A qualitative investigation of factors affecting school district administrators' decision to adopt a national young worker curriculum

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ARTICLE INFO

ABSTRACT

Introduction: Even though the majority of youth in the U.S. work, and workers under the age of 18 are seriously injured on the job at higher rates when compared to adults, most adolescents lack instruction on workplace safety and health. *Method:* This qualitative study examines the extent to which selected U.S. school districts provide workplace safety and health instruction to students and explores the factors that influence districts' decision to adopt a free, foundational occupational safety and health (OSH) curriculum. *Results:* Results from key informant interviews conducted with a purposive sample of 34 school administrators revealed that only a third of the districts have at least 75% of their students receive some instruction on workplace safety and health, while 15% indicated they provide no instruction on this topic. District staff who indicated that they provide OSH instruction stated that it is most often taught through career and technical education (CTE; 65%) and/or health classes (26%). They believed the benefits of providing this instruction include assisting students to get jobs (38%) and helping students learn about safety (32%), while competing demands (44%) and time constraints (41%) were identified as barriers to providing OSH education to students. *Conclusions:* Given the importance of work to teens and their increased risk of work injury, interested stakeholders—including parents, teachers, employers, and the public health community—should promote the inclusion of workplace safety and health instruction in U.S. secondary schools. *Practical Applications:* This research fills a gap in current knowledge about the extent to which OSH is currently taught within U.S. secondary schools, enumerates barriers and facilitators to the inclusion of workplace safety and health instruction in schools, presents a free, foundational curriculum in workplace safety and health, and provides directions for future research on the vital role schools can play in preparing the future workforce for safe and healthy employment.

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The "skills gap"—the mismatch between the knowledge, skills, and abilities employers seek in future employees and the competencies workers bring to the job—has been a topic of national interest for many years. Young workers (ages 15–24 years) are often the focus of these discussions (Guerin et al., 2020), as is the need to prepare the future workforce with both "hard" (i.e., technical) skills but also "soft" skills, related to communication, problem solving, and critical thinking (National Research Council [NRC], 2011; Pellegrino & Hilton, 2013). However, most of the current initiatives to prepare the emerging workforce do not include essential knowledge, skills, and abilities for safe and healthy work. Efforts by the current Administration (Executive Order No. 13845, 2018; Task Force on Apprenticeship Expansion, 2018) to advance skills-based training and apprenticeships for young people provide a timely

opportunity to integrate knowledge and skills related to workplace safety and health into the "life skills" delivered to middle and high school students, before they enter the labor force (Guerin et al., 2020).

The majority (57%) of high school-aged youth (ages 15–17) work during the summer months, and a substantial proportion (43%) hold jobs during the non-summer months (GAO, 2018). National surveillance data demonstrate that this population is nearly one-and-a-half times more likely than adults (ages 25–44 years) to sustain an injury that requires treatment in a hospital emergency department (NIOSH, 2019). Research suggests the risk to adolescent workers may be due to their inexperience with work and exposure to physical hazards and risks (Breslin, Polzer, MacEachen, Morrongiello, & Shannon, 2007; Mardis & Pratt, 2003; Suruda, Philips, Lillquist, & Sesek, 2003), working in violation of child labor laws (Rauscher, Myers, & Miller, 2016; Suruda et al., 2003), and their lack of job training, safety skills, and supervision

(Chin et al., 2010; Runyan, Dal Santo, Schulman, Lipscomb, & Harris, 2006; Zierold & Anderson, 2006; Zierold, Welsh, & McGeeney, 2012). Focus groups conducted with teens found current training methods for young workers are "non-existent or inappropriate and ineffective" and "improvement of safety training could have a large impact on preventing injury" among this vulnerable population (Zierold et al., 2012, p. 1294). Existing safety and health training may be inadequate for preparing young people to identify hazards and to "advocate" for safety on the worksite, and the lack of appropriate, high-quality safety training may contribute to the high injury rates among young workers (Chin et al., 2010; Zierold & Anderson, 2006; Zierold et al., 2012). Young workers who experience hazardous working conditions may not voice their safety concern to co-workers or supervisors, especially if they do not believe they are faced with an immediate threat to their health or safety (Tucker & Turner, 2014).

Generally speaking, school-based health education programs in the United States have been shown to be effective at reducing adolescent risk behaviors (Botvin & Griffin, 2007). Health education can help students obtain the knowledge, attitudes, and skills needed for making health-promoting decisions (Brener, Demissie, McManus, Shanklin, Queen, & Kann, 2017). An estimated 60–96% of the schools within each of the 48 states surveyed by Centers for Disease Control and Prevention (CDC) include injury prevention and safety as part of 6th–12th grade health education instruction (Brener et al., 2017). Risk reduction of work-related injuries and illnesses is a sub-area of injury prevention and safety (CDC, 2012), but the extent to which adolescents are being taught foundational knowledge and skills in workplace safety and health in middle school and/or high school programs is unknown.

In secondary school, students may take courses that integrate topics on workplace safety through career and technical education (CTE) courses and programs that prepare students in occupational areas, such as health science, construction, manufacturing, arts, information technology, and business management, as well as non-occupational areas such as family and consumer sciences. However, according to 2013 data from the National Center for Education Statistics (NCES), while the majority of U.S. public high school graduates (88%) earned at least one CTE credit, only 19.7% of public school graduates earned at least three CTE credits in a single occupational area and would therefore be considered a CTE "concentrator" (NCES, 2013a; 2013b). If students do not concentrate in CTE, they may not have exposure to workplace safety and health instruction, especially in career pathways where safety may not be as central to the curriculum (e.g., information technology as compared to construction). As work is a formative experience for most U.S. teens, there is potentially a critical gap in adolescents' life skills training and acquisition. (GAO, 2018; Mortimer, 2010). Currently, most young people may enter the workforce unaware of the potential risks they may encounter on the job.

Although employers have the primary responsibility for providing workers with job-specific safety training, schools can help prepare adolescents with a general knowledge base related to workplace safety and health (Guerin, Okun, et al., 2019; Pisaniello et al., 2013; Zierold & Anderson, 2006). Public health researchers have advocated for the inclusion of workplace health and safety training in health education and vocational/career and technical education classes to teach youth about child labor and health and safety laws, as well as about their roles and responsibilities in the workplace (Runyan, Lewko, & Rauscher, 2012; Schulte, Stephenson, Okun, Palassis, & Biddle, 2005). The benefits of incorporating workplace safety and health instruction into the education of youth include increased job knowledge, enhanced abilities to recognize and address hazards at work, and a potential, long-range reduction in the incidence of work-related injuries and illnesses (Boini, Colin, & Grzebyk, 2017; Schulte et al., 2005).

One tool to address the lack of safety and health training for young workers is Youth@Work—Talking Safety (2018), developed by National Institute for Occupational Safety and Health (NIOSH) and its partners (Miara et al., 2003). Talking Safety is a free curriculum for middle school and high school students consisting of six, 45-min, interactive lessons and supplemental activities customized for all U.S. states and several territories to reflect the child labor laws and resources unique to each locale. The curriculum presents a framework of foundational workplace health and safety knowledge and skills, the NIOSH Core Competencies (Okun, Guerin, & Schulte, 2016). The Core Competencies are designed to address concepts related to understanding the impact (both immediate and long-lasting) a workplace injury may have on a young person's life, identifying and understanding job-related risks and hazards the best methods for controlling/addressing them; employer responsibilities and worker rights and roles on the job; how to respond to a work-related emergency; and how to communicate with others, especially a supervisor, when feeling unsafe or threatened at work (Okun et al., 2016). The competencies crosscut jobs and industries and are compatible with on-the-job training programs, and soft skills and work readiness frameworks, such as the Department of Education's Employability Skills Framework (2016). The Talking Safety curriculum has been demonstrated to be effective in increasing knowledge, attitudes, self-efficacy, and behavioral intentions of adolescents in support of workplace safety and health (Guerin, Okun, et al., 2019).

For any new program to be effective, buy-in from teachers, schools, and districts is critical. Dissemination and scale-up of a program like Talking Safety requires a careful consideration of the factors that influence school districts' decisions to adopt new curricula. In the United States, the development and uptake of new practices, programs, and curricula (i.e., what teachers teach in the classroom), can be driven by policies, practices, and resources of the federal government, states, school districts, and individual schools (Coburn, 2003; Han & Weiss, 2005; NRC, 2002). Researchers have noted a combination of factors that hinder the adoption of school-based health (specifically prevention) programs, including decentralized decision making in school districts, inadequate funding, lack of infrastructure and program guidance, and low prioritization of non-academic subjects (Buller et al., 2011; Hallfors & Godette, 2002; McCormick, Steckler, & McLeroy, 1995; Pankratz, Hallfors, & Cho, 2002; Thaker et al., 2007). Individual administrator and teacher characteristics (Han & Weiss, 2005; Rohrbach, Graham, & Hansen, 1993) and the characteristics of the innovation (including a new curriculum), such as its complexity or compatibility with current programs and practices (Rogers, 2003), also influence adoption decisions. Previous research indicates that the decision to adopt a new program or curriculum in schools is often made by school boards and upper- and mid-level school district administrators, such as, superintendents, vice-superintendents, or curriculum specialists (Goodman, Tenney, Smith, & Steckler, 1992; National Center for Education Statistics [NCES], 1995). A national study by Rohrbach and colleagues (2005) examined the decision by school districts to adopt substance use prevention programs and demonstrated that mid-level district administrators were the most important decision makers.

Previous research reports that individual-level factors, such as teachers' self-efficacy and acceptance of the program influenced teachers' adoption of the Talking Safety curriculum (Rauscher, Casteel, Bush, & Myers, 2015), but little is known about these decision-making processes at the school or local district level. A study in Washington State of the curriculum, Health and Safety Awareness for Working Teens (HSAWT), found that the formal

adoption of HSAWT in school districts was an expensive and lengthy process. Therefore, a bottom-up approach through contact with teachers was deemed a more effective dissemination strategy for this training (Linker, Miller, Freeman, & Burbacher, 2005).

1. Study purpose

The current study examines the following questions:

(1) To what extent is workplace safety and health instruction provided within various school districts across the United States? If provided, in what coursework/curriculum area is this instruction offered and where is the best fit for this content within school districts?
(2) Who within the district makes the decision to adopt new elective curricula (such as *Talking Safety*) and how are these decisions made?
(3) What do school district leaders perceive as benefits and barriers of offering OSH education and instruction to their students?
(4) What potential incentives may influence the adoption of workplace safety and health education and instruction (via the *Talking Safety* curriculum)?

2. Method

2.1. Participants

School district administrators involved in curriculum adoption decisions participated in structured key informant interviews. Thirty-four districts participated in the interviews, with one interview conducted for each of the selected local school districts. Following guidelines from Guest, Bunce, and Johnson (2006), 34 participants, the maximum possible sample supported by the project budget, were determined adequate to achieve response saturation, or the point at which no new information or themes are observed in the data. At that point, additional interviews do not shape the understanding of the concepts being investigated (Guest et al., 2006).

2.2. Recruitment

A pilot study of six interviews with district leaders was conducted in 2013–2014 as part of on-going research projects in California, New York, and Oregon (two local school districts from each state). Districts for the additional 28 key informant interviews, were identified using the National Center for Education Statistics (NCES) Local Education Agency (School District) Universe of 2010–2011 as the sampling frame (NCES, 2012).

To obtain a wide range of responses from school districts in varied settings based on geographic location and size, we used a purposive strategy of stratifying local school districts into four geographic regions (Midwest, Northeast, South, and West) and three locales (urban, suburban, and town/rural). Within these 12 strata (such as Midwest-urban, Midwest-suburban, Midwest-town/rural), the 10 largest school districts were identified and sorted into random order for interviewing using the *randbetween* function in Excel. Recruitment began with the districts at the top of the randomly sorted list.

Recruitment of school districts began the first week of April 2015 and occurred in multiple rounds. In the first round, we asked each superintendent to suggest the person best able to participate in the study. This process resulted in scheduling 16 (of the 28) interviews. In the second phase of recruiting, we used the district's website to identify eligible participants, such as directors of curriculum instruction, directors of career and technical education, or directors of secondary education, and contacted them directly.

Because not all contacts agreed to participate, a total of 109 school districts were contacted to obtain the 28 key informant interviews (25% response rate). Of the 81 school districts that did not participate, 62 did not respond to more than four contact attempts, eight indicated that they did not have time to participate, four refused participation, and seven indicated that they did not have anyone on staff who could address the topic.

2.3. Instrumentation

The interview guide consisted of four sections of open-ended questions, with the first section focused on background information related to the interviewee's role within the district as well as information about the district. The second section addressed the extent and location of workplace safety and health instruction currently provided in the school district. The third section focused on the process for adopting new materials in the school district curricula. The final section examined the respondent's perceptions of including workplace safety and health within their school district's programs. In addition to their more general perceptions of workplace health and safety instruction, the participants commented on possible barriers and incentives to adopting one specific program, the *Talking Safety* curriculum (NIOSH, 2018). None of these districts had implemented *Talking Safety,* and having them respond to one particular program helped ensure that their descriptions of challenges and benefits related to the same program rather than having them each imagine what such a program could entail. Appendix A contains the interview guide.

2.4. Procedure

Prior to contacting participants, the research team sent the local school district packets describing the purpose of the current study and the *Talking Safety* curriculum, with a link to the curriculum online. Once identified people received the packets, the research team contacted them by telephone and email during normal working hours. The confirmation email included the researcher's contact information so that respondents could ask questions about the study. RTI investigators conducted interviews by telephone, using the discussion guide, with an average duration of 45 min. In each case, the interview was recorded, and a note-taker captured responses so that the interviewer could focus fully on interactions with the respondent. After the interview, the interviewer and note-taker reviewed the notes together to ensure all information was accurately captured. As needed, they checked the notes against the recorded interviews. All interviews were completed by the end of July 2015.

2.5. Data analysis

To identify main response themes, we used matrix analysis techniques to analyze interview data as developed and described by Miles, Huberman, and Saldaña (2014) and Saldaña (2013) and used by researchers to combine qualitative and quantitative approaches (see e.g., Cadigan & Skinner, 2014; Dempsey, 2018). This process involved developing and assigning codes for responses to each question. Matrices displayed data in a condensed, tabular format, which facilitated an iterative process of pattern finding and interpretation. If a respondent answered a question by discussing a topic from another question, that response was coded within the appropriate theme. For example, a person might have answered the question "*Are basic life skills for safe and healthy work currently included in any component of your district's curriculum?*" by discussing barriers to having this kind of program. Additionally, the tabular format facilitated an investigation of the associated themes by participant characteristic, such as respondent's job title, or geo-

graphic location. To ensure quality of the coding, two members of the research team coded the interviews and then met to discuss and resolve any coding discrepancies.

Finally, many of this study's key questions, such as the extent to which workplace health and safety is provided within the respondent's district, are best assessed through tallies of the responses given. Thus, where appropriate, tallies and/or proportions are reported.

3. Results

3.1. Characteristics of respondents

Of the 34 respondents, most were assistant superintendents (30%), directors of career and technical education (27%), or directors of curriculum/instruction (21%). A few directors of secondary education (12%) and directors of health education (9%) also participated. Most respondents had extensive experience in education, with over 60% having more than 10 years of experience in the field, and 15% having more than 20 years of relevant experience.

3.2. Understanding the extent of workplace health and safety instruction

Only 11 (32%) of study participants indicated that more than 75% of students in their school district receive some instruction on workplace health and safety (Table 1). Five (15%) school districts indicated that they do not provide instruction on workplace health and safety to any of their students. Table 1 also displays the type of coursework offered within the school districts that currently include instruction on workplace health and safety topics. Participants could name as many classes that offered this topic.

Skills for safe and healthy work were most often included in CTE classes (22; 65%):

> "In all of our CTE programs, there's a focus on workplace safety."

> "For each different CTE program, the beginning of the program includes a rigorous introductory course that goes over safety, best practices and procedures, and shop rules."

However, the career-specific instruction usually focused on the skills needed for a particular occupation rather than providing foundational workplace safety and health information that is portable to and transferable across many jobs and industries.

When outside of CTE, workplace safety and health instruction was most often provided on an ad hoc basis, usually associated with non-required courses. Health education (9; 26%) was the sec-

Table 1
Workplace health and safety instruction in school districts surveyed (n = 34).

Workplace safety and health instruction	# (%)
Student receiving workplace safety and health instruction	
None offered	5 (14.7)
Low (1%–25%)	9 (26.5)
Mid (25–74%)	9 (26.5)
High (75% or more)	11 (32.4)
Classes where workplace health and safety instruction is provided*	
Career and technical education (CTE)	22 (64.7)
Health	9 (26.4)
STEM	5 (14.7)
Career prep/high school guidance	3 (8.8)
Family/consumer science, life skills	3 (8.8)
Business or personal finance	2 (5.9)
Physical education	2 (5.9)
21st century learning	1 (2.9)

*Note. Because respondents could name more than one class per district, percentages do not sum to 100.

ond most commonly mentioned subject area that included some skills for safe and health work, followed by STEM (science, technology, engineering, math) courses (5; 15%). As with the workplace health and safety instruction given in CTE courses, respondents stated that this kind of content provided in STEM classes most often focused on safety with respect to specific laboratory equipment rather than on practices that would apply in other settings:

> "Some would be in science lab classes. Others would be in courses at the technology center. Really those things are probably only taught in classes that have safety issues, that they need to teach safety for those particular activities happening in that course."

When addressed in business and finance courses, OSH is limited to employer and employee rights and responsibilities, with no specific health and safety practices included.

Outside of regular classes, respondents mentioned providing workplace safety and health instruction through programs such as CareerSafe and Skills USA. Most respondents could not determine how much time students spent learning workplace safety and health skills. Some respondents did not know, and others said that because students could get this information in different classes, some students spend more time on this topic than others.

3.3. Adopting new curricula

Out of the 34 school districts interviewed, over two-thirds (23 districts) indicated the decision to adopt new curricula is made by a district-level curriculum committee or curriculum council. Approximately half of these committees/councils include representatives from the local schools:

> "Generally, the process is to go through Curriculum Coordinating Council, which is a mix of teachers and administrators from all levels, all content areas."

> "For each of the programs or content areas, we do a Curriculum Review. In Curriculum Review, we have teachers, administrators, sometimes parents and community members involved."

Respondents indicated that, in most districts, the board of education has final approval for curricula changes, but they do not make the initial adoption decision:

> "The Review Team comes to a consensus and that is what we propose to the School Board which approves or does not approve recommendation."

> "[Decisions are] made by committee and moved up through the Superintendent's office and then to the board for approval."

When asked how their districts might be persuaded to adopt workplace health and safety curricula, almost half of the respondents were not sure. Another 30% of respondents mentioned that testimonials are an effective persuasion technique or that emphasizing the academic benefits would help persuade others. These potential benefits include highlighting connections with other classes and noting the academic cost of on-the-job injuries for adolescents. Seven (21%) respondents stated that they would emphasize the benefits to student safety.

> "I think the percentages in terms of the percentage of students who hold a job before leaving high school and how many get injured – I think it's very relevant and engaging."

3.4. Incorporating workplace safety and health instruction into districts and classrooms

Next, district staff responded to questions about how the Talking Safety curriculum might fit as part of every student's education

within their school district as well as the benefits and challenges of adopting this program. Interview questions were open-ended, and respondents could name more than one benefit and challenge. Approximately two-thirds of the 34 respondents thought the *Talking Safety* curriculum would fit in their school district and an additional 11 (32%) indicated that it might fit. Only one school district indicated that the *Talking Safety* curriculum would not fit within their school district (Table 2).

Table 2 also lists the courses where respondents thought *Talking Safety* could best fit into their school curricula. Respondents most often mentioned CTE classes (53%), followed by health (24%), and career preparation (18%):

"We could provide this in all of our career tech programs."

"It would fit best as part of the health curriculum, which all students are required to take throughout middle school and as freshman in high school."

"We have career classes at the middle school level arts, general music, [and] especially within Family and Consumer Science."

Respondents disagreed as to the best grade level for the *Talking Safety* curriculum. Slightly more than half of respondents indicated that *Talking Safety* was appropriate for high school only, a third of those interviewed indicated the curriculum could fit in both middle schools and high schools, and remainder saw a fit only at the middle school level.

Respondent-described benefits of providing *Talking Safety* (Table 2) included to help students get jobs (38%), to learn about job safety (32%), and to gain real world knowledge (18%):

"Safety is one more thing they can put on their resume that might put them ahead of other students."

Table 2
School Districts' Integration of *Taking Safety*: Fit, Benefits, and Barriers (*N* = 34).

	# (%)
Would fit in District	22 (64.7)
Might fit in District	11 (32.4)
Would not fit in District	1 (2.9)
Course*	
Career and technical education (CTE)	18 (52.9)
Health	8 (23.5)
Career Prep	6 (17.6)
Science	4 (11.8)
Life skills/family consumer science	4 (11.8)
Personal finance	2 (5.9)
Other	4 (11.8)
Don't know	4 (11.8)
Benefit*	
Better able to get jobs	13 (38.2)
Learn about safety	11 (32.4)
Get real world knowledge	6 (17.6)
Learn to advocate for themselves	5 (14.7)
Gain sense of responsibility	3 (8.8)
Develop leadership skills	2 (5.9)
Not sure	7 (20.6)
Barrier*	
Too many other demands	15 (44.1)
Time constraints	14 (41.2)
Poor fit with academic subjects/not rigorous	3 (8.8)
Teacher buy-in	3 (8.8)
Bureaucratic hurdles	2 (5.9)
Needs to be digital	1 (2.9)
Needs evidence of effectiveness	1 (2.9)
Don't Know	11 (32.4)

*Note: Because respondents could name more than one option, percentages do not sum to 100.

"Many of the students go to work after school or go to work before coming to school so understanding how safety pertains to them in the workplace, the benefit is immeasurable."

Several study participants also noted the benefit of students learning to advocate for themselves, as taught through the *Talking Safety* curriculum. A few respondents focused on the perceived benefits of workplace safety and health instruction on building character traits, such as a sense of responsibility and leadership:

"[It] gives them a sense of responsibility in the workplace [and] self-advocacy for their own safety."

"This would be an opportunity to bring real-life opportunities and allows students to see themselves in the role of an adult (that they're soon to be)."

Although most study participants thought their districts might be able to use the *Talking Safety* curriculum, seven respondents (21%) indicated they were not sure what would be the benefits of such instruction. Respondents also identified potential barriers to its adoption at the classroom level (Table 2). Having too many other demands was the most common barrier identified by 15 (44%) of the respondents and about the same number, 14 (41%), said that they did not have time to add something new to their course load:

"The biggest thing is time…when do we fit all of this in? Especially since instructional time has been significantly compromised because of the state assessment system."

"A major barrier is time. It's just a matter of how to fit it in in terms of what else would we not do. Something else would have to go in order to fit in a new program or curriculum."

Respondents noted that the implementation of Common Core State Standards and new teacher evaluation systems are current priorities and until these issues are addressed, they would have trouble addressing other new curricula. Respondents also noted that if *Talking Safety* is not aligned with current district activities, they would have to drop something else they are currently doing to adopt the curriculum. Three respondents mentioned teacher buy-in as a potential barrier:

"Teachers have many demands placed on them, and they may feel reluctant to change their activities for an elective course. They would have to see how this is relevant to their current activities."

Other barriers included an inadequate fit with academic subjects, a lack of a known evidence base for such instruction, bureaucratic hurdles, and that the subject matter was beyond the purview of schools (and such instruction should be provided by businesses/employers).

"I would expect some to be concerned about whether or not schools should be responsible for this type of training—we can't do everything. We have to focus on what's important to our mission of education. Not that this type of instruction is not important, [I'm] just not sure schools should be the ones to provide it."

The research team asked about three specific strategies that could be used to encourage districts to adopt the *Talking Safety* curriculum: having an online student assessment with a certificate, introducing the program with a video, and aligning it to the Common Core State Standards. Respondents were most enthusiastic about an online assessment tool with a certificate as an approach to encourage districts to adopt the curriculum; 21 respondents (62%) suggested their districts could use this type of online assessment, while only three (9%) would not:

"That would be very important. If our state could classify it as a career readiness certificate it could help us with our school's accountability."

"I think certificates or badges are things that are truly engaging kids. It might make them take it more seriously."

Those who thought employers would recognize the certificate were more likely to think this tool would be useful. Some respondents indicated that the online assessment and certificate would engage students, but the lack of technological resources to have all students complete an online assessment was a barrier to implementing it.

About half the districts (47%) suggested a video to introduce the topic of workplace health and safety and the *Talking Safety* curriculum during a school assembly would be a useful tool to facilitate adoption of *Talking Safety*.

"Definitely. It makes it very real. I think kids connect easily through video."

"Any additional resources that help teachers deliver a lesson is useful. It would be shown at the classroom level."

"We use video in our learning management system where teachers build their own website for students to collaborate. It could be there. Or it could be an introduction to one of the lessons – showing a video in the classroom."

Most of those who indicated that they would use a video preferred an online option or to use the video in smaller settings, such as grade-level assemblies or in the classroom.

"Not in an assembly. The best option would be a particular course, somewhere that has a preexisting alignment to the curriculum."

Fourteen respondents (41%) indicated that aligning *Talking Safety* with the Common Core State Standards would assist with the uptake of the curriculum. A number of participants thought this strategy would be beneficial but not essential to adopting *Talking Safety,* and they suggested alignment had to be "meaningful," not simply a Common Core "stamp of approval:"

"You need to show a clear cut connection to the standards. Don't try to grasp at straws about how the program addresses the standards. Find something that really does fit."

"If it is a state standard it would be great. That's what drives their decisions."

Among those who did not think that such an alignment would make a difference, one respondent noted:

"Some states did not adopt Common Core standards, and some of the states that did are modifying them."

Several participants mentioned that it would be difficult to ask teachers of classes that are adjusting to new standards that are part of the state's accountability system to add additional material. They also noted that the *Talking Safety* curriculum best fits in classes that are not part of the Common Core standards.

As these strategies were discussed, study participants shared additional thoughts about having all students receive instruction on the *Talking Safety* curriculum. One respondent mentioned that if this kind of coursework is not mandatory, it will be implemented in pieces. Another respondent mentioned that in Pennsylvania, under Act 339, every district is required to implement career preparation programs (Pennsylvania Department of Education, 2018), and that *Talking Safety* might help districts meet this requirement. Finally, one participant noted that districts that place students in internships need to make sure these youth understand workplace health and safety issues.

4. Discussion

A substantial proportion of high school-aged youth ages 15–17 years hold formal jobs (GAO, 2018). These young workers also experience higher rates of serious job-related injuries when compared to adults (NIOSH, 2019). Despite these realities, many of the U.S. school administrators interviewed as part of the current study education that their districts do not provide most students any workplace safety and health instruction. School districts that currently offer workplace health and safety education typically do so through CTE classes (65%) that may only reach a small portion of the students in the district and the OSH topics covered may not be foundational or transfer across industries and occupations.

As previously noted, only a small proportion (approximately one-fifth) of public school graduates concentrate in a single occupational area (such as construction or business management). If students do not concentrate in CTE, they may not have exposure to workplace safety and health instruction, especially in career pathways where safety may not be a focus of the curriculum. School district participants mentioned health education classes (26%) as a source of workplace health and safety instruction. Other districts offered workplace health and safety instruction through STEM, career prep, family and consumer science, personal finance, and physical education. However, the safety training provided in these classes typically focuses only on the specific equipment or procedures used in that lab, classroom, or gym rather than on general workplace safety and health competencies (Okun et al., 2016). There is thus a potential gap in adolescents' life skills preparation on foundational competencies related to OSH (Okun et al., 2016).

The current research revealed that a district's decision to adopt a new elective curriculum, such as *Talking Safety*, most often resides with a curriculum committee, and approximately half the respondents stated the committees include representatives from the local schools. Previous research indicates that decisions to adopt new programs and curricula in schools are often made by school boards of education and upper- and mid-level school district administrators, such as superintendents, or vice-superintendents or curriculum specialists (Goodman et al., 1992; NCES, 1995; Rohrbach, Ringwalt, Ennett, & Vincus, 2005). Even though mid-level school district administrators, including assistant superintendents and directors of curriculum, are well-positioned to influence the decision-making processes, these individuals may not feel qualified to speak about workplace health and safety instruction in terms of its benefits, or know what strategies to use to persuade others of its importance. In these interviews, some were not sure how a program like *Talking Safety* could benefit students (20.6%) or the kind of course it would fit (11.8%). Without understanding more about the value of workplace health and safety training or the best strategies for teaching it, these key stakeholders would not be able to promote such a program effectively. Subject matter specialists within the district office, as well as outside stakeholders such as employers, trade and professional associations, and unions, may help promote the adoption of workplace health and safety instruction, particularly in larger districts.

Both administrators and teachers have large time constraints and, therefore, adding a new curriculum creates challenges. Consistent with previous research (Pisaniello et al., 2013), time constraints were reported as the single biggest barrier to providing occupational safety and health education in schools. More broadly, time limitations in the classroom have been found to impede the uptake of health/prevention curricula (Sy & Glanz, 2008). Adding something new often means removing something currently being taught. For states promoting career readiness, the curriculum could be linked to these efforts, and if *Talking Safety* is perceived as help-

ing schools meet a state policy requirement, school districts may be more inclined to adopt and implement this instruction for all students.

In terms of where the *Talking Safety* curriculum might fit into school districts' current programming, respondents most often mentioned CTE, health, and career preparation classes.

As would be expected, districts currently providing workplace safety and health instruction to more than 75% of their students had more agreement that *Talking Safety* would fit in their district curriculum than did respondents from districts with fewer students (0–74%) currently receiving OSH education. Districts already committed to having their students learn about workplace health and safety may better understand benefits of including this instruction as well as how to adopt and integrate a curriculum like *Talking Safety* into the classroom. The one district that indicated this curriculum would not be a fit in their district had fewer than 25% of their students currently receiving OSH instruction. Regardless of their current curricular offerings, most district officials acknowledged the benefit of including some workplace health and safety instruction in their curricula in terms of student employability, student safety, and promoting real world knowledge.

An online assessment with the potential for students to earn a certificate was considered an important tool for helping to promote the value of the *Talking Safety* curriculum, especially if it is recognized by businesses and helps students' job prospects. NIOSH has subsequently worked with partners to create an assessment tool and digital badge for the curriculum (Guerin, Okun, & Kelley, 2016).

There were mixed opinions as to the value of aligning *Talking Safety* with the Common Core State Standards as a method to promote the adoption of the curriculum. Some respondents indicated that the young worker curriculum best fit in classes that are not part of the Common Core standards, and that not all states adopted the Common Core standards or others are modifying them. Instructional standards in health education may be voluntary and informational (Bruckner et al., 2014), but they are widely adhered to and may shape health instruction by influencing the curricula that schools adopt (Bruckner et al., 2014). For many schools, the extent to which new instructional materials or curricula conform to their guiding curriculum standards is important for evaluating its fit. Given that teachers and schools have some discretion about using elective curricula, even in those districts that choose to use *Talking Safety*, there could be large variation in how it is offered.

Some respondents reported that presenting specific information about the benefits of the curriculum might help persuade school districts to use it. If principals and especially teachers do not think the curriculum is important, they will not take the steps needed for its implementation. Prior research supports that teachers' acceptance of the program and their self-efficacy, influenced their decision to adopt the *Talking Safety* curriculum (Rauscher et al., 2015). Innovative teachers may be the early adopters of new practices and programs, such as *Talking Safety*, and are more likely to try a new idea, despite potential costs or drawbacks, in part because they receive personal reinforcement from this action (Parcel et al., 1995; Rogers, 2003). Although most career and technical education and health teachers may not be involved in the decision to adopt a new OSH curriculum, they may be in the best position to understand the benefits of the material and how the NIOSH *Talking Safety* curriculum can be integrated into existing, school-based programs and become sustainable over time. More research is needed to explore teachers' perceptions of teaching OSH in their classrooms (Guerin, Toland, et al., 2019).

Since 2015, the *Talking Safety* curriculum has been downloaded more than 35,000 times, and multiple states (including California, Washington and Massachusetts) have developed OSH curricula for schools and community settings. Some of these efforts are based on the same source materials or include similar themes as are presented in *Talking Safety* (Linker et al., 2005; Miara, Gallagher, Bush, & Dewey, 2003; Okun et al., 2016). However, the reach and uptake of these programs in school-based settings is currently not known, and difficult to characterize, given the decentralized nature of the U.S. public education system. Opportunities exist to promote the integration of OSH education in U.S. schools, and there is a need to monitor the impact of these programs over the medium to long term.

5. Limitations

Despite having an adequate number of participants to achieve response saturation (Guest et al., 2006), the non-probabilistic nature of the sample does not allow for generalizing findings beyond the current study. Many targeted districts did not participate in the interviews, and many of the non-participants said they did not have staff who could respond to questions posed in the study. Even though the interviews were conducted by RTI investigators not involved in the development of the Talking Safety curriculum, social desirability may have affected some of the responses, especially on the questions related to the curriculum.

6. Conclusion

School provides an important context for preparing adolescents with a foundation of risk-based health education, which should include the topic of workplace safety and health (Guerin et al., 2020). Despite the large number of young people seriously injured at work each year (NIOSH, 2019), most youth enter the formal labor force unprepared for the risks they will encounter. The free, foundational curriculum in workplace safety and health, *Talking Safety* (2018), is one tool that school districts can adopt to provide adolescents with this important knowledge and skill base. Qualitative interviews with a purposive sample of 34 administrators from U.S. school districts revealed that few school districts provide instruction in workplace health and safety to most of their students. When OSH is offered, it is most often taught through CTE and/or health classes. Helping students be more employable and allowing them to work more safely were identified as important benefits, while time constraints and competing demands were barriers to providing workplace safety education to youth. Although the decision to adopt new curricula most often was found to reside with a committee, subject specialists and community leaders within the school district may play a critical role in promoting the adoption of workplace safety and health instruction, which should be a public health imperative.

7. Practical applications

This research fills a gap in current knowledge about the extent to which OSH is currently taught within U.S. secondary schools, enumerates barriers and facilitators to the inclusion of workplace safety and health instruction in secondary schools, presents a free, foundational curriculum in workplace safety and health school districts can adopt to provide adolescents with this important content, and provides directions for future research on the vital role schools can play in preparing the future workforce for safe and healthy employment. Future research and dissemination efforts should focus on creating buy-in from teachers, administrators, parents, and future employers about the importance of OSH education to youth, who are the future workforce. A renewed national focus on "skilling up" the emerging workforce to compete in 21st century jobs (Executive Order No. 13845, 2018; Task Force on

Apprenticeship Expansion, 2018) provides an impetus for the inclusion of workplace safety and health education in school programs, so that all youth—the future workforce—enter the labor force with a foundation of health-promoting competencies in this area.

8. Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

Human Subjects Approval Statement

This research received a research exempt determination from the NIOSH Institution Review Board.

Funding

Declarations of interest

None.

Acknowledgements

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jsr.2020.02.011.

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