

The Renormalization of Smoking in America: A Conceptual Model of *Vaping* Behavior

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Promoted as a safer alternative to burning (traditional, combustible cigarettes) and a means of smoking cessation, heating (chemical aerosols) is a megatrend that has re-normalized smoking in American culture. The purpose of the current study is to develop a conceptual model of vaping. A systematic review of 63 academic articles identified variables and outcomes of vaping. Five antecedents of attitude toward vaping and subsequent intention to vape and use include past behavior, self-concept, sensation seeking, risk assessment, and product awareness.

Five variables (e.g., age, gender, education, ethnicity, and attachment style) moderate the positive relationship between intention to vape and vaping. Managerial implications and challenges are proposed: 1) pro-active marketing and agile strategies to account for the inevitable regulatory interventions by the federal government to restrict promotions; 2) price sensitivity of younger consumers commands the monitoring of price strategies to defend market attacks by competitors; 3) vaping may be positioned as brain-altering delivery devices opening markets for chemicals that can be delivered through an aerosols; 4) companies face ethical challenges associated with promoting self-injurious products. Direction for future research (e.g., psychological underpinnings of the model) and limitations of the study are discussed.

Keywords: vaping, e-cigarettes, ENDS, attitude formation, non-suicidal self-injury

INTRODUCTION

The tobacco industry is one of the world's most profitable economic sectors with anticipated compound annual growth rate (CAGR) of 23.25% between 2017 and 2025 and annual revenues predicted to exceed \$86.433 billion by 2025 (U. S. News 2019). Tobacco continues to grow in part by the addition of electronic nicotine delivery systems (ENDS). It is predicted that sales of ENDS will pass that of traditional cigarettes by 2047 (Freedman 2014). ENDS represent a wide variety of devices, chemicals,

and additives that comprise the *vaping* product line. The movement to *heat* (chemical aerosol) *not burn* (traditional, combustible cigarettes) is a megatrend that is changing the social concept of smoking. Vapor users perceive *heat* as less harmful to health than traditional cigarettes (Johnson *et al.* 2017; Tomashefski 2016), although prevailing medical opinions do not support this perception (Gorzowski *et al.* 2015; Shin *et al.* 2017; Smith *et al.* 2016).

First introduced in 2003 (Alexander *et al.* 2015), vaping devices were not marketed in the United States (USA) until the mid-2000s (CDC 2019). *Vaping* product lines and additives emerged to meet consumer wants for cigarette alternatives. These products are delivered through a variety of devices including "e-cigs," "e-hookahs," "mods," "vape pens," "vapes" and "tank systems" (CDC 2019). Hereafter, combustible nicotine products (e.g., cigarettes, chewing tobacco, cigars, cigarillos) are referred to as "cigarettes" and chemical aerosols device and related products are referred to as "vape" or "vaping."

Vaping is a driver of the metamorphic transformation of tobacco industry. In 1970, social pressure to address a pandemic that was the leading cause of preventable death worldwide (Jones *et al.* 2017), federal regulations severely limited promotion of tobacco products, and pushed the industry to potential forced-extinction. Not classified as "tobacco," *vaping* devices have given the tobacco industry *another bite of the apple*. Capitalizing on a captive segment of addictive users, producers and creative entrepreneurial start-ups, the tobacco found a new market to fill the decline in cigarette revenues. Unhindered by federal regulations, vaping products benefit from access to various promotional media (e.g., television) that are no longer available to cigarettes. In its infancy, vaping represents vast untapped markets, both domestic and global, making the current study an important area of investigation.

Scientific research of consumer behavior and vaping is sparse. The purpose of this research is to develop a cohesive, conceptual framework, based on existing literature and theoretical frameworks that guides marketing initiatives. The current paper makes a theoretical contribution (i.e., conceptual model), and as such addresses a gap in the marketing literature. Existing literature, theoretical foundations, and modeling are integrated to glean the managerial implication of vaping. The following discussion speaks to vaping devices, non-suicidal self-injurious behavior (NSSI), importance of the research, methodology, conceptual model of vaping use, and a discussion, direction for future research, and limitations.

VAPING INDUSTRY

Vaping devices produce an aerosolized mixture that typically containing nicotine and flavored liquids that are inhaled (American Academy of Pediatrics 2019). Vaping includes a wide range of devices that may be categorized as follows: 1) disposable e-cigarettes (inexpensive and readily available), 2) rechargeable e-cigarettes (requires refilling and battery operated), 3) tank system e-cigarettes (high capacity and battery operated), 4) e-cigars (looks like authentic cigar and usually disposable), and 5) e-pipes (see Figure 1).

**FIGURE 1
VAPING DEVICES**



The leading vaping brand is JUUL Lab (Barkho 2019). Seeking an alternative to cigarettes, founders Adam Bowen and James Monsees applied industrial design to the smoking industry in the creation of an electronic device (JUUL 2019). Valued at \$38 billion, JUUL landed a \$12.8 billion investment from Marlboro (Brodwin 2019). In 2019, Altria, a major investor in JUUL, wrote down their shares in JUUL by \$4.5 billion reporting several underlining factors: 1) slowdown in growth of vaping sales, 2) anticipation of federal regulation to ban sale of flavoring, 3) the associated vaping-related lung illnesses, and 4) stricter regulations in other countries expected to curtail JUUL's international growth (Ho 2019).

Entrepreneurial start-up companies have found fruitful opportunities in the vaping market. In 2014, research reveals 466 vaping brands are operating world-wide, all with unique websites, and offering 7,764 unique flavors (Zhu *et al.* 2014). However, cigarettes and related tobacco products/services continue to make up the vast majority of revenues and sales world-wide and making up 93% of tobacco industry's overall value (Grand View Research 2018).

Vaping in the USA

The pervasive use and outcomes of vaping in the USA is staggering.

- E-cigarettes are most common in youth and rising at an alarming rate; youth users increased 1.5 million between 2017 and 2018 (Cullen *et al.* 2018).
- In 2018, 3.62 million middle and high school students were e-cigarette users. Between 2017 and 2018, middle school e-cigarette users increased from 3.3% to 4.9% and high school users increased from 11.7% to 20.8% (FDA 2019).
- Youth e-cigarette users are more likely to use traditional tobacco products (Dutra and Glantz 2019).
- E-cigarettes contain chemicals including anti-freeze, diethylene glycol, and carcinogens like nitrosamines, and such contaminants may lead to nicotine poisoning; 3.073 cases of nicotine poisoning were reported in 2015 (American Academy of Pediatrics 2015). Between June and August 2019, 200 hospitalizations relating to nicotine poisoning were reported (Thayer 2019).
- The first death linked to e-cigarette happened in Chicago on August 23, 2019 (Thayer 2019).

- At least 47 vaping-related deaths in 25 states and the District of Columbia have been confirmed by the Center for Disease Control and Prevention (Knowles and Sun 2019).

Theoretical Foundation

Understanding why one voluntarily engages in activities that cause harm to one's physical body is at the foundation of vaping. A primal human motive is to avoid pain and seek pleasure. Reasons of why humans practice contrary behaviors have perplexed psychologist for decades (Hooley and Franklin 2017) and is not within the scope of this study.

International Society for the Study of Self Injury defines non-suicidal self-injury (NSSI) as *deliberate, self-inflicted destruction of body tissue that is not socially sanctioned and without suicidal intent* (Slesinger, Hayes and Washburn 2019). In addition to vaping, NSSI includes behaviors such as alcohol abuse, cutting, and tattooing. Vaping is of particular concern to medical professionals, among others, because of its occurrence among younger individuals; 17.2% of adolescents and 13.4% of college-age adults engage in NSSI (Hooley and Franklin 2017).

IMPORTANCE OF RESEARCH

Market Size

The sheer size and pervasiveness of tobacco in the world's culture support the importance of this academic investigation. USA tobacco companies rank among the largest worldwide. Philip Morris International is the world's second largest tobacco company, reporting net sales in 2017 of \$26.7 billion (Statista 2019). The USA company Reynolds American is also among the top tobacco firms ranking sixth and reporting 2017 net sales of \$12.5 billion. United Kingdom's Imperial Tobacco Group (2017 net sales \$39.2 billion) and British American Tobacco (2017 net sales \$19.9 billion) flank Philip Morris International ranking first and third respectively (Statista 2019).

Growth Potential

Over the past 50 years, tobacco users in the USA dropped from 42% to 15% of the population (Gershon 2016). USA tobacco smoking grew in the early 20th century and peaked in 1963 when tobacco consumption per adult reached 4,345 cigarettes compared to 54 cigarettes in 1900 (Gershon 2016). The decline since 1963 was driven by the recognition of the medical hazards of tobacco smoking, government intervention, and extensive publicity and advertising regulations.

As cigarette consumption decreases, vaping has increased. According to Rapaport (2018), almost one in 20 adults or approximately 10.8 million Americans now vape. Current smokers and recent quitters make up the largest group of vape users (Rapaport 2018). Dual use of cigarettes is most prevalent among older youth, but still significant for youth ages 14-17 (Gorskowski *et al.* 2015).

The number of potential vaping consumers will continue to grow in the coming years. Propelled by the rapid adoption and reliance on electronic communications, the Internet and social media platforms offer a valuable means of reaching younger consumers, a target market for vaping merchants. Ninety-five percent (95%) of USA teens have a smart phone and 45% report being online "almost constantly" (Anderson 2018). Vaping manufacturers and retailers target a younger demographic makes digital avenues both effective and efficient in reaching today's 49.4 million children ages 6 to 17 years (U.S. Census Bureau 2019). The U. S. Census Bureau (2019) predicts that the child population will continue to grow for the next 30 years.

Economic factors contribute to the growth of tobacco; growth is declining in developed countries and growing in low- and middle-income countries (e.g., Asia, Africa) (Tobacco-Free Kids 2018). Tobacco companies are increasingly shifting efforts to emerging markets where populations are growing, incomes are growing, and favorable tax regulations exist (Tobacco-Free Kids 2018).

Changing Environment

From the ground-breaking work of Chonko and Hunt (1985), ethics in marketing continues to be a major building block of marketing management. Chonko and Hunt (1985) propose that ethics may be viewed in "terms of the needs of the individual and the needs of relevant others" (p. 340). Producers of self-injurious products face a bigger burden in walking the fine line between protecting the public and honoring the mandate of stockholders' wealth.

A vaping framework is necessary to understand how companies might quickly adapt to environmental changes (e.g., government regulation) and protect their markets. Cigarettes and the promotion thereof are controlled through government regulations to protect the public. However, the same is not true for vaping. Laws that regulate sale of and promotion of vaping products in the USA are left to the States. With few exceptions, USA States regulate the age of access (e.g., range from 18 to 21 years) to vaping (Public Health Law Center 2018). However, promotions of vaping products are not controlled (not subject to the same regulations afforded cigarettes) by the federal government (Duffy and Jenssen 2014; Wagoner *et al.* 2016). Websites that sell vaping products frequently display health claims and smoking-cessation messages that are not supported by scientific evidence (Grana and Ling 2014). As the health issues associated with vaping continue to emerge and the number of young consumers continues to increase (Fairchild, Bayer and Colgrove 2014), the tobacco industry faces challenges from both government intervention and protectionism from anti-tobacco activists (Fairchild, Bayer and Colgrove 2014; McDonald and Ling 2015; Tomaszewski 2016).

METHODOLOGY

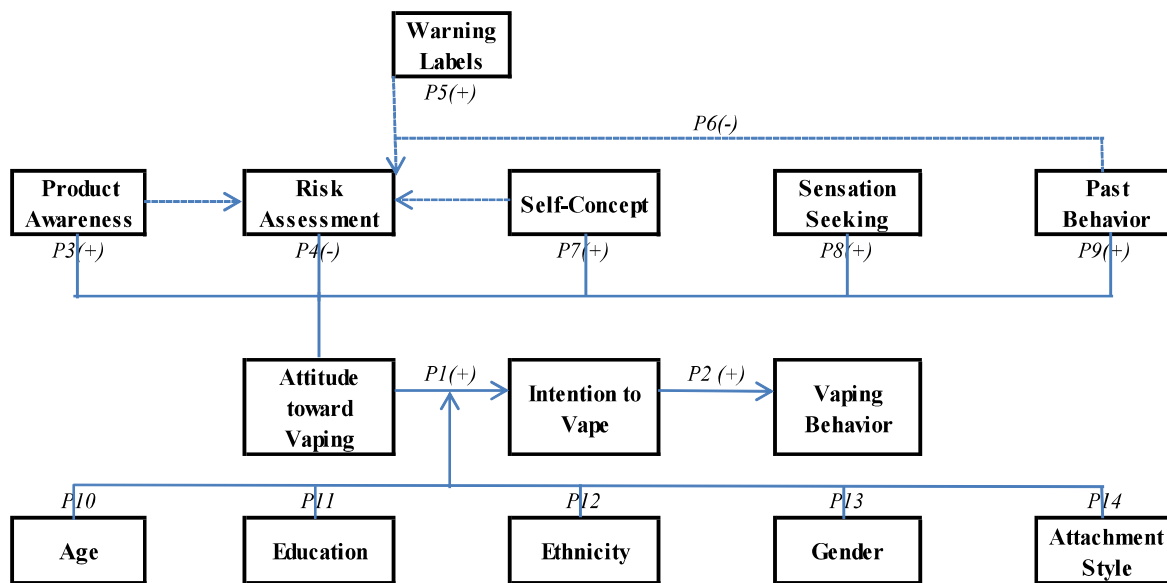
A systematic summary of existing literature is employed in the current study. The scope of this study is now defined: 1) peer-reviewed academic articles, 2) published on or before April 1, 2018, 3) limited to USA samples, 4) published in the English language, and 5) literature addressing medical conditions, such as strength of addiction, as researchers do not have specific knowledge to evaluate/interpret the research. A search of all academic sources was conducted using two the Boolean criteria found in the text (TX) of the article: 1) *e-cigarettes or electronic cigarettes or vaping cigarettes*, and 2) *marketing*. A review of the reference sections of journal articles identified by the Boolean search were reviewed to ensure inclusion of relevant research. The search rendered 72 articles. Nine articles relating to international markets or non-USS samples were excluded, resulting in a usable sample of 63.

CONCEPTUAL MODEL AND THEORETICAL FOUNDATION

Tobacco products as it relates to consumer behaviors are studied by numerous disciplines, including but not limited to marketing, law and public policy, psychology, and health. Scientific research is more prevalent in the medical and regulatory literature than in business. For example, between 2003 and 2015, scientific investigations of vaping in business publications total only 28 articles and addressed awareness, previous use, current use, and perception of safety (Xu, *et al.* 2016).

The proposed model (see Figure 2) considers the antecedents of attitude formation and the outcome of vaping. Based on existing research, it is proposed that attitude toward vaping is determined by past behaviors, cognitive analyses (self-concept, risk assessment), affect (sensation seeking), and exposure to information (product awareness). Attitude towards vaping is positively related to intention to use vaping, and subsequently vaping. The following discussion provides literature and frameworks that support the proposed conceptual model.

FIGURE 2
PROPOSED CONCEPTUAL MODEL OF VAPING BEHAVIOR



Attitude, Intention, and Consumption

The relationship among attitude, intention and consumption is grounded in the deliberate processing model. This framework argues that the relationship between attitudes and intention is matter of deliberate (brain) processing. During attitude formation, individuals scrutinize information and develop positive and negative characteristics. One of the most widely recognized deliberative processing models is Ajzen and Fishbein's (1980) theory of reasoned action, which posits that intentions stem from an individual's attitude assessment and intentions lead to behaviors (Cano 2008). Sheppard, Hartwick, and Warshaw's (1988) meta-analysis of the theory of reasoned action reports “strong support for the overall predictive utility of the Fishbein and Ajzen model” (p. 336). Therefore, the following is proposed.

P1: *Attitude towards vaping and intention to vape are positively related, such that the more favorable the attitude toward vaping, the more likely the intention to vape.*

P2: *Intention to vape is positively related to vaping (consumption), such that the higher level of intention, more likely to vape.*

Product Awareness

Product awareness is defined as the *degree of knowledge of a product*. The link between product awareness and attitude toward vaping is supported by *dissonance theory*. For smokers whose behaviors are inconsistent with information (e.g., product awareness), experience cognitive dissonance (conflicting states of mind). These individuals may engage in *selective exposure to information* (convince themselves that there is no conclusive proof of harm) or *perceptual distortion* (research relates to animals tested, not humans) (Lefrançois 2000).

The relationship between product awareness and attitude toward vaping was investigated by Pokhrel and colleagues (2015), using a three-treatment experiment. The researcher found a positive relationship between exposure to vaping advertisements and attitude towards vaping (by means of subliminal-spontaneous or automatic path); vaping was found to be more pleasant and a safer alternative to cigarettes. Following, Pokhrel and colleagues (2015), Emery and colleagues (2014), found that high

levels of awareness of vaping from exposure to marketing communications were positively related to smoking. Conversely, according to McDonald and Ling (2015), participants reported an overall lack of information about vaping.

The relationship between product awareness and attitudes is supported by Smith and colleagues (2015). Among young adults, more favorable attitudes were exhibited by those exposed to vaping advertising. Participants were twice as likely to express an intention to use vaping. Product awareness of vaping by USA consumers doubled from 16.4% in 2009 to 32.2% in 2010, among all groups (Regan *et al.* 2013).

P3: Product awareness is positively related to attitude towards vaping, such that greater exposure to marketing communications (e.g., advertising), the more favorable the attitude toward vaping.

Risk Assessment

There are four processes in assessing risk: 1) hazard identification, 2) dose-response assessment, 3) exposure assessment, and 4) risk characterization (National Academy of Science 1983). In step one, if no hazard is identified, the assessment process ends. If a hazard is identified, a comparison of the level of use and adverse health effects is conducted (i.e., dose-response), followed by an evaluation of the estimated intensity, frequency and duration (i.e., exposure). Finally, an evaluation of risk characteristics (incidents under various conditions as gleaned from dose-response) is conducted. "People tend to be risk-adverse for gains and risk-seeking for losses" (Eiser 1986, p. 219). According to Tversky and Kahneman (1981), when a choice is framed in terms of a gain, most people will choose a certain outcome.

Consumers' risk assessments are influenced by communications such as product warning labels (product awareness), but the relationship is diminished when the concurrent presence of health-related claims (Berry, Burton and Howlett 2017). The indirect relationship between risk assessment and intentions is also supported by Berry and colleagues (2017).

P4: Risk assessment is negatively related to attitude towards vaping, such that greater the perceived risk, the less favorable the attitude toward vaping.

P5: The presence of health hazards warnings is negatively related to risk assessment, such that the presence of health hazards warnings relating to vaping, the greater the perception risk.

Exposure assessment is a matter of "contact" with the hazard (Franklin 2003). Therefore, past behaviors, as well as non-exposure with smoking, impacts risk assessment. Emery and colleagues (2014) report that a vast majority of adults (84%) reported seeing or hearing information about vaping on various media; users are twice as likely than non-users to seek information. Adolescents and young adults (13 to 25 years of age) seek information about vaping primarily from advertising in malls and on television (Johnson *et al.* 2017; Wagoner *et al.* 2016).

A logical outcome of the existing research suggests that past behavior (smoking) would influence risk assessment as smokers (70%) want to be non-smokers (U. S. News 2019). Smokers are looking for way to kick the habit. Hence, vaping as a means of cessation as a healthier alternative to cigarettes would be perceived as less risky.

P6: Risk assessment is negatively related to past behavior, such that previous smoking looking for an alternative means of cessation will perceive vaping as less risky than cigarettes.

Self-Concept

A contemporary definition of self-concept is "an individual's repertoire of self-descriptive behavior" (Obiakor, Algozzine and Campbell-Whately 1997, p. 7). Self-concept is a complex theory that includes the perceived self, ideal self, self-esteem, and social identity. The notion of social identity is present across vaping research, although the conceptual definition varies among the literature. According to

Markus and Kunda (1986), an individual seeks out consistency and stability and actively resist information that challenges their prevailing view of themselves. Individuals pay attention to information that fits the view of self and reject or ignore those that differ (Markus and Kunda 1986). The more closely aligned the vaping persona is with one's self-identity, the more favorable evaluation (attitude) will result. The positive relationship between self-concepts and attitudes is a matter of extensive research across disciplines (e.g., Guskey 1988).

P7: There is a positive relationship between self-concept and attitudes towards vaping, such that the greater the alignment of vaping with one's self-concept, the more favorable the attitude towards vaping.

Sensation Seeking

Sensation seeking (SS) is a biological-based psychological construct. SS is conceptually defined as the *tendency for the regular seeking of sensations and stimulant, new and different activities and the willingness to take risk associated with such* (Zuckerman 1979). The SS construct is a matter of extensive research in psychology and grounded in Zuckerman's Theory of Sensation Seeking. Zuckerman (1979, 1994) suggests that SS is a matter of four dimensions: 1) thrill and adventure seeking, 2) experience seeking, 3) disinhibition, and 4) boredom susceptibility. Case and colleagues (2017) found that higher levels of sensation seeking are positively associated with susceptibility to vaping (intentions). Although beyond the scope of the current proposed model, a moderate correlation between sensation seeking and tobacco consumption is noteworthy (Pokhrel *et al.* 2016). Therefore, the following is put forward.

P8: Sensation seeking is positively related to attitude towards vaping, such that a higher degree of sensation seeking, the more favorable the attitude toward vaping.

Past Behavior

Past behavior as a reliable predictor of future behaviors is across marketing literature. Ouellette and Wood (1998) found that past behavior guides future responses through habit strengths and attitudes and norms. The use of vaping is higher for current smokers compared to non-smokers (Gorzowski *et al.* 2015). Current smokers are more likely to try vaping (Hwang and Park 2018; Regan *et al.* 2013). Smokers, as compared to non-smokers, hold a more positive attitude toward vaping and are more likely to become dual users (Glantz 2014; Grana and Glantz, 2014).

P9: Past smoking behavior is positively related to attitude towards vaping, such that past users, compared to non-users, leads to a more favorable the attitude toward vaping.

Moderators

Age and Education

The moderating impact of demographics between attitudes and consumption behavior is supported in the literature (Choi and Forster 2013; Reinhold *et al.* 2017; Trinidad *et al.* 2017). Extensive literature (e.g., FDA 2019; Hwang and Park 2016; Kong *et al.* 2017) report significant differences by vaping rate between ages; younger users are heavier users of vaping. Adolescents are more likely to vape only or to be dual users (El-Toukhy and Choi 2016). Research also supports a moderating relationship between intention to vape and vaping; higher education is associated with reduced use (Wang *et al.* 2018).

P10: Age moderates the relationship between attitude toward vaping and vaping, such that adolescents, compared to adults, are more like to be only vapers.

P11: Education moderates the relationship between attitude toward vaping and vaping, such that adolescents, as compared to adults, are more like to vape.

Ethnicity

Among the existing literature, race and ethnicity are used interchangeably. Trinidad and colleagues (2017) studied vaping among young adults and found that Non-Hispanic Black and Hispanics are more likely to smoke cigarettes than Non-Hispanic Whites. Non-Hispanic Asians have a lower rate of cigarette use than do any other race (Trinidad *et al.* 2017).

P12: Ethnicity moderates the relationship between attitude towards vaping and vaping, such that (a) non-Hispanic Blacks and (b) Hispanics are more likely to vape than non-Hispanic Whites.

Gender

Several differences between men and women emerged in the literature. Although the current use of cigarettes was not significantly different between men and women (Schoenborn and Gindi 2015), men are more likely than women to use only vaping and to be dual and polytobacco users (El-Toukhy and Choi 2016).

P13: Gender moderates the relationship between attitude toward vaping and vaping, such that males more so than females will use vaping

Attachment Style

Attachment theory is conceptually defined as "the propensity of human beings to make strong affectional bonds to particular others" (Bowlby 1977, p. 201). Four attachment styles are put forward by Bartholomew and Horowitz (1991): 1) secure (sense of worthiness), 2) preoccupied (ambivalence), 3) fearful-avoidance (sense of unworthiness), and 4) dismissing-avoidance (sense of love-worthiness combine with negative disposition toward others). Wise and colleagues (2017) found a significant difference between cigarette users and non-users by attachment style; the development of a secure attachment style may lead to prevention of smoking initiation.

P14: Attachment style moderates the relationship between attitude toward vaping and vaping, such that a secure attachment style, as compared to other attachment styles, leads to vaping.

DISCUSSION

Findings suggest that personal traits (e.g., self-concept, level of sensation seeking, risk level), past behaviors, and product awareness are significant determinants of attitude towards vaping, and subsequently intention to vape and vaping. The proposed model is derived through a synthesis of the literature and is the first known research to identify psychological states (e.g., attitude) and traits (e.g., ages, education, etc.) that led to consumption behavior.

The business strategy for marketing management of vaping products should receive continuous attention. The exponential changes in the environment and the speed of those changes create instability. Business success is associated with diligent observation of the environment and alignment/realignment with a company's vision and mission. Vaping is an example of a disruptive event in the environment. With little known about the vaping megatrend, companies should be vigilant in efforts to understand the market and consumers. More so than ever, agile marketing principles and pro-active marketing are prescribed.

Government intervention to regulate marketing of vaping is likely on the horizon. USA States have already undertaken directives and public pressure to protect vulnerable consumers. As vaping face the same limitations of marketing cigarettes, companies will be challenged to reach consumers through limited communication venues. Today's children and adolescents demonstrate little tolerance for information searching (e.g., advertising must be digital, readily available, and short), and use digital sources. If digital advertising is limited, marketers must *think outside the box* to develop marketing communications that grab the attention of adolescents.

The price sensitivity of younger consumers suggests efficiencies in manufacturing to lower/maintain price levels. Today's political strategy of limiting international trade and placing restrictions on access to cheaper labor markets may increase manufacturing costs for USA manufacturing and retailers operating in the global arena. As the price of traditional cigarettes increase, the sale of e-cigarettes increases regardless of the e-cigarette type (Huang, Tauras and Chaloupka 2013). A 10% increase in price is estimated to reduce overall tobacco consumption by 3% to 5% (CDC 2019). With an inflation rate of 5.6%, the price of cigarettes is 181.52% higher in 2019 than 2000; cigarettes costing \$5 in 2000 cost \$14.08 in 2019 (CDC 2019). Although the demand for tobacco product is not as elastic as demand for other products, research shows that for adults, an increase in price is followed by a moderate falls in both percentage of people smoking and the decrease in consumption of the number and amount of tobacco products by remaining users (Scollo and Winstanley 2019). Research argues that youth and young adults, more so than adults, are two to three times more likely to respond to an increase in price (CDC 2019). Consider the size and growth of younger vaping consumers, companies would be well-served to invest in efficiencies that contribute to price maintenance.

The future of vaping is bright, but the industry functions in an unstable environment. The political environment must be aggressively monitored. As regulations restrict promotional efforts in developed economies, emerging markets (e.g., Asia, Africa) offer opportunities for international expansion. Another opportunity for vaping is the privacy; others cannot tell exactly what is being inhaled. In addition, vaping does not stain teeth, hands, or leave a distinctive odor. There is an opportunity for expanding the product line by adapting vaping devices to produce chemical aerosols to delivery medicine and drugs.

Threats must also be aggressively tracked. Although the current USA administration originally supported a federal ban on vaping flavors, (e.g., flavoring attracts younger consumers who equate to candy), in November 2019, Trump retreated from supporting the ban (Karni, Haberman and Kaplan 2019). With the USA presidential election only a few months away, it is essential to anticipate the possibility of policy changes.

This important research is subject to some limitations. The findings identified antecedents of attitudes at a time when research of vaping is in its infancy; other variables may be gleamed as research advances. The current research focuses on attitude formation and related variable. The theoretical frameworks and conceptualizations of variables are largely incomplete/missing in the existing literature. Finally, the conceptual model is not tested. Future research should seek to test the model and develop vaping specific measures of variables.

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