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Nonprofit Organizations' Program Evaluation of Education Toward Prevention of Teens Using Electronic Cigarettes and Vaping

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Walden University, 2019

MPA University, 2019

Professional Administrative Study Submitted in Partial Fulfillment

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Abstract

The pervasiveness of electronic cigarettes (e-cigarettes) and vaping among teenagers has led to a need for effective interventions to address this problem. One type of intervention that nonprofit organizations (NPOs) such as the American Lung Association (ALA) have adopted is the use of educational programs. For instance, ALA introduced an educational program referred to as Nicotine Dependence: Education, Prevention, Tobacco, and Health (INDEPTH), which acts as an alternative to suspension and citation of teens engaged in e-cigarette smoking or vaping. Despite such interventions, the use of e-cigarettes persists, suggesting the need to determine the perceived effectiveness of such programs. This project assessed perceptions of the effectiveness of NPOs' educational programs toward the prevention of teens' use of e-cigarettes and vaping. The project was guided by behavioral and sociological models, particularly the health promotion model and social cognitive model. A qualitative methodology was used to examine programs implemented to deal with the issue of e-cigarette and vape pen use. Qualitative secondary data were retrieved from journal articles published on academic databases such as Google Scholar and the Walden University Library. Content analysis was used to analyze the data to identify emergent patterns and themes. The findings indicated that educational interventions by ALA and other NPOs are perceived as effective in reducing vaping among youth. The project findings may inform the adoption of policy interventions championing the implementation of educational programs toward lowering the rate of e-cigarette use and vaping among teenagers, thereby resulting in positive social change. However, more evaluation studies are necessary to provide more evidence on the perceived effectiveness of these educational interventions.

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Section 1: Introduction to the Problem

The need to avoid multiple diseases associated with cigarette smoking has led to companies specializing in the processing of less harmful tobacco uptake methods by developing and selling electronic cigarettes (e-cigarettes). E-cigarettes constitute multiple products that produce an aerosol that users inhale (Friedman, 2015). Vapes, a form of e-cigarettes, are the most commonly used tobacco products among youth and school students. According to data from the Centers for Disease Control and Prevention (CDC, 2017), there has been a steady decline in smoking rates in the United States as Americans have become more aware of smoking's undesirable health effects. Whereas 42.4% of Americans smoked in 1965, the number dropped to 15.1% by 2015 (CDC, 2017). Data from the CDC have shown that smoking results in more than 480,000 deaths every year in the United States, including more than 41,000 deaths directly linked to secondhand exposure to tobacco smoking (CDC, 2018). Although smoking rates have declined, the use of nicotine among teenagers has been growing as a norm continuously.

Since the introduction of e-cigarettes into the market in 2003, they have been widely accepted as a healthy alternative to conventional cigarettes. According to Friedman (2015), there are multiple misconceptions associated with the use of e-cigarettes that have resulted in appropriate e-cigarette regulations becoming one of the central debates in public health policy. Caponnetto et al. (2013) asserted that although the use of e-cigarettes results in exposure to addictive substances that are similar to those involved in conventional smoking, e-cigarettes are regarded as less expensive and less risky. Moreover, it is claimed that e-cigarettes reduce the rate of smoking by leading potential smokers away from conventional cigarettes. However, Fairchild et al. (2014)

argued that e-cigarettes raise smoking rates by prompting initiation of the vice among individuals who would not otherwise use conventional cigarettes.

While there has been a decline in the use of conventional cigarettes in recent decades among younger generations in the United States, the use of tobacco substitutes has been on the rise among youth and young adults in the country. According to Murthy (2017), the most notable tobacco substitutes in the market are e-cigarettes. It is crucial that efforts made to reduce the use of conventional cigarettes are not compromised by the introduction of e-cigarettes among youth. In the United States, the rate of e-cigarette use among youth doubled from 3.1% to 6.8% between 2011 and 2012 (Schraufnagel, 2015). Although the use of e-cigarettes is widely advocated as a safer option compared to the use of traditional cigarettes, some scholars have seen them as a gateway to a return to conventional smoking. Therefore, the use of tobacco can be used as a datum of comparison only if there is reduced usage or quitting, but not starting to use another substitute.

The surge in the availability of e-cigarettes in the market, as well as the associated marketing and promotion of nicotine-containing products, has exposed many youth to vaping. This has raised concerns among public health representatives about the rise in vaping among young people who have never smoked (O'Connor et al., 2019). The normalization of vaping in society has prompted the planning and enacting of interventions meant to combat the growing epidemic by various public health organizations (O'Connor et al., 2019). For instance, in Canada, local authorities have recognized the need to examine what other leading jurisdictions have done in implementing a public health response to the uptake of e-cigarette products (O'Connor et

al., 2019). Additionally, nonprofits have been widely involved in advocating for the cessation of vaping among youth. Notably, such institutions have developed educational programs to equip the youth with skills to resist media influences and peer pressure meant to initiate them into e-cigarette use (O'Connor et al., 2019). The programs' content is intended to create tobacco awareness based on best practices by the population.

Multiple studies conducted by nonprofit organizations (NPOs) have been instrumental in the formulation of policies critical in protecting youths from the harmful effects of vaping. Juul, an e-cigarette company, was flagged by doctors, researchers, and nonprofits for deceptive marketing techniques and health risks associated with its e-cigarette products (Hu, 2018). The availability of a variety of flavors led to the penalization of manufacturers and distributors by authorities such as the Food and Drug Administration (FDA) for luring youngsters and disguising the smell of tobacco, which might otherwise alarm guardians (Farsalinos et al., 2013). Such concerns were raised by researchers experienced in tobacco products, with studies showing that flavored cigarettes were more appealing to young users (Farsalinos et al., 2013). As a result, the FDA decided to prohibit nicotine advertisements during prime hours and prohibit certain retailers from selling tobacco products (Hu, 2018).

Although nicotine overdose or intoxication is quite unlikely to occur due to vaping, given that the amount of nicotine consumed and absorbed is very low, the health effects of vaping including lung disease, cardiovascular disease, and addiction cannot be ignored (Oriakhi, 2020). There is an overwhelming array of evidence of the benefits of smoking cessation. However, smoking has proven to be a tough addiction to break. The available nicotine replacement therapy has been seen to have a low long-term success

rate, which may be attributed solely to lack of psychological support (Farsalinos et al., 2013). Although oral medications have proven to be more effective in promoting smoking cessation, there have been reports of adverse neuropsychiatric effects of these medications (Farsalinos et al., 2013).

Various educational programs have been developed by NPOs for the prevention of vaping by teenagers. These programs provide youths opportunities to learn the adverse health effects of e-cigarette smoking as they provide credible and in-depth research on the use of e-cigarettes. This project focused on an evaluation of the perceived efficacy of educational programs offered by the American Lung Association (ALA) to prevent teens from using e-cigarettes and vaping. Educational programs can contribute to positive social change through the creation of awareness of the adverse health effects of nicotine among youth, leading to reduced exposure to negative impacts of e-cigarettes such as hypertension, seizures, coma, and even death (Oriakhi, 2020).

Problem Statement

The pervasiveness of e-cigarettes and vaping among teenagers has led to the need for effective interventions to address the problem. One type of intervention that NPOs have adopted is educational programs. For instance, ALA (which was the focus of the current project) introduced an educational program referred to as Nicotine Dependence: Education, Prevention, Tobacco and Health (INDEPTH), which acts as an alternative to suspension and citation of teens engaged in e-cigarette smoking or vaping (ALA, 2020). The program provides an alternative to solely punitive measures. This interactive program educates students about nicotine dependence while promoting alternative health behaviors and activities as well as strategies to kick unhealthy addiction. The program is

free and available to all schools and communities whose leaders seek to help teens make healthy choices. However, the program's effectiveness is not well established yet, as there is a paucity of research on the program. ALA (2019), in an attempt to determine the program's effectiveness, used a sample of 11 sites across the United States to implement and pilot INDEPTH in middle schools, high schools, suburban, and rural communities. In the findings, 60% of student participants reported a willingness to quit smoking after completion of the program. However, perceptions of the effectiveness of the intervention cannot be determined from one study. Moreover, the survey that ALA used was aimed to determine areas for improvement and not the effectiveness of the program—hence the need for a project to evaluate the effectiveness of the intervention.

In the last decade, e-cigarettes have become the most used tobacco products by American teenagers. Approximately 12% of the high-school-going population smokes e-cigarettes (Chalabi, 2019). According to Patiño-Masó et al. (2019), the principal factor contributing to the increased use of e-cigarettes among youths and young adults is their usage by family members and close friends. NPOs such as ALA have taken the responsibility of developing educational interventions, including INDEPTH, to promote and facilitate the cessation of e-cigarettes and vaping. However, the continuous growth of vaping culture is a testament that the methods or the materials in the educational programs implemented by NPOs have yet to achieve their set goals. Consequently, there is a need to evaluate such educational programs so that they can be made more effective in addressing the needs of teens.

Evaluating the effectiveness of educational interventions to prevent e-cigarette use is important, as these programs may help to address potential health problems in

teens brought about by e-cigarettes. Of primary concern, for instance, is the fact that members of the younger generation are uninformed about the health effects of using tobacco (Morean et al., 2018). It is critical that youths are informed through educational programs on the lurking impacts of using e-cigarettes. ALA attempts to address this challenge by providing information to teenagers on the dangers associated with the use of tobacco products through their educational programs. As stated earlier, e-cigarette manufacturing companies have used unprecedented marketing gimmicks to appeal to the teenage population by introducing multiple flavors and suggesting that smoking e-cigarettes is less harmful as compared to smoking conventional cigarettes (Morean et al., 2018). They have spread this misconception of less dangerous vaping products to the adult population. An evaluation of the effectiveness of ALA's educational programs may inform how other NPOs respond to assist teens in developing healthy behaviors and reduce misconceptions about the health impact of e-cigarettes.

Similarly, educational interventions may provide the basis for developing public policies on interventions for e-cigarette use among teens. Evaluations of such educational programs have not been conducted, informing the need for the current project. An assessment of the programs' perceived effectiveness may prompt NPOs to evaluate their programs in a bid to have concrete data on their impacts on e-cigarette and vape pen use among teens.

Purpose

The purpose of this qualitative project was to review the perceived effectiveness of the educational programs on e-cigarettes and vaping pens adopted by NPOs. The

following question guided the project: Are the educational programs adopted by NPOs to prevent teens' use of e-cigarettes and vaping perceived as effective?

NPOs are in a unique position to educate the public, especially teenagers, about the risks associated with using e-cigarettes. The availability of willing donors has made many NPOs, such as ALA, rich in resources, allowing them to carry out educational programs that are beneficial to youth involved in vaping. Additionally, because NPOs are involved in activities meant to make society a better place, they are in an ideal position to impart sufficient knowledge to the teenage population on the effects of the vice. ALA plays a critical role in providing training to personnel attached to NPOs that addresses challenges experienced when conducting their educational programs (ALA, 2019). However, the organization needs to evaluate program outcomes to determine whether the intended goals are being achieved. Although this project did not provide such an evaluation, it may offer stakeholders in NPOs insights on whether the educational programs are perceived as effective and offer insights from program practitioners' perceptions of what might be more effective educational programs.

Nature of the Administrative Study

For this project, I adopted a qualitative methodology, which aids in investigating the viewpoint, experiences, and attitudes of humans toward a particular phenomenon (Mertens, 2010). Qualitative research involves looking for an in-depth, personalized, as well as contextually sensitive comprehension of an issue. A qualitative methodology was the most suitable for answering the project's research question as it aided in delineating whether the educational program by ALA and those by similar NPOs are considered

effective in promoting behavioral change among teenagers who use e-cigarettes and vapes.

The project involved a qualitative analysis of secondary data collected from literature in journals, newspapers, and books to identify the current challenges and opportunities likely to determine perceptions of the effectiveness of educational programs in enabling cessation of vaping and the use of e-cigarettes. Qualitative secondary data from the focus organization, ALA, were also reviewed. The data were analyzed through content analysis to answer the guiding question and achieve the project objective. The findings highlight areas of practice that are either perceived as effective or not in the current educational programs provided by NPOs for teenagers using e-cigarettes and vaping.

Significance

The investigation provides information on the role played by NPOs to deal with the epidemic associated with the use of e-cigarettes. The project may offer NPOs insights on whether educational programs are perceived as effective. The project findings may provide the organizations with insights on what is considered effective and prompt leaders to think about the changes necessary to improve the programs' perceived effectiveness. The resulting improvements may result in increased cessation of e-cigarettes and vape pens use among the youth. This would reduce the healthcare costs incurred to treat addiction to nicotine.

Summary

Since their introduction to the market in 2003, e-cigarettes have been widely accepted as a healthy alternative to conventional cigarettes, especially among teenagers.

Evaluation of NPOs' educational programs would offer insights into the factors facilitating the cultural norm of vaping. Evaluation has proven to be a challenge due to the tremendous growth in the use of e-cigarettes. The surge in the availability of e-cigarettes in the market, along with the associated marketing and promotion of these nicotine-containing products, has exposed many youths to vaping. As such, this project involved determining the perceived effectiveness of the educational programs implemented by NPOs to encourage cessation of e-cigarette and vaping pen use. The qualitative method of research was employed to examine programs that have been implemented to deal with the e-cigarette use epidemic. The resulting analysis informed suggestions toward inhibiting the frequency and growth rate of vaping among youth to prevent nicotine addiction and the health risks that are caused by nicotine intake. The principal factor contributing to the increased use of e-cigarettes among youths and young adults is their usage by family members and close friends (Patiño-Masó et al., 2019). NPOs are in a unique position to educate the public, especially teenagers, about risks associated with the use of e-cigarettes. Therefore, this project focused on evaluating the perceived effectiveness of educational programs offered by ALA and other NPOs to prevent teens from using electric cigarettes and vaping. Having determined the project problem and its significance, I delve in the next chapter into the conceptual approach and background of the project.

Section 2: Concepts, Models, and Theories

Introduction

The use of e-cigarettes and vaping pens among youth has been categorized by the ALA as a health epidemic that poses many challenges to health management. Through this project, I sought to determine perceptions of the effectiveness of NPOs' educational programs toward the prevention of teens' use of e-cigarettes and vaping. The efficacy of an educational program that has been implemented by ALA toward the cessation of e-cigarettes and vaping pens was determined. To this end, the project was guided by the following question: Are the educational programs adopted by NPOs toward the prevention of teens' use of e-cigarettes and vaping perceived as effective?

This section reviews the concepts, models, and theories relevant to vaping and the use of e-cigarettes. This section also examines the relevance of the problem to public health organizations. The section further covers the organizational background and context of the study and my role in the study as a Doctor of Public Administration (DPA) student.

Concepts, Models, and Theories

The project was founded on the health belief model (HBM) and social cognitive theory (SCT). These theories were selected based on the presumption that health promotion can only be attained through the combination of health education and the use of effective health policies.

Health Belief Model

This model is commonly used in health education studies. The HBM was conceptualized in the 1950s by a group of U.S. social psychologists, among them

Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels (Onoruoiza et al., 2015). The model has five key tenets: perceived susceptibility, severity, benefits and barriers, cues for action, and self-efficacy (Jones et al., 2015).

The concept of perceived susceptibility entails the subjective assessment of the risk of suffering from a distinct disease. The HBM indicates that behavioral change occurs when individuals have a higher perceived susceptibility to illness (Abolfotouh et al., 2015). Similarly, perceived severity is the subjective assessment of the starkness of a probable disease, whereby individuals are more likely to assume health-promoting behaviors if the perceived severity of a disease is high and vice versa. Benefits and barriers relate to the advantages associated with the adoption of health-promoting behaviors and the factors hindering behavioral change. Change occurs where people perceive it as beneficial or when it is viewed as a key pathway to reducing the risk of disease (Masoudiyekta et al., 2015). However, change will not occur in scenarios where barriers are perceived to be high. Barriers to changes in behavioral health include inconvenience, discomfort, costs, and perceived danger (Onoruoiza et al., 2015). Cues to action are triggers that promote changes in health behaviors, which can be internally or externally motivated. Internal triggers include pain and symptoms, while external triggers include information from diverse sources such as the media. It is important to note that different persons respond to different levels of intensities of triggers. Lastly, self-efficacy refers to a person's confidence in their ability to change and sustain health-promoting behaviors (Onoruoiza et al., 2015).

The HBM indicates that the level of a person's conviction that they are susceptible to a health risk determines their level of motivation to take preventative

action. Consequently, the theory aims to promote the quality of health (Ritchie et al., 2018). Consequently, suitable policy measures to effect change should enhance how the health risks associated with the use of e-cigarettes and vaping are perceived. This may be realized by clearly defining the segments of the population that are at risk, tailoring information with regard to the individual's or group's needs, and helping individuals build an accurate perception of risk (World Health Organization [WHO], 2012). This approach can be adopted to evaluate some of the educational programs used by NPOs to sensitize youth to the health risks posed by the use of e-cigarettes and vaping. To this end, the factors contributing to the increased usage of nicotine as a culture that is driven by environmental factors, as well as individual elements, should be identified.

In addition to their perceived benefits, good health practices are predicated on the conviction that they will reduce susceptibility to a health risk. For example, if the severity of the problem of using e-cigarettes is perceived as serious due to consequences such as susceptibility to asthma, then the benefits associated with interventions that involve restraining or stopping the use of e-cigarettes and vaping will be taken seriously and practiced to mitigate the health risk (Yoshitake et al., 2019). As a result, the education policies instituted by ALA focus on creating awareness of the hazards of using nicotine and the benefits accrued through the avoidance of using tobacco products (Ritchie et al., 2018). The integration of these elements in the educational programs is critical for the promotion of individual and communal health. To ensure that action toward healthy practices is taken, NPOs must focus on creating clarity about the efforts taken to minimize behaviors that increase susceptibility to health risks.

NPOs must also outline the course of action taken towards the promotion of health (Ritchie et al., 2018). If change is perceived as impossible, inconvenient, or unlikely to occur, individuals may find it difficult to believe in the effectiveness of the proposed behavior. Individuals adjust their behavior as advised only if the cost associated with the consequence of failing to do so is high compared to the cost of the intervention.

While the members of a population may be aware of their susceptibility to a health risk, education may lead to the identification of a stimulus to invoke the decision-making process leading to acceptance of a recommended health action. For instance, a reminder to go for a clinic appointment could lead a patient to go for the appointment (Ritchie et al., 2018; von Schönfeld et al., 2019). However, this relies on the management of these challenges to make it possible to meet the expectations of the community. Such challenges are overcome by offering information to create knowledge about such cues (Bembenutty et al., 2016). Cues may include early symptoms of a health risk, such as chest pains or a wheezing chest due to the continued use of e-cigarettes and vaping. Consequently, in the interest of promoting community health, individuals should make it possible for the organization to meet the requirements of the community.

The HBM emphasizes the ability of an individual to take action after being provided guidance. Individuals' confidence in their ability to perform a behavior successfully is critical to this model, as well as other behavioral theories. If individuals encounter a health emergency that they have experienced before, their confidence (self-efficacy) determines whether they can use the knowledge gained from their experience to mitigate the risk (Bembenutty et al., 2016). Therefore, education programs by organizations should offer tools that help in progressive goal setting, integrating various

experiences and behavioral reinforcements, such as participant modeling and providing verbal reinforcements to build an individual's ability to quit or avoid the use of e-cigarettes and vaping. Figure 1 presents an example of a HBM for e-cigarette and vape pen use.

Figure 1

Application of Health Belief Model to E-Cigarette Use

Modifying Variables (age, gender, race, economy, characteristics)	Perceived Severity + Perceived Susceptibility	+	perceived benefit - perceived barriers	+	Cues to Action	=	taking action (or not)
(base score for this person's health)	(base score as to the belief that smoking will harm one's health)		(base score for smoking behavior)				

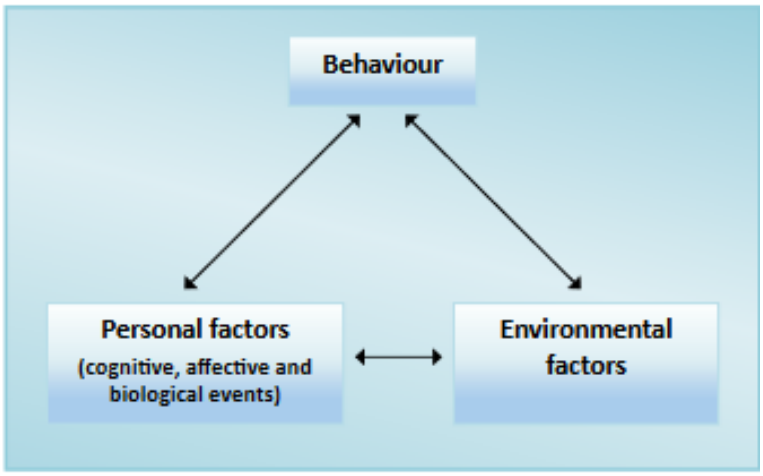
Social Cognitive Theory

SCT is a combination of principles of social learning and observational learning. The two additional elements that were integrated into SCT were the use of personal experiences and the use of other people's experiences as positive reinforcements. The theory addresses differences in human behavior with regard to the reciprocal, triadic model, and dynamic model where personal factors, environment, and behaviors interact in a cyclical manner (von Schönfeld et al., 2019; Zhou & Brown, 2017). SCT addresses emotional, cognitive, and behavioral processes to elucidate how individuals' behavior is influenced by their characteristics and the social world (Bembenutty et al., 2016). As a

result, it may be employed in designing disease prevention interventions and treatment strategies.

Figure 2

A Conceptual Model of Social Learning Theory



Note. From *Health Education: Theoretical Concepts, Effective Strategies, and Core Competencies: A Foundation Document to Guide Capacity Development of Health Educators* (p. 32), by World Health Organization, 2012 (https://apps.who.int/iris/bitstream/handle/10665/119953/EMRPUB_2012_EN_1362.pdf) . Copyright 2012 by World Health Organization.

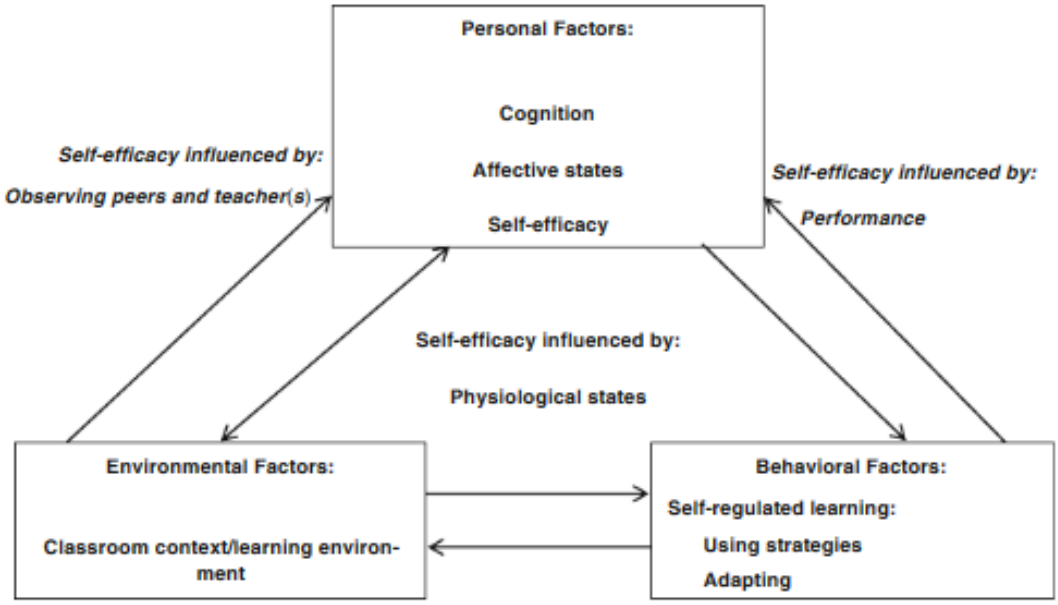
The theory is founded on the assumption that people learn based on their experiences as well as those of others. The constructs of SCT are effective in health behavior change due to the core elements, which can be considered tools to facilitate change through self-control, self-efficacy, and observational learning for positive reinforcement. The triadic model does not define a single path for interaction and sharing knowledge but leads to the realization of the desired outcome. SCT conceptualizes interactions in an environment to identify a causal structure. Causation is used to refer to

the functional interdependence of events (Bembenutty et al., 2016). Reciprocal causality, biological and affective events, internal cognitive functions, behavioral patterns, and environmental events are interdependent in a bidirectional manner, as illustrated in Figure 3. This model is effective in explaining the adjustment of behaviors because the environment is a multifaceted entity. Reciprocal determinism in the SCT means that an individual is willing to respond to changes or be an agent of change. Therefore, adjustments in the environment are acceptable in the development of desirable behaviors.

Self-efficacy in SCT refers to individuals' confidence in their ability to take action and follow through in exercising prescribed actions repeatedly despite the presence of obstacles. Consequently, the principle of self-efficacy could be highly effective in influencing the structural design of educational programs initiated by NPOs toward eradicating the use of e-cigarettes and vaping as a health behavioral risk factor. Physicians assist clients by either small incremental variables or by using a formalized behavioral contract to establish goals and specify rewards. Figure 3 presents a triadic model of a classroom context in the application of social cognitive theory.

Figure 3

A Triadic Model of a Classroom Context in the Application of Social Cognitive Theory



From "Applying Social Cognitive Theory in the Development of Self-Regulated Competencies Throughout K-12 Grades," by H. Bembenutty, M. White, and M. DiBenedetto, in A. A. Lipnevich, F. Preckel, and R. D. Roberts (Eds.), *Psychosocial Skills and School Systems in the 21st Century: Theory, Research, and Practice* (p. 218), 2016, Springer (https://doi.org/10.1007/978-3-319-28606-8_9). Copyright 2016 by Springer International Publishing Switzerland.

Triadic Model

Using the triadic model, cognitive psychologists evaluate interactive relationships between actions and thoughts of core interest. Personal conceptions, aspirations, beliefs, intention, and self-perceptions determine a person's behavior. The extrinsic and natural elements of individuals' actions have an influence on their thought patterns and affective

actions. Psychological examination of this interdependence aims to determine the exchange between an individual and their environment (Ndaguba & Ijeoma, 2017), which aids in understanding the influence of environmental forces in influencing behavior (Bilgiç & Günay, 2018). People differ in the reactions they have in the social environment based on their physical qualities before any decision to act is made. Physical qualities include race, sex, age, size, and physical attractiveness (Sutton & Austin, 2015). People tend to initiate different reactions based on their socially conferred responsibilities, roles, and status. Social reactions invoke a different effect on the involved individual's perception of himself or herself. As a result, this is likely to weaken or strengthen their environmental bias.

Application of the triadic model in the evaluation of educational programs initiated with the objective of eradicating the use of e-cigarettes establishes a multilayered framework for evaluation. As has been established, the use of nicotine in different forms has been a component of the culture among teens. The elements of this culture that are driven by environmental, behavioral, or cognitive factors can be evaluated by examining the causation structure and performing a psychosocial evaluation of natural interactions and dependencies. After the identification and design of the causation elements and structure, it becomes possible to evaluate the behavioral elements that propagate a culture of using nicotine (WHO, 2012). In line with the three main constructs of SCT (i.e., self-efficacy, goals, and outcome expectancies), the personal and external influences that have a high likelihood of causing change may be identified.

Self-Efficacy

People who have a high level of self-efficacy have a high level of control over their behavior. Therefore, they can adjust their behavior, notwithstanding the prevailing obstacles. On occasion, they may lose their control over health behavior and may be unmotivated and unable to persist in attempting to change their behavior. As established earlier, social reactions have various effects on individuals' perceptions of themselves (Von Schönfeld et al., 2019). Hence, individuals adopt new behaviors that cause personal and environmental changes. According to this theory, self-efficacy is the most pertinent factor in behavior change.

Strategies for increasing self-efficacy among participants in NPOs' educational programs include setting incremental goals, monitoring and reinforcement, and behavioral contracting. These strategies may be implemented in the form of an official contract identifying the desired outcomes and the accrued rewards, through a feedback system that involves self-monitoring or record keeping, and by setting milestones (Von Schönfeld et al., 2019). Feedback from personal monitoring and reinforcement facilitates patients' ability to manage their health conditions by keeping records and adjusting their behaviors depending on the collected data.

Observational Learning

The SCT holds that there is a consistent interaction of the environment, human, and behavior, and the disruption of one area affects the performance in other areas. Observational learning entails watching the consequences of other people's behavior and design or reviewing one's behavior (Ndaguba & Ijeoma, 2017). Through observational modeling, the learning entity develops a new pattern of behavior through corrective

thinking based on their observation. Before the occurrence of the incidence, some of the possibility of some of the behaviors is low. Some of the traits that lead to the development of new behavior patterns include perceived similarity, prestige, competence, and attention (Bembenutty et al., 2016). These traits are often apparent among peers. Therefore, the observation-learning model will be used to evaluate the elements of social learning that interaction with peers who use e-cigarettes and vaping pens contribute to the culture of nicotine abuse.

Observational learning, in essence, is self-regulated learning and relies on problem-solving and critical though techniques. The process of behavior modeling is based on the evaluation of the immediate environment and applying different skills and approaches to solve the problem. Cognitive modeling as a means to observational learning makes it possible to verbalize thoughts in the process of solving a problem (Ndaguba & Ijeoma, 2017). Further, cognitive modeling enables learners to learn what and how to do what is expected for a successful realization of one's goals. Verbalization plays a pertinent role in the creation of an opportunity for the observation of patterns.

The educational programs instituted by NPO's to curb the use of e-cigarettes and vaping embody these qualities or enable the audiences to employ critical thought and problem-solving skills to avoid the use of nicotine. Additionally, it necessitates the students to develop self-regulation, which is critical in resisting peer pressure in the process of decision-making. Bembenutty et al. (2016), posit that the Zimmerman model of self-regulation has three phases that facilitate the realization of a goal. The three stages facilitate a continuous assessment of one's feelings and motivations. The cyclic system involves: forth thought when the learner generates their goals, establish the suitable

learning strategies, evaluate their intrinsic and extrinsic motivations, and determine their level of self-efficacy. Therefore, the first phase of self-regulation is the determination of an individual's personal determination towards the realization of their goal and establishing suitable tactics cognizant of personal abilities in self-efficacy.

The second phase is performance evaluation that involves a learner examining the efficiency of their learning strategies, beliefs, and goals. These factors are examined in relation to the appropriate standards—other sources of information or guidance in the adjustment of tactics. For example, information may be sought from peers, guardians, or social environment engagements. The third stage is the social reflective phase, where learners assess their level of satisfaction based on the success in the completed tasks (Ndaguba & Ijeoma, 2017). Self-reflection helps determine if the goals established in phase one were achieved successfully and signal progress onto the next challenge. However, if they are unsatisfied with the outcome, they repeat the performance phase and revise the techniques, strategies for the achievement of the goal, or the goals.

Zimmerman designed a four levels model for the development of an individual's competence. Bembenutty et al. (2016) define self-regulation as one's self-generated behavior, feelings, and thoughts towards the realization of a certain goal. SCT posits that modeling is contingent on self-regulation. Self-efficacy, which reassures a person of their ability to take action, is a result of external forces that model the described behavior is internalized, and whenever self-regulation is realized. Social influence facilitates the process of internalization through a process such as conformity and eventually master behaviors acquired through conformity, which involves the internalization of feelings of self-efficacy and achieve self-directed learning. As established earlier, self-regulation is

dynamic because it involves continuous evaluation and improves its performance against the expected standards. The four successive levels of self-regulation include observation, emulation, self-control, and self-regulation (Ndaguba & Ijeoma, 2017). This model has been associated with the core ideologies in strategic planning, self-reflection, and metacognitive monitoring. Discussed below are the four levels of development:

Observation

Observation of competent models that have been employed by other parties and worked effectively. Observation facilitates one's conviction of their capabilities to perform the functions observed in their environment. Consequently, this builds their confidence in their ability to perform these functions themselves, which initiates self-efficacy. At this stage, learners observe their instructors verbalize the reasons they acted in the manner that they did. While the peers may contribute significantly to the development of self-efficacy and eventually self-regulation, they also serve as models in the process of imparting knowledge.

Emulation

At this stage, learners exercise the desired behavior through the development of a pattern that seeks to improve the acquisition of the new behavior with assistance from the teacher. Teacher's cognitive modeling functions of the socially interactive reinforcement while the instructions of the processes are standards the learner and the model seek to achieve (Bembenutty et al., 2016). The model also offers feedback that's critical in the evaluation of performance and optimization of techniques applied for the optimization of performance. If the students do not exhibit the desired performance, the model repeats level one, where they demonstrate the patterns of behavior where the students are

deficient, as illustrated in Figure 4. Upon acquisition of the desired skill, the learner begins to internalize the process of self-regulation and build self-efficacy.

Self-Control

Self-regulatory competency is realized when learners exhibit self-efficacy from within. The learner can use different skills and techniques without the assistance of the model. However, representational patters in the performance behavior of their model. Emulation and internalization have been successful from what is observed, leading to an internalized self-efficacy. Consequently, learners reflect and reinforce the acquired capability and evaluate the performance against the standards established by their model (Bembenutty et al., 2016). Self-efficacy and self-regulation are generated from within the learner rather than the teacher. The functions at this stage involve evaluation of the task, determination of the goals, and performing the task without assistance from the model's assistance. The model is obligated to leave the students to learn by themselves; learners are expected to work independently, provide feedback, and adjusting accordingly whenever they encounter any challenges. In case the students fail in exhibiting self-control, the models are expected to create more room for further guidance and scaffolding.

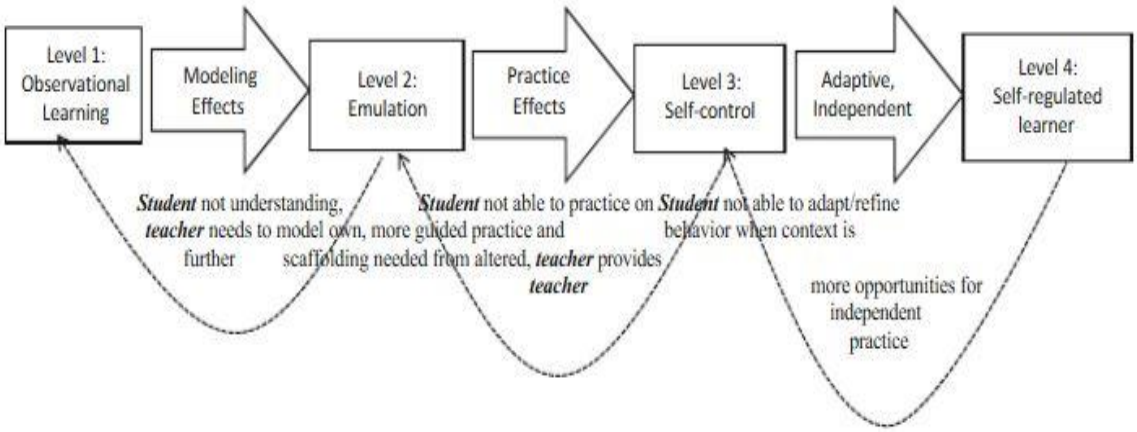
Self-Regulation

Despite the previous levels functioning towards the achievement of self-regulation, self-regulation is achieved at the fourth level when learners can adapt their performance to different conditions or circumstances. Leaners have the ability to regulate their performance by themselves and are motivated by their self-efficacy belief. Leaners at this stage are capable of developing and initiating suitable strategies for the execution

of a task and adjusting accordingly to the situations while performing a task. The leaners can evaluate their performance cognizant of their ability to make the changes that may be required. Additionally, they can effectively verbalize their thoughts with ease (Bembenutty et al., 2016). This stage is characterized by the leaners independence, self-efficacy, motivation to achieve, make appropriate behavioral adjustments, and a high level of self-efficacy of the learner in their ability to perform an activity. Research in the self-regulation framework has established correlation achievements of milestones in the execution of behavioral tasks. Thus, the educational programs implemented by selected NPOs will be evaluated based on this model to establish areas where that could be faulty, causing the difficulties in stopping and preventing the use of e-cigarettes and vaping.

Figure 4

The Four Levels of Self-Regulation Competence in Social Learning Environments



From "Applying Social Cognitive Theory in the Development of Self-Regulated Competencies Throughout K-12 Grades," by H. Bembenutty, M. White, and M. DiBenedetto, in A. A. Lipnevich, F. Preckel, and R. D. Roberts (Eds.), *Psychosocial Skills and School Systems in the 21st Century: Theory, Research, and Practice* (p. 224), 2016, Springer (https://doi.org/10.1007/978-3-319-28606-8_9). Copyright 2018 by Springer International Publishing Switzerland.

Definition of Terms

This section presents the definition of key terms used in the project.

Nicotine: An addictive chemical found in tobacco products such as conventional cigarettes and e-cigarettes (O'Connor et al., 2019).

Teens: Persons transitioning from childhood to adulthood, which usually occurs between the ages of 12 and 18 years (Jaworska & MacQueen, 2015).

Vaping: This term refers to the use of electronic cigarettes (e-cigarettes) or other electronic nicotine delivery systems (Harrell et al., 2019).

Vape pens: These are electronic nicotine delivery systems that use battery power and a heating element to atomize liquids containing nicotine to produce an aerosol (Alexander et al., 2016).

Relevance to Public Organizations

E-cigarettes have become a new public health concern owing to the probable effects of their residual toxicological load on the respiratory system. E-cigarettes have especially become popular among the youth, as indicated by a 3.7% increase in usage from 3.1% in 2011 to 6.8% in 2012 (Schraufnagel, 2015). Over the period, e-cigarette sales increased from $250 to $500 million, with the projection that they would quadruple by 2014 (Palazzolo, 2013). According to the American Lung Association (2019), 40% of teenagers have used an e-cigarette or a vaping pen. The FDA posits that this culture causes cardiovascular and lung diseases and increases the risk of cancer incidences. Health challenges associated with the snowball effect that not only affect the users but also lead to the accumulation of a large burden on healthcare budgeting overtime (Farsalinos et al., 2013). This led the FDA considers the use of e-cigarettes among teenagers in the United States as an epidemic.

The increase in popularity of e-cigarettes and vaping is associated with factors within the intrapersonal, interpersonal, and environmental contexts. Ecological drivers towards the use of e-cigarettes are categorized as an intrapersonal element. The interpersonal elements of an individual, such as individual beliefs, personality traits, and knowledge, play a critical role in one's decision-making process. During the teenage

years, the students are yet to develop a strong personality, and therefore they are more likely to be swayed by peer pressure leading to the high growth rates in the use of e-cigarettes and vaping in the past decade. As established earlier, highly effective market strategies have a high rate of market penetration. For instance, the use of flavors in the e-cigarettes promote the myth that they are not harmful to the consumer.

The social environment also affects their belief system as a support system, such as family, friends, and peers. The attitudes, beliefs, and personality traits of the youth determine if they are curious or conservative enough to smoke. Teens who have close and multidimensional social relationships are less likely to avoid smoking. However, teens from an environment which is not stable and reassuring are likely to use e-cigarettes. Negative influences from peers are likely to lead teenagers to smoke to remain or fit into a social group. Therefore, interpersonal capacity plays a critical role in the growth of using e-cigarettes among teenagers (Milton et al., 2004). The interpersonal capacity is decided by the beliefs, opinions and attitude, intentions, self-efficacy, awareness, knowledge, and individual skills and personal power. However, the decision to either smoke or not is based on the information the teenagers have. Being aware of this fact, tobacco manufacturing companies promote e-cigarettes as a non-harmful and trendy way to use recreational time. Therefore, this has been attributed as one of the leading causes responsible for the high change in the growth rate of 1.5% to 11% between 2011 and 2015.

Environmental factors that contribute to the use of e-cigarettes among the youth include institutional factors, community factors, and public policy. The poor regulation of e-cigarettes has led to high penetration of e-cigarettes among teenagers resulting in an

epidemic that may strain the resource in healthcare management. Such poor regulation constrains the cessation of this culture. Peer pressure among teenagers contributes to the propagation of using e-cigarettes (Milton et al., 2004). Poor development and implementation of measures curbing this epidemic management have contributed to the growth of this culture over the years. For example, the glamorous advertisements of cigarettes in media are captivating and often downplays the critical information about the dangers such products pose to the consumer. The management of such challenges is critical to the realization of success in the cessation of the use of e-cigarettes and vaping.

While the use of normal cigarettes has been highly advocated against by international health organizations, NPOs, and governments, e-cigarettes have not been met with similar intensity in regulations. Conventionally, disclaimer, and age limits were published in all adverts and packaging. However, the introduction of e-cigarettes by tobacco manufacturing corporations was marketed and considered as a healthier option as compared to traditional cigarettes. Introducing the e-cigarettes reduced the intake of tar, which is highly carcinogenic. The core element of cigarettes, which is nicotine, was still retained in the e-cigarettes.

Consequently, the law that applied to conventional cigarettes ought to have been carried along to regulate sales and marketing strategies (Milton et al., 2004). The e-cigarettes were categorized as different products, thus being regulated more leniently compared to other substances that contain a high content of nicotine. The NPOs term their actions as a failure to protect the American youth from e-cigarettes and a variety of tobacco products in the market (ALA, 2019). Additionally, this made it possible for teenagers not yet of the legal age limit to access e-cigarettes with ease.

The ALA reported that the Food and Drug Administration was to be held accountable for the high prevalence of the use of e-cigarettes and vaping. In 2018, the FDA instituted measures that would encourage the cessation of using e-cigarettes among the youth. The organization terms the lenient regulation of e-cigarettes, as a failure to protect the American youth from e-cigarettes and a variety of tobacco products in the market (ALA, 2019). The report on the state of tobacco control released in 2019 revealed that the American lung Association was against efforts by the FDA to reduce access to tobacco among the youth. Notably, the institution and implementation of policies aimed at reducing access to tobacco products among the youth.

The Local Public Health of Minnesota developed a State-wide Health Improvement Program (SHIP) at the request of the Minnesota Legislature in response to the rising cost of health and health care. The core elements of the policy were to strengthen personal knowledge and skills, educating providers, reviewing changing organizational practices, promoting community education, networks, fostering coalitions, mobilizing neighborhoods in the execution of the plan, and influencing policy and legislation (Glanz & Bishop, 2010). For instance, the management of the risk in SHIP, any physical activity, or nutritional involving tobacco was handled in a four levels strategy.

The health risk that the populations affected by the use of tobacco were mitigated by strengthening individuals, promoting public education, proper training of health providers, and fostering coalitions towards the cessation of the use of tobacco in all forms (Harvey & Chadi, 2016). The management of SHIP established a committee that called upon the employees in health care and the rest of the community to help with the

mitigation of tobacco use (World Health Organization [WHO], 2012). The community was provided with the SHIP manual to select their preferred interventions within the SHIP framework.

The methodologies applied in the mitigation of health risks are in line with the communal approach in the management of health challenges. The epidemic in the use of e-cigarettes is based on one of the SHIP settings, such as community, worksite, school, or health care. The different approaches applied in the management of the health challenges were found to be a feasible means of development in the reinforcement of strategies and communal engagements. The population-based and the individual-based approaches were found to be effective in the implementation of the policy by offering the means to access people of interest and tailoring the Centre for Disease Control recommendations to suit the unique conditions in the community accordingly. Frequently, there is an oversight of the unique characteristics of a healthy population in the generalized implementation of these measures.

The behavioral psychology measures taken to inhibit the spread and growth of this culture have made focus on personal change. These measures seek to initiate in these norms by helping individuals reprogram their social behaviors towards complete cessation in the use of tobacco. However, the approach did not consider contextual factors in entirety. The influence in behavior and social influence is barely acknowledged in some of the SHIP frameworks that rely on the SCT theory (Huynh et al., 2018). SCT does not acknowledge the impact of physical environmental challenges, such as unemployment.

The promotion of health through these services makes it possible to meet the challenges associated with the creation of a common understanding. The key decision-makers within a community often function within limited periods, especially when planning is tied to funding. The management of these requirements makes it necessary for the organization to address the challenges associated with the creation of a good balance.

Organizational Background and Context

The project was implemented at the American Lung Association (ALA), which is a leading NPO working on saving lives through the improvement of lung health and the prevention of lung diseases. The organization works in collaboration with different donors, volunteers, program and event participants as well as staff to provide lung health education. Lung disease research, support, programs, services as well as advocacy.

With regard to the e-cigarette and vaping problem, ALA has introduced an education program referred to as Nicotine Dependence: Education, Prevention, Tobacco, and Health (INDEPTH) and which acts as an alternative to suspension and citation of teens engaged in e-cigarette smoking or vaping (ALA, 2020). The education program provides an alternative approach to sole focus on punitive measures. Consequently, the interactive program educates students about nicotine dependence; promote alternative health behaviors and activities as well as strategies to be used to kick unhealthy addiction. The program is free and available to all schools and communities that seek to help teens make healthier choices. The effectiveness of the program is, however, not well established yet. This, therefore, creates a need to undertake a project that helps determine how the efficacy of this education program is perceived.

Role of the Doctor of Public Administration Student

` As a Public Administration scholar, I have an interest in the practical problems affecting the public and the development of evidence-based practices to address these problems. I am obligated to research on such problems and provide evidence that can be used in decision making by the stakeholders in this field; thereby, contributing to positive social change. In this project, my role involved searching for evidence on the perceived effectiveness of ALA's education program in reducing e-cigarette use and vaping. I analyzed the qualitative evidence through content analysis in order to identify emergent patterns and themes and make recommendations that can be used to improve the programs.

The motivation the DPA scholar is to act on the evidence on the increased use of e-cigarette and vaping. I am also motivated by seeing many teens admitted to hospitals due to smoking-related diseases. Having interacted with such teens, I have learned that most are unaware of the risks they expose themselves to e-cigarettes and vaping. This has inspired me to determine the perceived effectiveness of educational programs being implemented by organizations such as ALA. The project may have suffered potential bias due to the subjective selection of the evidence supporting the effectiveness of education programs targeting vaping. However, I tried to be as objective as possible and to consult experts on the selected sources to minimize bias. Triangulation through the use of evidence from different sources such as ALA, journal articles, and other publications to minimize bias.

Summary

The reviewed literature indicates that the use of e-cigarettes and vape pens has increased, especially among the youth. The increased use is associated with different factors such as convincing advertising, personal beliefs, product designs, and glamorization of the use of e-cigarettes and vaping. E-cigarettes are believed to contribute to health challenges such as cardiovascular and lung disease while increasing the risk of certain types of cancers. NPOs have adopted different measures such as campaigns, evaluation of tobacco regulation, and education programs to mitigate the increased use of e-cigarettes. However, there is persistent use of e-cigarettes and vaping among teenagers despite the implementation of educational programs by NPOs such as ALA. This has promoted the need to determine the perception of the effectiveness of such programs. Having identified this gap, the next section presents a broad methodology that was followed to answer the research question and achieve the project objectives.

Section 3: Data Collection Process and Analysis

Introduction

The pervasiveness of e-cigarettes and vaping among teenagers has led to the need for effective interventions to address the problem. One type of intervention that NPOs such as ALA have adopted in response to this issue is educational programs. For instance, ALA (which was the focus of the present project) introduced an educational program referred to as Nicotine Dependence: Education, Prevention, Tobacco and Health (INDEPTH), which acts as an alternative to suspension and citation for teens engaged in e-cigarette smoking or vaping (ALA, 2020). This educational program provides an alternative to solely punitive measures. This interactive program educates students about nicotine dependence and promotes alternative health behaviors and activities as well as strategies to be used to kick unhealthy addiction. The program is free and available to all schools and communities whose leaders seek to help teens make healthier choices. The effectiveness of the program, however, is not yet well established.

To determine the effectiveness of the INDEPTH program, ALA (2019) used a sample of 11 sites in the United States to implement a pilot program that included middle schools and high schools in suburban and rural communities. The findings showed that 60% of student participants indicated their willingness to quit smoking after the completion of the program. However, the effectiveness of an intervention cannot be determined from one study. Moreover, the survey was aimed toward determining areas for improvement, rather than the effectiveness of the program—hence the need for a project evaluating the effectiveness of the intervention.

The purpose of this project was to examine the perceived efficacy of ALA's educational program in promoting cessation of e-cigarette and vaping pen use. Notably, there have been few scholarly papers or research studies focusing on educational interventions and their efficacy in promoting e-cigarette cessation (ALA, 2019; Thomas et al., 2015); hence, this project sought to address this gap in the literature. I sought to determine the efficacy of measures implemented by ALA toward cessation of e-cigarette and vaping pen use, as well as their perceived effectiveness. The resulting analysis informed suggestions for preventing the rapid growth of vaping among youth to avert nicotine addiction and the health risks that are caused by nicotine intake. Based on the findings, I was able to develop recommendations on suitable measures that the selected organization (ALA) and other NPOs can implement to promote health.

NPOs play a critical role in the mitigation of the national health crisis related to the use of tobacco. Campaigns, among other measures, have been undertaken in order to mitigate the challenges presented by the use of e-cigarettes and the vaping epidemic. NPOs such as Ash and Parents Against Vaping e-Cigarettes (PAVe) focus on the reduction of smoking among teenagers. Their functions include conducting campaigns in educational institutions and online platforms, as well as the introduction of programs such as sports competitions. Other activities dedicated to the management of this epidemic include evaluation of the regulation of tobacco, tobacco product advertising, and tobacco distribution (Reagan & LaVito, 2019). Healthcare NPOs have been proactive in conducting research to identify why the use of e-cigarettes and vaping is still prevalent despite numerous efforts by the government, international health organizations, and NPOs toward the eradication of this culture.

Educational programs conducted toward the prevention of teens using e-cigarettes and vaping aim to mitigate the individual and communal risks that are presented by the use of tobacco. The objective of such measures is to promote the worth, dignity, and development of individuals, communities, organizations, institutions, cultures, and societies for better human and social conditions. Multiple research studies conducted by NPOs has been instrumental in the formulation of policies critical in protecting youth from the harmful effects of vaping (Hu, 2018). For instance, doctors, researchers, and nonprofits have flagged the e-cigarette company Juul for its deceptive marketing techniques and the health risks associated with its e-cigarette products.

This section of the project describes my plan for collecting and analyzing data for the evaluation of the education programs initiated by the ALA and other NPOs to control the crisis of e-cigarette use. A qualitative research design based on secondary sources of data was employed to examine past studies on the educational programs developed by NPOs. This section covers the sources of evidence that were used in the project, protections or ethical considerations observed in the process, and analysis and synthesis of the evidence.

Practice-Focused Question

NPOs such as ALA have adopted measures to curb the increased use of e-cigarettes and vape pens. One of these measures involves the implementation of educational programs aimed at creating awareness of the health effects of e-cigarettes. For example, ALA has an educational initiative known as INDEPTH that offers an alternative to suspension and citation for teens engaged in e-cigarette smoking or vaping (ALA, 2020). However, there was a paucity of evidence supporting the program's

effectiveness. While this project did not provide evidence of the program's effectiveness, it may encourage evaluation studies by highlighting specific perceptions about effectiveness. The project was guided by the following practice-focused question: Are the educational programs adopted by NPOs toward the prevention of teens' use of e-cigarettes and vaping perceived as effective?

The purpose of this qualitative project was to investigate the perceived efficacy of ALA's INDEPTH program. The qualitative design aligned with the practice question as it was founded on the philosophical assumption that the truth is subjective and is developed intersubjectively (Mertens, 2010). Consequently, the design was used to explore participants' views, perceptions, and attitudes toward phenomena.

Sources of Evidence

In this section, I discuss my use of databases such as Google Scholar and PubMed to identify and gather relevant information for this project, as well as the terms I used to conduct searches through the Walden University library. I conducted a systematic review of relevant published findings and conclusions from other researchers and scholars. Qualitative secondary data were collected from the selected organization, ALA. Data on previous studies carried out to determine the perceived effectiveness of programs such as INDEPTH were reviewed and analyzed.

The articles that were reviewed provided insights into the effectiveness of educational programs in inspiring cessation of e-cigarette use in general. The secondary data collected from ALA aided in answering the practice-focused question in relation to ALA's INDEPTH program. The findings were compared to determine emergent patterns and themes in relation to the effectiveness of the educational programs. These patterns

and themes aided in the identification of actionable recommendations for improving the programs.

Published Outcomes and Research

I conducted a systematic review of relevant published findings and conclusions from other researchers and scholars. I accessed journals, online periodicals, and books to collect data with regard to the efficacy of the educational programs initiated by specific NPOs and to perform a general overview of fallacies in the strategies employed by such organizations. Articles were retrieved from various databases, including Google Scholar, the National Center for Biotechnology Information (NCBI), JSTOR, CNBC, The Guardian, National Academy of Sciences (U.S.), Sage Publications, Community Toolbox, DOAJ, and Institutional Repository of North-West University. Additionally, materials published by ALA on the INDEPTH program were evaluated. Keywords such as *education programs on e-cigarettes, teen education on nicotine use,* and *educational interventions for vaping* were used to query the databases and retrieve relevant articles.

The scope of the review was limited to research or articles published within the last five years to ensure that only recent findings were analyzed in the project. To ensure the validity of the information gathered, the sources were limited to newspaper articles; journal articles, and books; reports from NPOs and international health organizations; and online periodicals. Only fully accessible publications were used in the project. To ensure that the search was exhaustive and comprehensive, the keywords were used interchangeably across the different databases. Abstracts of the retrieved articles were reviewed to determine the relevance of each article.

Evidence Generated for the Administrative Study

The ALA website was used to retrieve secondary data specific to the INDEPTH program. The organization invests in medical and scientific research toward enhancing the quality of life for lung disease patients. ALA also invests in clinical trials focusing on new interventions for preventing, treating, and diagnosing lung diseases. Signature reports on the organization's advocacy initiatives were reviewed in a bid to search for evidence on the effectiveness of the education program.

Procedures

The process started with a review of the Research & Report and Policy and Advocacy sections of ALA's website. The various categories of published materials were analyzed, followed by narrowing down the most relevant categories. This was followed by a review of articles under the relevant categories to retrieve relevant information. The search icon on the website was used to query the database and retrieve relevant articles. This was done using *INDEPTH program* as the search term. The qualitative data retrieved from the organization's publications and reports were synthesized along with the data from journal articles.

Protections

Data were collected mainly from secondary sources. The use of secondary data is considered a highly ethical practice due to the ability to maximize the value of existing public investment in the collection of data. With secondary data, the impact on the safety of participants is minimal as compared to the use of primary data. In other words, the use of secondary data minimizes the burden to the respondents. In the present project, only published findings that were publicly available were used. The findings have been

attributed to the sources using appropriate citations, with a full reference list at the end of this document.

Analysis and Synthesis

The collected qualitative data were analyzed manually through the use of the content analysis method. Content analysis involves systematic reduction and analysis of information with the aim of identifying themes and extracting meaningful interpretations (Roller, 2019). The interpretation is done in consideration of the context of the data, based on the assumption that useful conclusions in content analysis necessitate contextual understanding. This further suggests that textual units cannot be independent of each other (Roller, 2019).

Several measures were adopted to ensure the accuracy and credibility of the findings. For instance, the selected data collection method was deemed the best suited for the project because I purposively identified and retrieved only data related to the practice-focused question. The selection of an appropriate unit of analysis ensured the credibility of the analysis (Elo et al., 2014). Further, I examined the data critically to eliminate any possibility of bias. I also developed a categorization matrix to aid in the development of codes, themes, and subthemes from the data.

A deductive approach was adopted during content analysis. The approach starts with the organization phase, whereby a categorization matrix is developed, followed by review of the content and identification of codes exemplifying the identified categories. The codes were used to guide the delineation of emergent themes and patterns. This was followed by reporting of the arising themes and subthemes.

Summary

A qualitative approach was used to determine the perceived effectiveness of ALA's education program in promoting cessation of e-cigarette use. Secondary qualitative data were retrieved from various publications such as journal articles, periodicals, and books, among others. Academic databases were used for the purpose of retrieving relevant articles. ALA's website/database was also queried to retrieve publications on the INDEPTH education program. The collected data were analyzed through deductive content analysis to identify prevailing patterns and themes. The next section presents the project findings.

Section 4: Evaluation and Recommendations

Through this project, I sought to address the problem of e-cigarettes and vaping. The need to avoid multiple diseases associated with cigarette smoking has led to companies specializing in the processing of less harmful tobacco uptake methods by developing and selling e-cigarettes. Vapes are the most commonly used tobacco products among youths and school students. The surge in the availability of e-cigarettes in the market, with the associated marketing and promotion of nicotine-containing products, has exposed many youths to vaping. This has raised concerns among public health representatives about the rise in vaping among young individuals who have not previously smoked. Various educational programs have been developed by NPOs for the prevention of vaping by teenagers. The programs provide opportunities for youths to learn about the adverse health effects of e-cigarette smoking as they provide credible and in-depth research on the use of e-cigarettes. This project focused on the evaluation of the perceived effectiveness of educational programs offered by ALA to prevent teens from using electric cigarettes and vaping. The problem of interest in this study was a lack of information on the ALA program's perceived effectiveness in addition to a lack of specific evaluation studies.

To implement the project, secondary qualitative data were utilized, which I gathered through a literature search in journals, newspapers, and books. Qualitative secondary data from the focus organization, ALA, were also reviewed. The ALA website was used to retrieve secondary data specific to the INDEPTH program. The organization invests in medical and scientific research toward enhancing the quality of life for lung disease patients. ALA also invests in clinical trials focusing on new interventions for

preventing, treating, and diagnosing lung diseases. Signature reports on the organization's advocacy initiatives were reviewed in a bid to search for evidence on the effectiveness of the educational program.

Journals, online periodicals, and books were evaluated to collect data with regard to the efficacy of the educational programs initiated by specific NPOs and to develop a general overview of the fallacies in the strategies employed by such organizations. Articles were retrieved from various databases, including Google Scholar, NCBI, JSTOR, CNBC, The Guardian, National Academy of Sciences (U.S.), Sage Publications, Community Toolbox, DOAJ, and Institutional Repository of North-West University. Keywords such as *education program on e-cigarettes, teen education on nicotine use,* and *educational interventions for vaping* were used to query the databases and retrieve relevant articles. Only sources in English, published within the last five years, and evaluating educational interventions for NPOs were considered.

Content analysis was used as the analytical strategy. The first step was identification of the research question and its constructs. The practice-focused question was the following: Are the educational programs adopted by NPOs toward the prevention of teens' use of e-cigarettes and vaping perceived as effective? The constructs therefore included e-cigarettes and vaping and the perceived effectiveness of educational programs.

Once I had identified the research question and constructs, the next step was identifying the texts to be examined. This was done through the aforementioned search strategy. The next step involved identifying the categories to be used. This was achieved through the focus question in addition to the use of data derived from the retrieved sources. A thematic scheme was developed from the data in the form of subheadings to

be used in the analysis. For each subtheme, there needed to be at least two sources of literature to support the findings.

Findings and Implications

This section presents the findings obtained from the review of secondary sources on the perceived effectiveness of educational interventions by NPOs in reducing vaping and e-cigarette use among teens. The findings are organized by themes that were derived from the data collected. The implications resulting from the findings are discussed, along with potential implications for positive social change.

Nicotine Dependence: Education, Prevention, Tobacco, and Health Program and Its Perceived Effectiveness

The focus organization for this project was ALA. One intervention that the association has adopted to reduce the use of vaping and e-cigarettes among teens is the use of INDEPTH, a program designed to act as an alternative to suspension and citation of teens engaged in e-cigarette smoking or vaping (ALA, 2020). A review conducted on INDEPTH using ALA's website and other online information sources indicated that the program is presented by trained adults in four 50-minute sessions. It is organized in such a way that, in each session, a different tobacco-related issue is covered, with participation facilitated in either a one-on-one or a group setting. The primary goals of the program are educating students about nicotine dependence and cravings and consequently providing them with guidance on the process of identifying their reasons for chewing, smoking, or vaping tobacco products.

Any adult can undertake online INDEPTH training, with facilitators receiving a step-by-step guide that can be used in planning and implementing the program at schools

or community-based institutions. The first session is about getting the facts and involves participants receiving a description of the program. The second session addresses nicotine dependence. During this session, the facilitator explains to the teens the harmful effects of nicotine and tobacco products. The third session is dedicated to an explanation of alternatives to tobacco use. The facilitator assists teens in comprehending their urges and developing healthy ways to replace tobacco use. The fourth and final session, referred to as Past, Present, and Future, encompasses conversation on steps to come and what teens can do to avoid future tobacco-related problems.

To test the perceived effectiveness of the INDEPTH program, ALA (2019) recruited 11 sites in the spring of 2019 to take part in a pilot. Diverse locations were selected to participate that included middle schools, high schools, and alternative schools, as well as a court system serving urban, suburban, and rural communities. ALA used its external evaluator, Research & Evaluation Group at Public Health Management Corporation (R&E Group), to develop online surveys for gathering feedback and measuring the perceived effectiveness of the program. The survey contained questions touching on various areas to assist in the improvement of the program and to determine whether it was perceived to be effective. The facilitators were first asked to describe their roles in the schools and communities pertaining to vaping and e-cigarettes. After the implementation of the program, the online survey required respondents to state whether they would recommend the program to others. Participating students were asked whether they were willing to try to quit nicotine/vaping and other tobacco products after undertaking the program. The respondents were divided per gender by the survey. The respondents were also asked to indicate their age and racial backgrounds.

The participants in the pilot (ALA, 2019) included students (n = 66), adults who facilitated the program (n =11), as well as administrators (n =11) of the schools or institutions where the program was implemented. A majority of the respondents were male (68% identified as male, 30% identified as female, and the remainder identified as other). In terms of racial background, 67% of the respondents were White, 15% were American Indian or Alaskan Native, 11% identified as multiracial, 5% were African American, and 3% were Hispanic or Latinx. The average age of respondents was 16.3 years. Of all the respondents, 71% indicated they had either used or were using e-cigarettes, 27% used cigarettes, another 27% used smokeless tobacco, and 6% cigars while 2% used corn pipes.

All of the surveyed adults, including facilitators and school administrators, reported that they would recommend the program to other schools and institutions in the area, which demonstrated positive perceived effectiveness. The program outlined alternatives to tobacco use. The top three activities that students said that they would use after the program were using gum, candy, or toothpicks; drinking water; and doodling or drawing. Additionally, more than half of the students indicated their willingness to try to quit the use of nicotine, vaping, and tobacco products after the end of the program. In total, 60% of the students reported willingness to quit, while 25% said that they would consider quitting. Only 16% said that they would not quit even after undertaking the program. The activities noted as important in making a plan to stop vaping and using e-cigarettes included the “My Nicotine/Tobacco Budget” activity.

The findings from the INDEPTH pilot, therefore, showed that this education intervention was perceived as effective in reducing teens’ usage of e-cigarettes and

vaping. The majority of respondents indicated a likelihood of stopping vaping and e-cigarettes after undertaking the program, hence the need for its implementation in other learning institutions. The activities of INDEPTH need to be improved to increase the overall perceived effectiveness of the program. Positive comments that the students gave included the following: “Enjoyed all of the facts,” “Showed me that the school cared,” “It was focused on the student,” “I wasn’t afraid to speak up,” and “Held me accountable.” Therefore, improvements to the program need to be centered on such aspects.

Perceived Effectiveness of Educational Interventions by Other Nonprofit Organizations

Apart from INDEPTH, researchers have explored other educational interventions and determined their perceived effectiveness. In a quality improvement project, Fitzwater (2020) sought to determine whether educational programs focused on the dangers of vaping changed the attitudes of students in middle school. The project entailed providing students with packets containing a demographic survey on orange paper, a pre-educational questionnaire on green paper, and a posteducational questionnaire on red paper. First, the students’ perceptions of the dangers of vaping were tested by asking them to complete some questionnaires. An educational intervention was then implemented in the form of a video lesson that demonstrated the dangers of vaping and e-cigarettes. A posttest was then done to assess change in perception following the implementation of the educational program. The results revealed that the educational intervention was successful in changing the knowledge and beliefs of adolescents about tobacco use. After the video lesson, an 8.2% increase (p-value < .0001) in the number of students who considered e-cigarettes dangerous was recorded, which indicates that

educational interventions were perceived as effective in reducing the use of vaping and e-cigarettes.

The University of Michigan Institute for Social Research Survey Research Center (2019) reviewed the perceived effectiveness of This Is Quitting, an educational intervention that uses text messages to educate youth. Truth Initiative developed the intervention to help teens and young adults between 13 and 24 years of age quit vaping. The program entails daily text messages from peers who have either attempted or succeeded in quitting e-cigarettes or vaping devices. The design of the program ensures that youths develop skills and confidence in reinforcing social norms and supporting quitting, in addition to illustrating positive and challenging aspects of quitting. The program participants receive automated, tailored messages daily regarding their enrollment or quit date. A 3-month pretest–posttest study was done to determine the perceived effectiveness of this program. The evaluation revealed that within the first 5 weeks of the program, 13,421 teens and 13,750 young adults were enrolled. After 2 weeks of enrollment, 61% of the participants reported having reduced their vaping device usage or having quit altogether. Within 3 months, 25% reported having not engaged in vaping in the past 7 days, and 16% had abstained from vaping for 30 days (Substance Abuse and Mental Health Services Administration, 2020). While a randomized controlled trial is underway to determine the overall effectiveness of the program (University of Michigan Institute for Social Research Survey Research Center, 2019), these early results show that the educational intervention is perceived as effective.

Another educational intervention that has been evaluated on the basis of existing data is smokeSCREEN. This program was developed by the play2PREVENT Lab at Yale

University and was evaluated using funding from the National Institute of Health (NIH), Food and Drug Administration, and CVS Health Foundation. It entails a videogame intervention whose purpose is changing risk perception, beliefs, and knowledge regarding e-cigarettes. In the videogame, players assist their character in navigating situations where tobacco use, such as e-cigarettes and vaping, may be present. Content areas of the intervention include e-cigarettes, flavored tobacco, health effects of smoking, tobacco marketing, and addiction. A full-scale evaluation study was implemented to determine the perceived effectiveness of this intervention (Connecticut State Department of Public Health, 2020). The findings of the evaluation were that the program effectively changed beliefs and knowledge of e-cigarettes and vaping among the participants in a positive way. Older adolescents notably reported health beliefs and greater knowledge about vaping after the intervention when compared to younger adolescents. Therefore, it can be concluded that educational interventions are perceived to be effective in reducing vaping and e-cigarettes, particularly among older adolescents.

Table 1

Comparison of INDEPTH and Other Programs

Program	Details	Evaluation	Findings
INDEPTH	Taught by trained adults in four 50-minute sessions. Different tobacco issue covered in each session.	Pilot conducted at 11 sites in 2019. Online survey used to gather feedback from respondents.	All respondents would recommend the program to others. 60% of the students reported willingness to quit, while 25% said they would consider quitting; thus, perceived as effective.
Fitzwater (2020) program	An educational intervention was implemented in the form of a video lesson that demonstrated the dangers of vaping and e-cigarettes.	Students completed questionnaires on perception of vaping. Posttest after video training.	8.2% increase (p-value < .0001) in the number of students who considered e-cigarettes dangerous after video lesson; thus, perceived as effective.
This Is Quitting	The program entails daily text messages from peers who have either attempted to quit or succeeded in quitting e-cigarettes or vaping devices.	A 3-month pretest-posttest	61% of the participants reported having reduced their vaping device usage or having quit altogether. Perceived as effective.
smokeSCREEN	Entails a videogame intervention whose purpose is changing risk perception, beliefs, and knowledge of e-cigarettes. In the videogame, players assist their character in navigating situations where tobacco use, such as e-cigarettes and vaping, may be present.	Full-scale evaluation	Program effectively changed the participants' beliefs and knowledge of e-cigarettes and vaping. Perceived as effective.

Unanticipated Limitations and Outcomes

The findings from the existing data discussed above had several limitations. The majority of existing educational interventions have been evaluated only once, which has a potential negative impact on the reliability and validity of the findings. The INDEPTH program, for instance, has only been evaluated once in a pilot study. There is, therefore, a need to evaluate the perceived effectiveness of the program following its rolling out. Additionally, the evaluation of the INDEPTH program was commissioned by the implementing organization, ALA; hence, it may not provide an accurate picture. There remains a need for evaluation by outsiders. Similarly, assessment of the effectiveness of the educational intervention This Is Quitting has been done only once. However, a randomized controlled trial is being conducted on the program, which will improve the reliability of the evaluation. The smokeSCREEN program's effectiveness has also not been evaluated by multiple studies; hence, its actual perceived effectiveness cannot be determined. These limitations imply the need for further evaluations of NPOs' educational interventions.

Potential Implications for Positive Social Change

The secondary data reviewed for this project demonstrated that the effectiveness of educational interventions in preventing e-cigarette use and vaping is perceived positively. This finding may have implications for positive social change. Students may enroll at higher rates in such programs, especially those struggling with addictions. Parents may support their children who are struggling with vaping in enrolling in such programs and may continuously monitor them while undertaking preventive interventions (Claire et al., 2020). NPOs may continue developing more programs and expanding their

target audience to reach as many children as possible with the confidence that such programs are perceived as effective. Because the findings show that interventions appeal differently to diverse age groups, program developers may be encouraged to customize programs by age group. Educational institutions may also begin to adopt the educational interventions developed by NPOs. Programs such as INDEPTH may serve as substitutes for policies such as suspension, as they are perceived to be more effective (ALA, 2020).

With the perceived effectiveness of these intervention programs, large corporations, community organizations, and school districts may increase support of education interventions adopted by NPOs through donations and other corporate social responsibility mechanisms. School systems and communities would benefit from the reduction or cessation of e-cigarettes use and vaping among teenagers due to reduced addiction. Furthermore, society would benefit from the cessation since the healthcare costs directed towards addressing the adverse effects of e-cigarettes and vape pens would be minimized (Milicic et al., 2018). As a result of these implementations across the educational, nonprofit, and for profit sectors, the levels of addiction to vaping and e-cigarettes may be reduced. Learning among the students may then increase as vaping has been associated with slow brain development, reduced concentration, poor self-control, and reduced attention (ALA, 2020).

Recommendations

To a larger extent, the findings showed that the educational interventions developed by NPOs are perceived to be effective in reducing the use of vaping and e-cigarettes. Consequently, there is a need for appropriate plans, polices or legislations for

the implementation of these interventions. A number of recommended frameworks are recommended for use by implementing organizations.

Recommendations on Perceived Effectiveness

The study findings have shown that the NPOs educational interventions are majorly perceived to be effective. Hence, it is recommended that NPOs and learning institutions continue developing evidence-based interventions including education programs and implement them to addressing the vaping and e-cigarette programs. Parents should therefore take advantage of the perceived effectiveness of the educational interventions and enroll their children. It is also recommended that the government and other organizations provide more funding to NPOs to facilitate development and implementation of such education programs. NPOs and other implementing organizations should also research on methods of increasing perceived effectiveness of their programs.

School systems/districts could also adopt policies supporting the implementation of educational interventions in schools. This would make it easier for students struggling with e-cigarette and vape pen addiction to access and benefit from the programs. Milicic et al. (2018) established that e-cigarette control policies adopted at the school-level are effective in minimizing or preventing e-cigarette use. The researchers emphasized that the school policy environment represent a crucial context for shaping tobacco use behavior among the youth.

Substance Abuse and Mental Health Services Administration's Strategic Prevention Framework

Substance Abuse and Mental Health Services Administration (SAMHSA) has developed a wide-ranging five-step approach that can be used in understanding and

addressing the problem of vaping and e-cigarettes (SAMHSA, 2020). The framework can be adopted at the state or community level. The first step of the strategy is assessment. This entails identifying needs with the use of qualitative and quantitative data. For instance, the incidence and prevalence of vaping among teens or youths need to be determined as well as the factors that influence vaping. The second step entails assessing the capacity of the implementing organization. Before an education intervention can be implemented, it is essential to determine what resources the community or the implementing entity possess and what is needed to reduce vaping. Some of the resources that need to be considered, for instance, include human resource, organizational, community as well as financial resources. After capacity is assessed, the next step should be planning, which entails coming up with a wide-ranging implementation plan (SAMHSA, 2020). The plan should include goals, objectives, strategies, programs, as well as policies for addressing vaping prevention priorities identified during the assessment and determination of capacity stages. The next step is the implementation where the selected program or policy should be put into practice (SAMHSA, 2020). Lastly, evaluation is carried out whose aim is assessing whether the program or policy is leading to the intended effect. For instance, whether there is an increased reduction in vaping following the intervention.

SAMHSA's Strategic Prevention Framework also recommends continuous assessment of the community needs for better interventions. Vaping is rapidly changing, and hence the strategies that are effective now may not be effective in the future. For instance, the population engaged in vaping has the likelihood of changing over time. Similarly, the substance being vaped may keep varying. Another cause of rapid change in

vaping behavior is different federal and state laws being enacted. Hence, regular assessments enable communities to ascertain the implementation of the most relevant interventions and open room for revisions, adaptation, or needed changes.

Key Considerations in the Implementation of Nonprofit Organizations' Educational Interventions

Another recommendation area based on the findings of the secondary data reviewed pertains to the factors that need to be considered during the implementation of education interventions. The first consideration should be the engagement of stakeholders. To achieve any success with the majority of educational interventions such as INDEPTH, it is essential to get the backing of the school administrators, nurses, and other healthcare personnel, children advocacy organizations, parents, and their association as well as government agencies and officials (ALA, 2020). Besides, intervention needs champions who will encourage others. Hence, for the successful implementation of education programs, stakeholders must be addressed, and their needs determined. A good strategy would be identifying the most appropriate champions in different settings (Glanz & Bishop, 2010). For instance, champions can be the school administrator, parents, teachers, community members, or students themselves (Bembenutty et al., 2016). The stakeholders need to be engaged from the initial stages. Strategies to make appeals to the stakeholders include providing a mix of present data on vaping in schools or the community as well as personal stories from victims.

Financing is another critical consideration in the implementation of educational interventions. The majority of educational interventions come at no cost to the clients, making obtaining and sustaining finances for the programs difficult. Some of the finances

required to run the program include the acquisition of program materials, training resources, and compensating program staff. A good recommended strategy for addressing this challenge is through adequate planning (Bembenutty et al., 2016). Implementers of such programs, including NPOs like ALA, need to begin with cost estimates and to develop appropriate budgets. Aspects such as time and cost related to relationship development, capacity building, staff training as well as evaluation need to be factored in (ALA, 2020). A comprehensive plan needs to be put in place for addressing and allocating resources for implementing, maintaining, and evaluating the program over time.

Another crucial consideration that is recommended for the implementation of the education interventions is the tailoring of these interventions. The findings of this project demonstrated the scarcity of data on vaping interventions, particularly as pertains to age, race, and gender. Hence, there is a need for adaptations and adjustments to fit the relevant, targeted groups (Fitzwater, 2020). One strategy that this problem can be solved is through the utilization of the culturally and Linguistically Appropriate Services (CLAS), which is developed by the U.S. Department of Health and Human Services (Weech-Maldonado et al., 2012). CLAS is based on the standard that care should be provided in an effective, equitable, understandable, and respectful manner. Using this service can thus ensure interventions are tailored to specific groups.

Recommended Implementation and Evaluation Procedures

The first step that should be followed by the NPOs in the implementation of the educational intervention is needs assessment. This entails determining the needs of the teens or the children for whom the interventions are directed. The assessment can be done

through surveys and other data collection techniques to understand the reasons for vaping, the extent of the problem, and hence determine the focus of the interventions. The second step in the implementation would be to develop the actual education intervention. This would be based on the data collected from the children and teens. Additionally, literature review on effective educational intervention would be done to inform the content to be developed. The organization need to appoint a person to oversee the development of the curriculum to be used based on literature and need assessment conducted. The next step would be determination of the stakeholders and their roles. For instance, recruitment of students to take place in the program need to be coordinated by schools administrators, teachers, and students. The next step would be recruitment of students to participate in the program. The NPO in collaboration with schools and parents would identify children who have a vaping problem and recruit them to take part in the program. The next phase would be the implementation where the training would be carried out. Different methods can be used such as online learning and physical classroom sessions. For online learning, follow-up would be made for completion of different parts of the program. The last step would be evaluation. This would include determining the effectiveness of the program using methods such as determining the number of children who stop vaping after taking the program. Post-training interviews or surveys would also be conducted to determine how the program can be improved.

Strengths and Limitations of the Project

The project purposed to determine the perceived effectiveness of educational programs adopted by NPOs towards the prevention of teens' use of electric cigarettes and vaping had some strengths and limitations. One strength of the project was based on

available data and evidence. The project was based on a review of different educational interventions implemented by NPOs; with more focus on INDEPTH developed by ALA. For each program or intervention reviewed, an evaluation of the perceived effectiveness was done. The recommendations of the project are therefore based on real evidence of the evaluation conducted on the perceived effectiveness of each of the programs. Another strength of the project is its practicability. Through the review of literature, practical recommendations detailing the step by step process to be followed in the implementation have been provided. Additionally, key considerations to be made have been outlined.

However, the project has a share of limitations that may adversely affect its reliability. One limitation, for instance, is the lack of appropriate or adequate literature on the evaluation of the educational interventions. Despite the discussed education interventions being evaluated to determine their effectiveness, each intervention has been assessed majorly by a single study. Hence, their validity and reliability might be questionable. Further evaluation would be required to validate the earlier assessment. Another major limitation of the project was reliance on the secondary data, which might have been used for other purposes. For instance, while the project evaluated the perceived effectiveness, some of the data used might have tested the actual effectiveness. Hence, to address these limitations, future similar studies should rely on the use of primary data.

Future secondary-data based studies on the topic should strive to focus multiple implementing organizations. In the present project, the focus organization was only implementing one educational intervention making it difficult to determine its effectiveness. With different implementing organizations, numerous programs can be assessed which would increase the ability to assess their perceived effectiveness and

generalize the findings to a wider population. Quantitative studies can also be conducted in future to determine the number of teens who stop vaping after participating in the educational programs implemented by NPOs. The studies could use data collected from the administrators of such programs. Surveys should also be adopted to evaluate the change in attitudes among the programs' participants' in the pre-and post-intervention periods.

Section 5: Dissemination Plan

ALA (which was the focus of the present project) introduced the educational program referred to as INDEPTH, which acts as an alternative to suspension and citation of teens engaged in e-cigarette smoking or vaping (ALA, 2020). The educational program provides an alternative to a sole focus on punitive measures. This interactive program educates students about nicotine dependence and promotes alternative health behaviors and activities, as well as strategies to be used to kick unhealthy addiction. The program is free and available to all schools and communities whose leaders seek to help teens make healthier choices. However, the effectiveness of the program is not well established. This project focused on evaluation of the perceived effectiveness of INDEPTH and other educational interventions by NPOs. The available secondary data revealed a positive perception of the effectiveness of the educational intervention. Hence, these findings can be disseminated to ALA and other NPOs offering similar programs. Given the findings that the educational programs are perceived as effective in reducing vaping and e-cigarette use, plans for implementing such programs and assessing their effectiveness should be provided to the NPOs. Additionally, the educational programs may be recommended to individual students and school administrations.

The dissemination plan has several major components. The first component involves the research findings and products, which focuses on what needs to be disseminated. In this case, this will entail the project findings. For instance, it has been established that the educational interventions developed by NPOs are perceived as effective. Hence, these interventions could be implemented. However, the project also established some limitations, such as a lack of adequate evaluations of the programs,

which are necessary before implementation. As such, there is need to push for real evaluations so that program changes can be made based on concrete evidence rather than just perceptions. Another component of the implementation plan is determination of the end-users or people who will apply the findings in practice. In this project, the primary end-user is the ALA. Other end-users include other NPOs with educational interventions, schools, parents, and students themselves. The third component of the implementation is working with dissemination partners. In the present project, this will involve working with ALA and other NPOs to improve the content of the educational intervention to increase its perceived effectiveness. This will also entail working with parents and schools to increase the adoption of educational interventions. Targeted influencers will be engaged to encourage others to implement the interventions reviewed.

The effective dissemination of the project is also dependent on the use of effective communication. In the present project, effective communication will be adopted in two contexts. The first context will be interaction with various stakeholders, where the purpose of the project and what it entails will be clearly articulated. Person-to-person communication, meetings, and conferences will be used. The second context of communication will be publication of the project findings. Publications and reports will be used to reach a wide range of targeted audiences. Academic journal articles will be used to reach other scholars and implementing organizations.

The next component of the dissemination plan is the evaluation of success. This is based on the fact that dissemination is not a one-time thing but rather a continuous effort where feedback is regularly sought. I will receive continuous feedback to provide further recommendations for improvement.

Summary

Through this project, I sought to address the problem of e-cigarettes and vaping. This effort was informed by the increased use of these products, particularly among teens and young adults. One type of intervention that has been developed is the use of educational programs such as INDEPTH. Such programs have, however, not been evaluated effectively to determine their perceived effectiveness—hence the need for this project.

The secondary findings collected in the project revealed that educational interventions developed by NPOs are perceived to be effective in reducing vaping. The programs reviewed included INDEPTH, smokeSCREEN, and This Is Quitting. However, one limitation established with these interventions was that the majority of them have only been evaluated by one study, which has a potential negative impact on the reliability and validity of the findings.

The recommendations provided based on the findings included developing appropriate plans, policies, or legislation for the implementation of these interventions and keeping in mind key considerations that may affect implementation. One plan adopted for this study was SAMHSA's SPF, which consists of steps such as assessment, capacity, planning, implementation, and evaluation. Critical considerations for implementation include engagement of stakeholders, financing, and tailoring of interventions. The project findings will be disseminated using distinct approaches, including person-to-person communication, meetings, and conferences.

The study established that educational interventions by NPOs such as ALA are perceived as effective in addressing the vaping problem among youth. Hence, NPOs

should work on developing educational interventions and implementing them in communities to address the issue of vaping and e-cigarettes. Through such interventions, the adverse impacts of vaping such as nicotine addiction, health problems, self-control problems, and attention disorders can be reduced.

References

Abolfotouh, M. A., BaniMustafa, A. A., Mahfouz, A. A., Al-Assiri, M. H., Al-Juhani, A. F., & Alaskar, A. S. (2015). Using the health belief model to predict breast self-examination among Saudi women. *BMC Public Health*, *15*, 1163-1175. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4657230/pdf/12889_2015_Article_2510.pdf

Alexander, J. P., Coleman, B. N., Johnson, S. E., Tessman, G. K., Tworek, C., & Dickinson, D. M. (2016). Smoke and vapor: Exploring the terminology landscape among electronic cigarette users. *Tobacco Regulatory Science, 2*(3), 204-213. https://doi.org/10.18001/TRS.2.3.1

American Lung Association. (2019). *E-cigarettes and lung health*. https://www.lung.org/stop-smoking/smoking-facts/e-cigarettes-and-lung-health.html

American Lung Association. (2020). *INDEPTH: An alternative to suspension or citation*. https://www.lung.org/quit-smoking/helping-teens-quit/indepth

Bembenutty, H., White, M., & DiBenedetto, M. (2016). Applying social cognitive theory in the development of self-regulated competencies throughout K-12 grades. In A. A. Lipnevich, F. Preckel, & R. D. Roberts (Eds.), *Psychosocial skills and school systems in the 21st century: Theory, research, and practice* (pp. 215-239). Springer. https://doi.org/10.1007/978-3-319-28606-8_9

Bilgiç, N., & Günay, T. (2018). Evaluation of effectiveness of peer education on smoking behavior among high school students. *Saudi Medical Journal, 39*(1), 74-80. https://doi.org/10.15537/smj.2018.1.21774

Caponnetto, P., Campagna, D. Cibella, F., Morjaria, J. B., Caruso, M., Russo, C., & Polosa, R. (2013). EffiCiency and Safety of an eLectronic cigAreTte (ECLAT) as tobacco cigarettes substitute: A prospective 12-month randomized control design study. *PloS One*, *8*(6), 1-12. https://doi.org/10.1371/journal.pone.0066317

Centers for Disease Control and Prevention. (2017, February 9). *Smoking & tobacco use: Fast facts and fact sheets*. https://www.cdc.gov/tobacco/data_statistics/fact_sheets/index.htm

Centers for Disease Control and Prevention. (2018, February 20). *Smoking & tobacco use: Fast facts*. https://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/index.htm

Chalabi, M. (2019). *How many US high school students smoke e-cigarettes?* https://www.theguardian.com/news/datablog/2019/sep/18/vaping-e-cigarettes-high-school-students-total

Claire, R., Chamberlain, C., Davey, M. A., Cooper, S. E., Berlin, I., Leonardi-Bee, J., & Coleman, T. (2020). Pharmacological interventions for promoting smoking cessation during pregnancy. *Cochrane Database of Systematic Reviews*, *1*(3), 1-7. https://doi.org/10.1002/14651858.CD010078.pub3

Connecticut State Department of Public Health. (2020). *The Connecticut Department of Public Health (DPH) is investigating reports of lung injury associated with the use of e-cigarette or vaping products*. https://portal.ct.gov/DPH/HealthEducation-Management--Surveillance/Tobacco/Vaping

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE Open*, *4*(1), 1-10. https://doi.org/10.1177/2158244014522633

Fairchild, A. L., Bayer, R., & Colgrove, J. (2014). The renormalization of smoking? E-cigarettes and the tobacco "endgame." *New England Journal of Medicine, 370,* 293-295.

Farsalinos, K., Romagna, G., Tsiapras, D., Kyrzopoulos, S., Spyrou, A., & Voudris, V. (2013). Impact of flavor variability on electronic cigarette use experience: An internet survey. *International Journal of Environmental Research and Public Health*, *10*(12), 7272-7282. https://doi.org/10.3390/ijerph10127272

Fitzwater, H. F. (2020). *Evaluation of the impact of an educational intervention focused on adolescent vaping among rural middle school students* [DNP capstone, West Virginia University]. Graduate Theses, Dissertations, and Problem Reports. https://researchrepository.wvu.edu/etd/7592

Friedman, A. (2015). How does electronic cigarette access affect adolescent smoking? *Journal of Health Economics*, *44*, 300-308.

Glanz, K., & Bishop, D. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annual Review of Public Health*, *31*(1), 399-418. https://doi.org/10.1146/annurev.publhealth.012809.103604

Harrell, P. T., Brandon, T. H., England, K. J., Barnett, T. E., Brockenberry, L. O., Simmons, V. N., & Quinn, G. P. (2019). Vaping expectancies: A qualitative study

among young adult nonusers, smokers, vapers, and dual users. *Substance Abuse: Research and Treatment, 13,* 1-12. https://doi.org/10.1177/1178221819866210

Harvey, J., & Chadi, N. (2016). Strategies to promote smoking cessation among adolescents. *Paediatrics & Child Health, 21*(4), 201-204. https://doi.org/10.1093/pch/21.4.201

Hu, C. (2018). The FDA is threatening to pull Juul and other e-cigs from the market if teens don't stop vaping. https://www.inc.com/business-insider/fda-is-giving-juul-60-days-to-stop-teen-vaping.html

Huynh, A., Hamilton, A., Farmer, M., Bean-Mayberry, B., Stirman, S., Moin, T., & Finley, E. (2018). A pragmatic approach to guide implementation evaluation research: Strategy mapping for complex interventions. *Frontiers in Public Health, 6,* 1-10. https://doi.org/10.3389/fpubh.2018.00134

Jaworska, N., & MacQueen, G. (2015). Adolescence as a unique developmental period. *Journal of Psychiatry & Neuroscience: JPN*, *40*(5), 291-293. https://doi.org/10.1503/jpn.150268

Jones, C. L., Jensen, J. D., Scherr, C. L., Brown, N. R., Christy, K., & Weaver, J. (2015). The health belief model as an explanatory framework in communication research: Exploring parallel, serial, and moderated mediation. *Health Communication*, *30*(6), 566-576. http://jakobdjensen.com/wp-content/uploads/2016/04/14.-Jones-et-al.-2015-Health-Comm.pdf

López, M., Hofer, K., Taylor, D., & Bumgarner, E. (2017). *Developing Culturally Responsive Approaches to Serving Diverse Populations: A Resource Guide for Community-Based Organizations* (17th ed.). National Research Centre.

Masoudiyekta, L., Dashtbozorgi, B., Gheibizadeh, M., Malehi, A. S., & Moradi, M. (2015). Applying the Health Belief Model in predicting breast cancer screening behavior of women. *Jundishapur Journal of Chronic Disease Care, 4* (4), 25-29. http://cdn.neoscriber.org/cdn/serve/313ea/c37f4e7e6189778993b28e54498d5dac9105990b/21772-pdf.pdf

Mertens, D. M. (2010). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods*. Sage.

Milicic, S., DeCicca, P., Pierard, E., & Leatherdale, S. T. (2018). An evaluation of school-based e-cigarette control policies' impact on the use of vaping products. *Tobacco Induced Diseases, 16* (1), 35-44. https://doi.org/10.18332/tid/93594

Milton, G., Maule, C., Husten, C., Malarcher, A., Yee, S., & Backinger, C. (2004). Youth tobacco cessation: A guide for making informed decisions. Atlanta, GA : U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. http://www.cdc.gov/tobacco/quit_smoking/cessation/pdfs/youth_tobacco.pdf

Morean, M. E., Butler, E. R., Bold, K. W., Kong, G., Camenga, D. R., Cavallo, D. A., Simon, P., & Krishnan-Sarin, S. (2018). Preferring more e-cigarette flavours is associated with e-cigarette use frequency among adolescents but not adults. *PloS One*, *13*(1), 1-10. https://doi.org/10.1371/journal.pone.0189015

Murthy, V. H. (2017). E-cigarette use among youth and young adults: A major public health concern. *JAMA Pediatrics, 171*(3), 209-210. https://doi.org/10.1001/jamapediatrics.2016.4662.

Ndaguba, E., & Ijeoma, E. (2017). Exploring the epistemology of transdisciplinarity in public policy and administration in South Africa. *The Journal for Transdisciplinary Research in Southern Africa*, *13*(1), 1-10. https://doi.org/10.4102/td.v13i1.406

O'Connor, S., Pelletier, H., Bayoumy, D., & Schwartz, R. (2019). *E-cigarette use for smoking cessation1 interventions to prevent harms from vaping*. Ontario Tobacco Research Unit.

Onoruoiza, S. I., Musa, A., Umar, B. D., & Kunle, Y. S. (2015). Using health belief model as an intervention to noncompliance with hypertension information among hypertensive patient. *IOSR-Journal of Humanities and Social Sciences*, *20*(9), 11-16. https://pdfs.semanticscholar.org/8ca0/5f221fc1bd966b6b38e833236b38ff9ee56e.pdf

Oriakhi, M. (2020). Vaping: An emerging health hazard. *Cureus*, *12*(3), 1-4. https://doi.org/10.7759/cureus.7421

Palazzolo, D. L. (2013). Electronic cigarettes and vaping: A new challenge in clinical medicine and public health. A literature review. *Frontiers in Public Health*, *1*, 56-76. https://doi.org/10.3389/fpubh.2013.00056

Patiño-Masó, J., Font-Mayolas, S., Salamó, A., Arboix, M., Sullman, M. J., & Gras, M. E. (2019). Predictors of intentions to use cigarettes and electronic-cigarettes among high school students. *Journal of Multidisciplinary Healthcare*, *12*, 591-599. https://doi.org/10.2147/JMDH.S208031

Reagan, C., & LaVito, A. (2019). Walmart will stop selling e-cigarettes in the wake of vaping-related deaths. https://www.cnbc.com/2019/09/20/walmart-will-discontinue-the-sale-of-e-cigarettes-in-the-wake-of-vaping-related-deaths.html

Ritchie, D., Van Hal, G., & Van Den Broucke, S. (2018). Applying the Health Belief Model and Theory of Planned Behavior to mammography screening. *European Journal of Public Health*, *28*(4), 1-7. https://doi.org/10.1093/eurpub/cky214.250

Roller, M. R. (2019). A quality approach to qualitative content analysis: Similarities and differences compared to other qualitative methods. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, *20* (3), 1-21. https://www.qualitative-research.net/index.php/fqs/article/download/3385/4486

Schraufnagel, D. E. (2015). Electronic cigarettes: Vulnerability of youth. *Pediatric Allergy, Immunology, and Pulmonology*, *28*(1), 2-6. https://doi.org/10.1089/ped.2015.0490

Substance Abuse and Mental Health Services Administration (SAMHSA). (2020). Reducing vaping among youth and young adults. SAMHSA Publication No. PEP20-06-01-003. Rockville, MD: National Mental Health and Substance Use Policy Laboratory, Substance Abuse and Mental Health Services Administration: https://store.samhsa.gov/sites/default/files/SAMHSA_Digital_Download/PEP20-06-01-003_508.pdf

Sutton, J., & Austin, Z. (2015). Qualitative research: Data collection, analysis, and management. *The Canadian Journal of Hospital Pharmacy*, *68*(3), 1-5. https://doi.org/10.4212/cjhp.v68i3.1456

Thomas, R. E., McLellan, J., & Perera, R. (2015). Effectiveness of school-based smoking prevention curricula: Systematic review and meta-analysis. *BMJ Open*, *5*(3), 1-10. https://doi.org/10.1136/bmjopen-2014-006976.

University of Michigan Institute for Social Research Survey Research Center. (2019). Trends in lifetime prevalence of use of various drugs in Grades 8, 10, and 12 [Data set]. *Monitoring the Future*. http://www.monitoringthefuture.org/data/19data/19drtbl1.pdf

von Schönfeld, K., Tan, W., Wiekens, C., & Janssen-Jansen, L. (2019). Unpacking social learning in planning: Who learns what from whom? *Urban Research & Practice, 27*(7), 1-23. https://doi.org/10.1080/17535069.2019.1576216

Weech-Maldonado, R., Dreachslin, J. L., Brown, J., Pradhan, R., Rubin, K. L., Schiller, C., & Hays, R. D. (2012). Cultural competency assessment tool for hospitals: Evaluating hospitals' adherence to the culturally and linguistically appropriate services standards. *Health care management review*, *37*(1), 54. https://doi.org/10.1097/HMR.0b013e31822e2a4f

World Health Organization. (2012). *Health education: Theoretical concepts, effective strategies and core competencies: A foundation document to guide capacity development of health educators*. WHO.

Yoshitake, N., Omori, M., Sugawara, M., Akishinonomiya, K., & Shimada, S. (2019). Do health beliefs, personality traits, and interpersonal concerns predict TB prevention behavior among Japanese adults? *Plos One*, *14*(2), 1-10. https://doi.org/10.1371/journal.pone.0211728

Zhou, M. & Brown, D. (Eds.) (2017). *Educational learning theories*. Wiley & John.