1999](#); [Hawthorne, 2001](#); [Room, 2000](#)).

Although drug education qua prevention is still dominated by a technical rationality model and is generally conceived of as a training problem, there has been some shift towards regarding it as a policy problem. Perhaps because of dawning recognition that little progress has been made

towards achieving a drug-free world, drug education and prevention have become targets for new policy initiatives that appear to be more broadly systemic and use broader policy levers than in the past. One example of this is described by [Harris \(2003\)](#), who reports that in the UK there has been increased willingness for new collaborative governance structures among different agencies and branches of government that address issues relating to youth drug use, including, of course, schools. Similarly, prevention of drug (ab)use has been identified as one of the core concerns of the Pan-Canadian Joint Consortium for School Health, an organization established in 2004 by education and health ministers from provinces across Canada, whose stated mandate is to “act as a catalyst in strengthening cooperation among ministries, departments, agencies and others in building the capacity of health, education and other systems to work together on... ongoing workforce development and pre-service training” ([Joint Consortium for School Health, n.d.](#)). The move towards regarding teacher education in the drug education field as a policy problem is thus happening in several jurisdictions and is in step with the shift identified by [Cochran-Smith and Fries \(2005\)](#), although without the intermediate phase of regarding teacher education as a learning problem.

Treating teacher education as a learning problem is perhaps a missed opportunity for effectively preparing new teachers to engage in drug education. [Shulman’s \(1986\)](#) theoretical framing of the importance of knowledge in teacher education is one way of taking this approach. Shulman identifies three types of knowledge as important for teachers: content knowledge, pedagogical content knowledge and curricular knowledge. Content knowledge is “the amount and organization of knowledge per se in the mind of the teacher” (p. 9); pedagogical content knowledge is “the particular form of content knowledge that embodies the aspects of content knowledge that germane to its teachability” ([Shulman, 1986](#)); and curricular knowledge is the knowledge of “the full range of programs designed for the teaching of particular subjects and topics at a given level, the variety of instructional materials available in relation to those programs, and the set of characteristics that serve as both the indication and contraindication of the use of particular curriculum or program materials in particular circumstances” (p. 10). [Wilson, Shulman, and](#)

Richert (1987, p. 108) go as far as to contend that knowledge of subject matter is the “missing paradigm” in research into teacher education.

Shulman’s (1986) argument for the importance of knowledge in teaching is impassioned, reasoned and compelling. He makes a strong case that to do anything less than insist that new teachers have a full grasp of content knowledge, pedagogical content knowledge and curricular knowledge would be negligence in professional development. However, with respect to drug education, putting such demands on novice teachers would be unrealistic. Despite its arguable importance as a subject today’s young people need awareness of in order to develop and maintain their health and autonomy, drug education is not—nor should it be—a core curricular subject. Thus, the kinds of knowledge Shulman outlines as necessary for teachers are not amenable to being considered essential elements for teacher education with respect to drug education (although they may be desiderata for the teacher educators tasked with preparing student teachers in the subject). Furthermore, as the above discussion about contested validities of knowledge in the politically charged realms of drugs and drug policy makes clear, the pragmatics of doing justice to the subject within the limitations of teacher education programmes would be a challenge. Rather, the time and workload demands on student teachers necessitate an approach to professional preparation for drug education that is more focused on reflective practice.

Schön’s (1983) notion of reflective practice in professional development deserves serious consideration with respect to teacher education for drug education. As noted above, Schön prefaces his discussion of the value of reflective practice with a critique of the dominant approach to “solving” social problems in the latter half of the 20th century, the model of technical rationality, which is “implicit in the institutionalized relations of research and practice, and in the normative curricula of professional education” (1983, p. 26). Although Cochran-Smith and Fries (2005) observe that in the early 1980s there was movement in teacher education away from the technical rationality model (which they label as constructing teacher education as a training problem) towards learning and policy foci, with respect to drug (ab)use prevention, the technical rationality model still dominates. Indeed, the discourses of prevention are replete with references to effectiveness, best practices and the

“science” of prevention (Arthur & Blitz, 2000; Hallfors & Godette, 2002).

The analysis Schön (1983) provides on the limitations of technical rationality, however, belies the authoritative positivist rhetoric that dominates drug (ab)use prevention literature. Elsewhere, Schön (1979) discusses the concept of “generative metaphor” and the analytical constraints imposed by embedded metaphors underlying the framing of intractable social problems. With respect to drug use, the two dominant constructions of the problem have been identified by Marlatt (1996) as a moral issue or as a disease issue. The underlying metaphors for these two approaches construct drugs as malevolent agents (casting users as sinful or bad and needing punishment) or as pathogens (casting users as sick and needing treatment). These two generative metaphors are useful insofar as they may facilitate concerted and consistent action to address the “problem”; however, they are also inadequate inasmuch as they conceptually limit creative thinking about solutions. The disease model of drug use, which dominates prevention discourses, especially lends itself to approaching solutions through technical rationality. Yet the technical rationalist model—as Schön (1983) puts it, “instrumental problem solving made rigorous by the application of scientific theory and technique” (p. 21)—has not produced results commensurate with the passion and commitment of its champions. The technical rationalist approach to drug (ab)use prevention keeps bureaucrats and programme evaluators gainfully employed, but does little to address fundamental questions about the universality of human cultural drug use, why young people in contemporary western culture are curious about drugs, how cultures and contexts of use mediate benefits and risks, and why some individuals may develop serious drug use problems but others not.

Schön’s (1983) proposed professional development model of reflective practice is one that holds promise for educators tasked with delivering school-based drug education. Reflective practice allows for educative flexibility and adaptability, rather than the rigid compliance demanded of the technical rationalism of prevention. As Schön puts it, “[w]hen a practitioner reflects in and on his practice, the possible objects of his reflection are as varied as the kinds of phenomena before him and the systems of knowing-in-practice which he brings to them” (1983, p. 62). The reflective practitioner of drug education is challenged to find nuances in a domain

that is often portrayed in stark black-and-white terms. The teacher is encouraged “to reflect on the tacit norms and appreciations which underlie a judgment, or on the strategies and theories implicit in a pattern of behaviour” (Schön, 1983, p. 62). With respect to educating teachers to do drug education, Schön’s model encourages reflection on one’s own relationship with psychoactive substances and on the inconsistencies of cultural norms that promote the use of some substances but prohibit others. The reflective practice approach to preparing teachers for drug education offers an alternative to dogmatic instructional methods of prevention that seem more indoctrinatory than educational.

6. Conclusion

Drug education has been a part of North American schooling since not long after the expansion of public education in the latter half of the 19th century. However, the approaches taken by the early temperance movement campaigns and those taken by modern prevention programmes such as DARE seem to have more similarities than differences, and neither was or has been effective at achieving their stated goals of instilling an ethic of abstinence. However, as with other domains of “vice,” such as sex education, drug education is not a straightforward subject to address in schools. Teacher education for drug education is complicated by the contested aims of drug education, the inherently contentious nature of the subject and the issues around the construction of knowledge about drugs.

However, doing little or nothing to prepare teachers for drug education, as is presently the case in some jurisdictions, is unfair both to novice teachers and to their students. A teacher education programme that included a drug education component would need to ensure that teacher educators are well-versed in the content knowledge of drug issues (as per Shulman’s content knowledge) and that pre-service teachers are encouraged to engage in reflective practice in preparing for and delivering lessons about drugs. And to be consistent with the educational aims of fostering critical thinking, teachers need to be prepared to engage in open, honest dialogue about drugs and drug use that does not rely on scare tactics. Despite the efforts of both the architects and those on the front lines of the current war on drugs, the attempt to indoctrinate youth in vain hope of achieving a drug-free country

or world is a questionable agenda. Rather, drug education needs to acknowledge that psychoactive substances are an established part of human cultural environments and that they pose risks and benefits depending on who uses them, when and where, and for what purposes.

Acknowledgments

I would like to thank Dr. Anne Phelan, from the University of British Columbia’s Department of Curriculum Studies, and this journal’s two anonymous reviewers for offering helpful feedback on earlier drafts of this paper.

References

- Apple, M. W. (2004). *Ideology and curriculum* (3rd ed.). New York: RoutledgeFalmer.
- Arthur, M. W., & Blitz, C. (2000). Bridging the gap between science and practice in drug abuse prevention through needs assessment and strategic community planning. *Journal of Community Psychology*, 28(3), 241–255.
- Beck, J. E. (1998). 100 years of “just say no” versus “just say know”: Reevaluating drug education goals for the coming century. *Evaluation Review*, 22(1), 15–45.
- Bietsa, G. J. J., & Miedema, S. (2002). Instruction or pedagogy? The need for a transformative conception of education. *Teaching and Teacher Education*, 18(2), 173–181.
- Blackman, S. (2004). *Chilling out: The cultural politics of substance consumption, youth and drug policy*. New York: Open University Press.
- British Columbia College of Teachers. (2004). *Standards for the education, competence and professional conduct of educators in British Columbia* (2nd ed.). Vancouver: BC College of Teachers.
- British Columbia Ministry of Education. (2004). *Planning 10 integrated resource package*. Victoria: BC Ministry of Education.
- Britzman, D. (1991). *Practice makes practice: A critical study of learning to teach*. New York: State University of New York Press.
- Brown, J. H. (2001). Youth, drugs and resilience education. *Journal of Drug Education*, 31(1), 83–122.
- Brown, J. H., D’Emidio-Caston, M., & Pollard, J. A. (1997). Students and substances: Social power in drug education. *Educational Evaluation and Policy Analysis*, 19(1), 65–82.
- Brown, J. H., & Horowitz, J. E. (1993). Deviance and deviants: Why adolescent substance use prevention programs do not work. *Evaluation Review*, 17(5), 529–555.
- Caulkins, J., Rydell, P., Everingham, S., Chiesa, J., & Bushway, S. (1999). *An ounce of prevention: A pound of uncertainty*. Santa Monica, CA: Drug Policy Research Centre, Rand Corporation.
- Chomsky, N. (2003). In C. P. Otero (Ed.), *Chomsky on democracy and education: Social theory, education, and cultural change*. New York: RoutledgeFalmer.
- Cochran-Smith, M., & Fries, K. (2005). Researching teacher education in changing times: Politics and paradigms. In M.

- Cochran-Smith, & K. Zeichner (Eds.), *Studying teacher education: The report of the AERA panel on research and teacher education* (pp. 69–109). New Jersey: Lawrence Erlbaum Associates, Inc.
- Cohen, J. (1996). Drug education: Politics, propaganda and censorship. *International Journal of Drug Policy*, 7(3), 153–157 Retrieved April 3, 2006, from <<http://www.drugtext.org/library/articles/96733.htm>>.
- Courtwright, D. T. (2005). Mr. ATOD's wild ride: What do alcohol, tobacco, and other drugs have in common? *The Social History of Alcohol and Drugs*, 20, 105–140.
- Cuijpers, P. (2003). Three decades of drug prevention research. *Drugs: Education, Prevention and Policy*, 10(1), 7–20.
- DeVoe, J. F., Peter, K., Kaufman, P., Ruddy, S. A., Miller, A. K., Planty, M., et al. (2003). Indicators of school crime and safety, 2003. *Education Statistics Quarterly*, 5(4).
- Duff, C. (2003). The importance of culture and context: Rethinking risk and risk management in young drug using populations. *Health, Risk & Society*, 5(3), 285–299.
- Dusenbury, L., Brannigan, R., Falco, M., & Hansen, W. B. (2003). A review of research on fidelity of implementation: Implications for drug abuse prevention in school settings. *Health Education Research*, 18(2), 237–256.
- Eckersley, R. M. (2005). 'Cultural fraud': The role of culture in drug abuse. *Drug and Alcohol Review*, 24(2), 157–163.
- Egan, K. (1997). *The educated mind: How cognitive tools shape our understanding*. Chicago, IL: University of Chicago Press.
- Egan, K. (2002). *Getting it wrong from the beginning: Our progressivist inheritance from Herbert Spencer, John Dewey, and Jean Piaget*. New Haven, CT: Yale University Press.
- Escobotado, A. (1999). *A brief history of drugs: From the stone age to the stoned age* (K.A. Symington, Trans.). Rochester, VT: Park Street Press. (Original work published 1996.)
- Fazey, C. S. J. (2003). The Commission on Narcotic Drugs and the United Nations International Drug Control Programme: Politics, policies and prospect for change. *International Journal of Drug Policy*, 14(2), 155–169.
- Friesen, J. (2007, June 20). Free speech goes up in smoke at school. *Globe and mail*. Retrieved June 29, 2007, from: <<http://www.mapinc.org/drugnews/v07/n738/a02.html>>.
- Gandhi, A. G., Murphy-Graham, E., Petrosino, A., Chrismer, S. S., & Weiss, C. H. (2007). The devil is in the details: Examining the evidence for "proven" school-based drug abuse prevention programs. *Evaluation Review*, 31(1), 43–74.
- Goldberg, T. (1999). *Demystifying drugs: A psychosocial perspective*. New York: St. Martin's Press.
- Golub, A., Johnson, B., & Dunlap, E. (2005). Subcultural evolution and illicit drug use. *Addiction Research & Theory*, 13(3), 217–229.
- Gottfredson, G. D., & Gottfredson, D. C. (2001). What schools do to prevent problem behavior and promote safe environments. *Journal of Educational and Psychological Consultation*, 12(4), 313–344.
- Grob, C. S. (2000). Deconstructing ecstasy: The politics of MDMA research. *Addiction Research*, 8(6), 549–588.
- Gusfield, J. R. (1996). *Contested meanings: The construction of alcohol problems*. Madison, WI: The University of Wisconsin Press.
- Hagquist, C., & Starrin, B. (1997). Health education in schools—From information to empowerment models. *Health Promotion International*, 12(3), 225–232.
- Hallfors, D., & Godette, D. (2002). Will the 'principles of effectiveness' improve prevention practice? Early findings from a diffusion study. *Health Education Research*, 17(4), 461–470.
- Harris, S. (1998). Drugs education for whom? *Journal of Education for Teaching*, 24(3), 273–284.
- Harris, S. (2003). Inter-agency practice and professional collaboration: The case of drug education and prevention. *Journal of Educational Policy*, 18(3), 303–314.
- Hawthorne, G. (2001). Drug education: Myth and reality. *Drug and Alcohol Review*, 20(1), 111–119.
- Hibell, B., Andersson, B., Bjarnason, T., Ahlström, S., Balakireva, O., Kokkevi, A., et al. (2004). *ESPAD report 2003: Alcohol and other drug use among students in 35 European countries*. Stockholm: Swedish Council for Information on Alcohol and Other Drugs.
- Holder, H. D., & Edwards, G. (Eds.). (1995). *Alcohol and public policy: Evidence and issues*. Oxford: Oxford University Press.
- Irvine, J. M. (2004). *Talk about sex: The battles over sex education in the United States*. Berkeley, CA: University of California Press.
- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2007). *Monitoring the future national results on adolescent drug use: Overview of key findings, 2006* (NIH Publication No. 07-6202). Bethesda, MD: National Institute on Drug Abuse.
- Joint Consortium for School Health. (n.d.). *Backgrounder*. Victoria, BC: Joint Consortium for School Health. Retrieved July 15, 2007, from: <<http://www.ccsa.ca/NR/rdonlyres/15D0F542-96AC-4C2B-B2A0-6E746647FAF0/0/extIHEPJCSH2006e.pdf>>.
- Kirsch, H. (Ed.). (1995). *Drug lessons and education programs in developing countries*. New Brunswick, NJ: Transaction Publishers.
- Laniel, L. (1999). The relationship between research and drug policy in the United States. Management of Social Transformations—UNESCO Discussion Paper #44. Retrieved March 16, 2006, from: <<http://www.unesco.org/most/dplaniel.htm>>.
- Lewis, J., & Knijn, T. (2002). The politics of sex education policy in England and Wales and the Netherlands since the 1980s. *Journal of Social Policy*, 31(4), 669–694.
- Lowry, R., Cohen, L. R., Modzeleski, W., Kann, L., Collins, J. L., & Kolbe, L. J. (1999). School violence, substance use, and availability of illegal drugs on school property among US high school students. *Journal of School Health*, 69(9), 347–355.
- Lyman, D. R., Milich, R., Zimmerman, R., Novak, S. P., Logan, T. K., Martin, C., et al. (1999). Project DARE: No effects at 10-year follow-up. *Journal of Consulting and Clinical Psychology*, 67(4), 590–593.
- Marlatt, G. A. (1996). Harm reduction: Come as you are. *Addictive Behaviors*, 21(6), 779–788.
- McBride, N. (2003). A systematic review of school drug education. *Health Education Research*, 18(6), 729–742.
- Mezvinisky, N. (1961). Scientific temperance instruction in the schools. *History of Education Quarterly*, 1(1), 48–56.
- Middlemiss, H. R. (Ed.). (1926). *Narcotic education: Edited report of the proceedings of the first world conference on narcotic education*. Washington, DC: H.R. Middlemiss.
- Midford, R. (2007). Is Australia 'fair dinkum' about drug education in schools? *Drug and Alcohol Review*, 26(4), 421–427.

- Midford, R., McBride, N., & Munro, G. (1998). Harm reduction in school drug education: Developing an Australian approach. *Drug and Alcohol Review*, 17(3), 319–327.
- Moore, D. (in press). Erasing pleasure from public discourse on illicit drugs: On the creation and reproduction of an absence. *International Journal of Drug Policy*, doi:10.1016/j.drugpo.2007.07.004.
- Moran, J. P. (2000). *Teaching sex: The shaping of adolescence in the 20th century*. Cambridge, MA: Harvard University Press.
- National Centre on Addiction and Substance Abuse. (2007). *National survey of American attitudes on substance abuse XII: Teens and parents*. New York: National Centre on Addiction and Substance Abuse Retrieved August 12, 2007, from <[http://www.casacolumbia.org/absolutenm/articlefiles/380-2007%20Teen%20Survey%20XII%20\(2\).pdf](http://www.casacolumbia.org/absolutenm/articlefiles/380-2007%20Teen%20Survey%20XII%20(2).pdf)>.
- Nusbaumer, M. R., & Reiling, D. M. (2007). Temperance culture and the repression of scientific inquiry into illegal drug-altered states of consciousness. *Contemporary Justice Review*, 10(3), 247–261.
- Office for Standards in Education. (2005). *Drug education in schools: A report from the Office of Her Majesty's Chief Inspector of Schools* (Document Reference No. HMI 2392). London, UK: Office for Standards in Education.
- Partnership for a Drug-Free America. (2006). *The partnership attitude tracking study (PATS): Teens in grades 7 through 12, 2005*. New York: Partnership for a Drug-Free America Retrieved July 30, 2007, from: <http://www.drugfree.org/Files/Full_Teen_Report>.
- Paulson, R. E. (1973). *Women's suffrage and prohibition: A comparative study of equality and social control*. Glenview, IL: Scott, Foresman & Company.
- Pearson, H. (2004). Science and the war on drugs: A hard habit to break. *Nature*, 430(6998), 394–395 Retrieved March 20, 2006 from: <<http://www.maps.org/media/nature072104.html>>.
- Pennock, P. E. (2007). *Advertising sin and sickness: The politics of alcohol and tobacco marketing, 1950–1990*. DeKalb, IL: Northern Illinois University Press.
- Pilcher, J. (2005). School sex education: Policy and practice in England 1870–2000. *Sex Education*, 5(2), 153–170.
- Poulin, C., & Nicholson, J. (2005). Should harm minimization as an approach to adolescent substance use be embraced by junior and senior high schools? Empirical evidence from an integrated school- and community-based demonstration intervention addressing drug use among adolescents. *International Journal of Drug Policy*, 16, 403–414.
- Reese, W. J. (2001). The origins of progressive education. *History of Education Quarterly*, 41(1), 1–24.
- Reinarman, C. (2005). Librarians and other subversives: Truth can be a casualty of drug wars, too. *International Journal of Drug Policy*, 16(1), 1–4.
- Ringwalt, C. L., Ennett, S., Johnson, R., Rohrbach, L. A., Simons-Rudolph, A., Vincus, A., et al. (2003). Factors associated with fidelity to substance use prevention curriculum guides in the nation's middle schools. *Health Education & Behavior*, 30(3), 375–391.
- Roberts, N. M., & Fossey, R. (2002). Random drug testing of students: Where will the line be drawn? *Journal of Law & Education*, 31(3), 191–208.
- Room, R. (2000). *Preventing alcohol problems: Popular approaches are ineffective, effective approaches are politically impossible*. Stockholm: Centre for Social Research on Alcohol and Drugs Retrieved March 20, 2006, from: <<http://www.bks.no/prevent.htm>>.
- Rosenbaum, M. (2002). *Safety first: A reality-based approach to teens, drugs and drug education*. San Francisco: Drug Policy Alliance Retrieved April 11, 2006, from: <<http://www.drug-policy.org/docUploads/safetyfirst.pdf>>.
- Schaefer, E. (1999). *"Bold! Daring! Shocking! True!": A history of exploitation films, 1919–1959*. Durham: Duke University Press.
- Schön, D. A. (1979). Generative metaphor: A perspective on problem-setting in social policy. In A. Ortony (Ed.), *Metaphor and thought* (pp. 255–283). Cambridge: Cambridge University Press.
- Schön, D. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.
- Sethna, C. (2004). Social purity movement. In G. Hallowell (Ed.), *Oxford companion to Canadian history* (pp. 589–590). Toronto: Oxford University Press.
- Sheehan, N. M. (1984). The WCTU and educational strategies on the Canadian prairie. *History of Education Quarterly*, 42(1), 101–119.
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4–14.
- Shulman, L. S. (2004). *The wisdom of practice: Essays on teaching, learning, and learning to teach*. San Francisco: Jossey-Bass.
- Taylor, D. (2000). The word on the street: Advertising, youth culture and legitimate speech in drug education. *Journal of Youth Studies*, 3(3), 333–352.
- Thoumi, F. E. (2002). Can the United Nations support "objective" and unhampered illicit drug policy research? *Crime, Law and Social Change*, 38(2), 161–183.
- Tupper, K.W. (in press). Drugs, discourses and education: A critical discourse analysis of a high school drug education text. *Discourse: Studies in the Cultural Politics of Education*.
- Tyack, D. B. (1979). The high school as a social service agency: Historical perspectives on current policy issues. *Educational Evaluation and Policy Analysis*, 1(5), 45–57.
- Wepner, S. F. (1984). Which way drug education? In S. Eiseman, J. A. Wingard, & G. J. Huba (Eds.), *Drug abuse: Foundation for a psychosocial approach* (pp. 59–69). Farmingdale, NY: Baywood Publishing Company.
- West, S. L., & O'Neal, K. K. (2004). Project DARE outcome effectiveness revisited. *American Journal of Public Health*, 94(6), 1027–1029.
- White, D., & Pitts, M. (1998). Educating young people about drugs: A systematic review. *Addiction*, 93(10), 1475–1487.
- Whitehead, A. N. (1929). *The aims of education and other essays*. New York: MacMillan.
- Wilson, S. M., Shulman, L. S., & Richert, A. E. (1987). '150 different ways' of knowing: Representations of knowledge in teaching. In J. Calderhead (Ed.), *Exploring teachers' thinking* (pp. 104–124). London: Cassell.
- Winter, C. (2000). The state steers by remote control: Standardising teacher education. *International Studies in Sociology of Education*, 10(2), 153–175.
- Women's Christian Temperance Union. (n.d.). Early history. Retrieved July 11, 2007, from: <<http://www.wctu.org/earlyhistory.html>>.
- Zimmerman, J. (1999). *Distilling democracy: Alcohol education in America's public schools, 1880–1925*. Lawrence, KS: University Press of Kansas.
- Zimmerman, J. (2002). "One's total world view comes into play": America's culture war over alcohol education, 1945–1964. *History of Education Quarterly*, 42(4), 471–492.