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## A Practice Theory Approach to Understanding Poly-Tobacco Use in the United States

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### Abstract

This paper uses practice theory to explore a poorly understood phenomenon with important health implications: How and why an increasing number of young Americans regularly use multiple tobacco products. Practice theory is a promising alternative to traditional public health frameworks for understanding everyday activities related to health. It broadens the analytic focus from characteristics of individuals to viewing practices as having lives of their own in competing for, winning, and losing practitioners. We drew from in-depth interviews with 21 young adults (ages 18–29; California) who regularly use cigarettes, electronic nicotine delivery systems (ENDS), and/or smokeless tobacco. Participants described their everyday routines. We examined the characterizing elements of each tobacco product use practice and the roles of each within participants' routines. We found that each product comprises a distinct substance use practice with different roles to play in different situations and contexts. Notably, many participants rotated between or modulated use of different products as a strategy for reducing perceived tobacco-related harms. Cigarettes are uniquely capable of aiding in the space-time organization of everyday activities and coping with crisis, while ENDS and smokeless tobacco open up times and spaces for nicotine consumption. This kind of approach aids our understanding and anticipation of the evolution of tobacco use practices as new products and regulations are introduced.

### Keywords

young adults; co-use; smoking; e-cigarettes; smokeless tobacco

### 1. Introduction

Most mornings, Adam takes a few hits off his vape as soon as he wakes up. He chews smokeless tobacco while showering and while driving to university. He vapes between classes and often chews a little in the afternoon. Later in the day he may smoke cigarettes while driving and upon arriving home. He vapes on and off during the evening inside his house. (Age 20, male; cigarettes/ENDS/smokeless tobacco)

Little is known about how and why young adults like Adam use multiple tobacco products in everyday life. Poly-tobacco use, the “concurrent use of two or more products” (Bombard, Pederson, Nelson, & Malarcher, 2007), is of growing concern in the United States, where an estimated 22% of young adults age 18–24 engage in this pattern of tobacco use (Osibogun, Taleb, Bahelah, Salloum, & Maziak, 2018). Of young adults who use any tobacco, the proportion using multiple tobacco products has increased since the early 2000s (Fix et al., 2014; Soneji, Sargent, & Tanski, 2014).

While the prevalence of poly-tobacco use has been recognized, much remains to be known about the drivers for and health impacts of poly-tobacco use behaviors, particularly comparing different types of tobacco products. It is well documented that young adults have high rates of cigarette use initiation and prevalence of cigarette use (Hammond, 2005; U.S. Department of Health and Human Services, 2014). A nationally representative study of tobacco use in the United States found that rates of tobacco use among young adults (38%; ages 18–24) were higher than older adults (25%; ages 25 and older) and youths (15%; ages 15–17) (Kasza et al., 2017). Young adult smoking appears to be highly influenced by social contextual factors (Thrul, Bühler, & Ferguson, 2014). For example, college students have reported that smoking is viewed as socially acceptable while consuming alcohol, even if adopting a ‘smoker identity’ outside these contexts is not (Nichter, Nichter, Carkoglu, Lloyd-Richardson, & Network, 2010). Tobacco companies have capitalized on this by extensively marketing their products in bars, where young adults are likely to spend time (Biener & Albers, 2004).

Two other products with high prevalence of use among young adults are smokeless tobacco and electronic nicotine delivery system devices (ENDS) (Osibogun, Taleb, Bahelah, Salloum, & Maziak, 2018). American smokeless tobacco consumption increased between 2000 and 2015 (Wang, Kenemer, Tynan, Sing & King, 2016) and it has been debated whether or not smokeless tobacco (particularly low nitrosamine Swedish snus) should be promoted as a harm reduction alternative to cigarettes. Proponents argue that smokers who switch to smokeless tobacco will reduce their risk of tobacco-related disease, and that in Sweden smokeless tobacco use has not increased oral cancer or cardiovascular disease (Gartner, Hall, Chapman & Freeman, 2007). However, critics argue that smokeless tobacco products pose their own health risks (Boffetta, Hecht, Gray, Gupta, & Straif, 2008; Glantz & Bareham, 2018), and that use in combination with cigarettes may lead to increased nicotine exposure (Tomar, 2002) and risk of death and disease (Teo et al., 2006).

Similar to but even more divisive than debates about smokeless tobacco and harm reduction are those concerning ENDS (Green, Fielding & Brownson, 2018). While some view ENDS as potentially powerful smoking cessation and harm reduction tools (Brown, Beard, Kotz, Michie, & West, 2014; Polosa, Rodu, Caponnetto, Maglia, & Raciti, 2013), others find that ENDS can reduce smoking cessation rates and increase youth initiation (Glantz & Bareham, 2018), and that dual use of ENDS and conventional cigarettes is more dangerous to health than using either product alone (Alzahrani, Pena, Temesgen, & Glantz, 2018). The highly political and polarized tobacco harm reduction debate, particularly concerning ENDS (Drope et al., 2017), may inhibit theoretically grounded research seeking a nuanced understanding of poly-tobacco use (Lynch, 2018).

Such research is needed to anticipate how real-world use of an increasingly diverse array of tobacco products may change over time and within different contexts. Qualitative research on ENDS has focused thus far on describing individual perceptions of these products (Hoek, Thrul, & Ling, 2017; Popova et al., 2017;) and motivations for initiating (Kong, Morean, Cavallo, Camenga, & Krishnan-Sarin, 2015; Wadsworth, Neale, McNeill, & Hitchman, 2016) and sustaining cigarette and ENDS dual use (Majeed et al., 2016; Pokhrel, Herzog, Muranaka, & Fagan, 2015). Pokhrel and colleagues (2015) examined the contexts of such dual use among young adults (ages 18–35) in Hawaii. Focus groups revealed that the situations, activities, and motivations associated with cigarette use were often different from those of e-cigarettes.

An ecological understanding of poly-tobacco use can be further developed, examining ways in which tobacco products might compete with each other, leading to product displacement and extinction, or co-existence. Practice theory provides a framework for understanding how and why various tobacco products succeed or fail to integrate in a sustained way into different contexts and patterned activities in people's everyday lives (Blue, Shove, Carmona, & Kelly, 2016; Maller, 2015; Reckwitz, 2002). Rather than focusing on the choices and beliefs of individuals to explain their tobacco use (Cohn, 2014), a practice theory approach considers tobacco use practices as having lives of their own, with individuals acting as practitioners who reproduce, transform, or abandon social practices over time and across space. Considered this way, the evolution of practices can be traced, and ways in which practices compete for or lose practitioners can be observed.

A practice is sustained by the integration of three key elements: 1) materials (objects, consumer goods, and infrastructures); 2) competences (understandings of the situation; practical know-how); and 3) meanings (embodied understandings of the social significance of the practice and past experiences of participation) (Blue et al. 2016, p. 42). For example, smoking practices changed dramatically with the advent of inexpensive pre-rolled cigarettes (*materials*), which were produced in massive quantities and marketed to inexperienced tobacco users (Blue et al., 2016). Smoking bans and shrinking acceptable spaces for smoking (Collins & Procter, 2011) have compelled smokers to develop a specialized knowledge (*competence*) of where and when to smoke without (in)formal reprimand. In a final example, smoking was normative and even endorsed by doctors in tobacco advertisements until the 1950s (Gardner & Brandt, 2006), but is now commonly known as the leading preventable cause of death in the U.S. (*meaning*).

Keane and colleagues (2017) applied practice theory to understand the experiences of the increasing number of Australians using ENDS. They found that ENDS use comprised a distinct social practice, with an elemental composition different from that of cigarette use. While their findings relied upon written responses and a non-representative survey sample, they suggest the benefits of naturalistic research on vaping as a social practice. To our knowledge, no other studies have used a practice theory approach to understand non-cigarette tobacco product use.

We use practice theory to explore how and why multiple tobacco products integrate into the daily lives of those who use them, considering the use of three tobacco products: cigarettes,

ENDS (e.g., e-cigarettes, box mods, vape pens), and/or smokeless tobacco (e.g., dip, chew, snus pouches). We consider the routinized use of each tobacco product as separate practices so as to observe the unique elemental composition of each practice, and the ways in which each succeeds or fails to bundle with other activity domains within daily routines, such as working, going out, or unwinding at the end of the day. Focusing on “activities in the world” rather than mental processes allows us to understand how tobacco use practices can become normalized as having roles to play within young adults’ lives, arising within particular assemblages of people, objects, and places along their daily paths through time and space (Cohn & Lynch, 2017a).

We draw from interviews with 21 young adults in California who reported past 30-day use of at least two of the three products of interest. We asked: 1) What are the characterizing elements of different tobacco product use practices (i.e., materials, competences, meanings)? and, 2) What kinds of roles do different tobacco use practices play within participants’ everyday routines (e.g., creating opportunity for concealment of use, avoiding stigma, responding to crisis)?

## 2. Methods

### Participant recruitment and ethics approval

Participants were part of a larger study (n=60) that aimed to gain a better understanding of smokeless tobacco and e-cigarette marketing strategies, and how marketing impacts emerging and existing tobacco product use. Participants were 18–29 years old, lived in California, and had used more than one tobacco product in the past 30 days at the time of eligibility screening. They were recruited through Facebook and Instagram and completed an online eligibility screening questionnaire. Participants were purposively sampled for a range of tobacco product combinations and frequencies of use. A higher proportion was men, likely due to the inclusion of smokeless tobacco users, who are predominantly male in the United States (Kasza et al., 2017).

Data were collected from January-August 2017. Participants received a \$100 Amazon gift card. Ethics approval for this study was granted by University of California, San Francisco’s Institutional Review Board. Pseudonyms have been applied to protect participant confidentiality.

### Study design and methods

Participants completed a baseline questionnaire about their tobacco product use and sociodemographic characteristics and gave an in-depth, semi-structured interview about their experiences, perceptions, and routines of poly-tobacco product use. All authors conducted one-on-one interviews. Interviews lasted about an hour and were conducted primarily in university seminar rooms, with some by phone.

This paper draws from the interview section regarding participant routines. The participant was prompted to ‘lead’ the interviewer through their current routine use of different tobacco products over the course of a typical week day. They were asked to provide such vivid ‘play-by-play’ detail of their routine that someone could make a movie of their day. They were

prompted to describe when, where, how, and why they use a particular tobacco product instead of others in a given moment of the day. Then, they were asked to lead the interviewer through a typical weekend day in similar fashion.

## Analysis

The second author coded all 60 interviews in Dedoose TM (SocioCultural Research Consultants, 2015) for content regarding tobacco use routines. Transcripts were ranked according to semantic richness. Routines excerpts from eight of the richest transcripts were selected for in-depth reading performed in tandem by the first and second authors, who made detailed memos regarding emerging categories of interest (e.g., characteristics of different tobacco products). From this process an initial coding scheme was developed, discussed with all authors, tested, and adjusted. The final coding scheme consisted of: product type (cigarettes; ENDS; smokeless tobacco; hookah; other), practice elements (materials; competence; meanings) (Blue et al. 2016), and roles of tobacco use practices (e.g., ease social interaction; protected time/break). Transcript coding proceeded in order of semantic richness. Saturation was reached after 21 transcripts; demographic and tobacco use characteristics for these participants were comparable to those of the full sample (Table 1). The first and second author read the routines excerpts from the remaining 39 transcripts; no unique additional themes were found. The findings presented here reflect the 21 coded transcripts.

## 3. Findings

### Elements of tobacco use practices

The routinized use of each tobacco product involves the integration of a unique combination of practice elements. Table 2 summarizes the material properties, required competences, and associated meanings pertaining to the three most prevalent tobacco use practices in our sample: cigarettes, ENDS, and smokeless tobacco.

All three tobacco product use practices have elemental commonalities, including the compelling force of nicotine addiction, some degree of stigma associated with use, an oral/tactile and pleasurable dimension to using the product, sociality and camaraderie between practitioners, and the necessity to learn how, where, and when to consume the product acceptably. Their elemental compositions also differ in several important ways, making each more or less suitable for integration into different everyday situations and contexts, as described in the following section. We highlight a few examples from the table below.

Among many notable material differences between cigarettes, ENDS, and smokeless tobacco is how long one session of use can last. Cigarettes typically take about five to ten minutes to smoke and are usually consumed in a single session. ENDS consumption has a remarkable range of temporal flexibility (Keane et al., 2017), allowing the practitioner to take one 'hit' off a device or continuously 'vape' until the e-juice canister needs replacing or the device needs re-charging. Smokeless tobacco allows the practitioner to 'pack a lip' or insert a pouch of tobacco for any desired length of time until the nicotine and flavor are exhausted (range in our sample: about 20 minutes to two hours).

The competences required to appropriately practice the use of each product also differ. Notably, manufactured cigarettes require little specialized knowledge to use compared to smokeless tobacco and more customizable and expensive ENDS devices. Smokeless practitioners must learn to insert and contain tobacco between their gums and lip, take lubricating sips of water, and spit cleanly into a ‘spitter’ (e.g., bottle or can). ENDS practitioners can graduate from competently using closed-system devices (e.g., ‘cigalikes’; pre-filled devices that resemble cigarettes) to open-ended and highly customizable devices (e.g., ‘box mods’), in which e-liquid, voltage and temperature can be modified in order to deliver desired nicotine load and ‘throat hit’ sensation.

Finally, a notable difference in meaning is the type and intensity of stigma associated with each practice. Cigarettes are uniquely and intensely stigmatized compared to ENDS and smokeless tobacco, largely due to public health-led social consensus regarding the harms of secondhand smoke (Thompson, Pearce, & Barnett, 2007). One participant gave an especially vivid example of being asked to smoke elsewhere by a man who was himself smoking what appeared to be a crack or methamphetamine pipe. This participant explained the intensely immoral and anti-social meaning of cigarettes: ‘Everyone who smokes is like a criminal or a felon or some kind of, like, killer’ (Logan; age 19, male, cigarettes/smokeless). The stigma of smokeless tobacco use is more focused on the ‘backwardness’ or ignorance of the usually male practitioner, with several participants noting that women find it disgusting. ENDS use stigma is also less intensely social in orientation as many participants and their peers believe the vapor to be harmless. Its negative associations have more to do with being ‘douche-y’, as a few participants described it, which we interpret as obnoxiously performative (e.g., blowing large vape clouds in public). This echoes a prior finding on the perception of any smoke-like emission in public as a visual offense (Lucherini et al., 2018).

### Roles of tobacco use practices

Due to their unique compositions of elements, tobacco use practices offer a variety of roles that they can play within participants’ daily routines: 1) spatio-temporal organization of everyday activities; 2) creating opportunity for nicotine consumption and social interaction; and 3) negotiating emotion and sensation (see Table 3). Certain tobacco use practices are better suited than others for each role. This affords different tobacco products with different parts to play within the choreography of everyday activities as individuals travel through various contexts and situations.

**Spatio-temporal organization**—Mundane objects, like tobacco products, can contribute to the stabilization, pacing, ordering, and timing of where, when, and how people do things, easing the juggling act of everyday routines and enhancing the experience of order and stability (Schwanen, 2007). Cigarettes appear particularly well-suited for shaping the spatio-temporal organization of everyday life compared to ENDS and smokeless tobacco.

For example, for many participants, cigarettes are especially good at *structuring* activities within the flow of daily routines, meaning they can help shape the rhythm, pacing, and organization of activities in time and space (see also Graham, 1993). Cigarette smoking is a temporally predictable experience and often requires relocating to an outdoor designated

smoking area, patterning individuals' paths through space. For example, cigarettes are distinctly embedded within the routine of one participant who uses cigarettes and smokeless tobacco: '[Smokeless tobacco] is not part of my daily routine, but the cigarette definitely is. Like, I wake up, smoke a cigarette, eat breakfast, smoke a cigarette, take a shower, smoke a cigarette,' (Logan; age 19, male, cigarettes/smokeless).

Another participant appeared especially invested in this role of cigarettes: 'It's almost like a structure. It's a timetable. Like, I'm scheduled: this break, this cigarette,' (Victoria; age 28, female, cigarettes/ENDS). She times the completion of her morning home activities and ride share service to work around smoking her first cigarette of the day. Once at work, the spatio-temporal inflexibility of cigarette smoking routinizes her food and drink consumption and provides structured breaks throughout her work shift:

I also have to plan out my trip to work so that I know I can get there early enough to get my cup of tea, maybe some food, and smoke a cigarette, if not two, before I start work. [...] I have to have that one before starting. And then, it's on my ten-minute break, on my 30-minute break, and my last ten, I smoke.

Similarly, many participants used cigarettes to *bookend* activities during their day, incorporating a smoke break into the performance of the activity itself and using it to mark the beginning, break or conclusion of the activity. For example, a participant in culinary school (Josh; age 24, male, cigarettes/ENDS) works with other smokers. They use communal smoke breaks to mark the end of kitchen setup in the morning and the end of cooking and start of cleanup in the evening.

Another role that cigarettes play well due to the inflexible and predictable nature of where, when and for how long they are consumed is to create a *protected time or break* during the day (see also Graham, 1993). Many participants use cigarette breaks as a chance to rest or get away from a situation or activity, as in finding 'me time' (Victoria) during the work day, or stepping outside a crowded bar to 'take a breather' (Isabelle). One college student (Carlos; age 20, male, cigarettes/smokeless/ENDS) explained why his late night cigarette smoking breaks on his patio provide greater relief during the stress of university exams than dipping (slang for using smokeless tobacco):

I kind of use the whole time to just solely think about whatever is bothering me and let loose there. [...] That break will allow myself to give myself that time to think about whatever is bothering me and try to analyze those things. [...] No one is up. It's starry-night time. [...] [T]here's not a rush of people everywhere and just a lot more of a calm setting as well.

The practice of smoking cigarettes creates a time and space apart as his university housing policy requires him to step outside. There he is alone and it is quiet. The dedicated time required to smoke cigarettes provides temporal containment for him to 'let loose' and think.

Finally, participants described the role of tobacco products in helping them *transition* during the day. The consumption practice of cigarettes, as well as ENDS and smokeless tobacco, appears to provide a liminal space-time (e.g., Pritchard & Morgan, 2006) for many participants as they move from one part of their routine to the next. The most common



examples were to use tobacco to ease oneself into the day or unwind after the work/school day and transition into the evening. Josh, for example, transitions into his day by checking his phone, drinking coffee, and smoking a cigarette while he lets his dog out in the yard. Ethan (age 19, male, cigarettes/smokeless) winds down a night of partying with dip, transitioning from flirting and socializing to hanging out with friends before sleeping.

ENDS and smokeless tobacco appear less able than cigarettes to play a role in the spatio-temporal organization of everyday activities. This is due to their highly flexible duration of consumption and greater accessibility in where they can be acceptably or inconspicuously consumed. This means that they lack the rigidity found in cigarette use practices; a characteristic that can provide a structure around which to organize other activities. One participant described this for his large vape:

[Y]ou can draw as hard as you want or as slow as you want and for as long as you want or not. As long as you recharge it, it's never going to run out on you. So it's just kind of like an all-day kind of thing. Or if I'm in a vehicle, because I don't smoke in vehicles, then I'll use a vape because I can just roll the window down and blow it out. There's no odor or anything with it. (Josh)

**Creating opportunity**—While weakening their role in the space-time organization of routines, the flexibility of ENDS and smokeless tobacco allows them to act as a *space-time opener*. These products open up times and spaces for nicotine consumption where cigarette use is prohibited or constrained, such as work/class or inside the home or car. For example, vaping devices can be used within shorter windows of time than cigarettes, allowing one participant to fit vaping in between classes:

[Y]ou only need like two, three hits to really, like, kind of like handle yourself again. So, like you can just run outside and do that really quick. (Adam)

Smokeless tobacco and ENDS are also relatively easy to conceal and often more acceptable to use indoors and in vehicles than cigarettes. Many participants' housemates, colleagues, and friends condoned indoor use of ENDS, but not cigarettes, because they perceive the vapor to be pleasant and harmless (see also Lucherini et al., 2018). For example, Ajay (age 29 male, cigarettes/smokeless/ENDS) vaped rather than smoked at his job at a bar because he could conceal the smell and did not think handwashing was required after vaping, saving him time. Similarly, Mathew dips while driving an ambulance because it is odorless and safe with the oxygen tanks. Finally, while Logan prefers cigarettes, dip allows him to consume nicotine where it is prohibited at work or when the weather makes it unpleasant to go outside for a cigarette: 'Whatever I'm doing, I can just do it and then, 'F'pp,' [spit] and then keep going.'

These accounts are consistent with previous findings that ENDS are often used in distinct places/situations from cigarettes, particularly when practitioners are indoors or presented with insufficient time to wash up after smoking (Keane et al., 2017; Pokhrel, Herzog, Muranaka, Regmi, et al., 2015). Majeed and colleagues (2016) highlight a similar point, noting that dual users cite convenience as a reason for both initiating and continuing use of ENDS.

Tobacco use practices can also provide participants with opportunities to *ease social interactions*. This manifests differently by tobacco product. Cigarettes and lighters are discrete units that can be more easily offered and received between strangers or acquaintances compared to ENDS or smokeless, facilitating interaction via a medium of exchange and reciprocity. The enforcement of designated cigarette smoking areas also creates a shared experience of social ostracization among cigarette smokers (Bell, 2011). Mathew (age 24, male, cigarettes/smokeless/ENDS) described a friendly exchange with an unknown smoker who referred to them both as ‘a dying breed’. Outside of bars, Victoria says cigarette smoking eases introductions with potential new friends and attractive strangers: ‘[E]ven if I have cigarettes, you know, I’ve lied and said, ‘Hey, can I bum one of those?’

Cigarette gifting can also strengthen relationships. For example, many of Ethan’s Spanish-speaking co-workers offer him cigarettes, which he attributes to their liking that he speaks Spanish with them. Mathew explained why smoking was helpful in building rapport with clients when he worked as a security officer at a homeless shelter:

It’s the same reason why, like, barbecues are still a thing. [...] [T]here’s something, part of our lizard brain, that, like, smoking a peace pipe ritual, it’s a real thing. You’re sharing something with someone.

ENDS devices, on the other hand, are not as easily shared outside of one’s close social circle because of the intimate nature of using the same mouth piece. However, these products can help facilitate closeness amongst friends, partners, and family, as in passing around someone’s vape during a ‘smoke session’ (John; age 21, male, ENDS/cigarettes/smokeless). Isabelle takes hits off her mom’s vape as a way to heighten the feeling of closeness between them:

[I]t’s more of the participating in it with her. It’s like, ‘Oh, we’re already watching this movie together.’ I want to make this whole experience a together sort of thing.

More experienced ENDS practitioners can share their graduated competences with others (Adam) and may even gift old devices to uninitiated friends (Josh). Finally, because, according to several participants, dipping is viewed as unattractive by women, smokeless tobacco use can serve as a bonding activity between men (see also Helme, Cohen, & Parrish, 2012):

If we’re just at one of their house and we’re watching football on a Sunday then yeah, we’ll probably all have spitters going. If I’m going to a girl’s house, I’m not going to ask if I can use her water bottle. (Kevin; age 25, male, smokeless/cigarettes)

**Negotiating emotion and sensation**—The final theme regarding the role of tobacco use practices within participants’ routines relates closely to the embodied experience of tobacco use (see also Dennis, 2011). It revolves around negotiating emotion and sensation by self-soothing, augmenting physical/mental functions, providing pleasure, mitigating harm, and coping with crisis. ENDS and smokeless tobacco are particularly suited for *self-soothing* in indoor locations where cigarettes are banned or discouraged. Several

participants described vaping on-and-off continuously while at home in this way, as in Brian who will ‘slowly be hitting my e-cigarette that entire time’ after arriving home and Mark who vapes in response to boredom and insomnia. Victoria uses her ‘e-pen’ to help envelope her in comfort at the end of her work day:

[I]t’s comfy clothes, pajamas, turn on the TV, want to curl up on the couch or in bed, and I don’t want to have to get up to go smoke a cigarette, you know, every hour or so. [...] But with the e-cigarette, I can just sit in my room and it’s just constant, like every few minutes.

Kevin uses snus in this fashion, ‘dipping consistently pretty much up until bed.’ One participant described chain smoking cigarettes to cope with boredom while driving (Carlos), but more common in the car was continuous stimulation from ENDS and dip. Brian (age 21, male, ENDS/cigarettes) enjoys making vape clouds while driving:

[I]f I’m using my box mod, I’d probably be hitting it the entire time because it’s less nicotine and it’s more just, like, fun to have, like, clouds in and out while I’m driving and listening to music.

Finally, Samuel (age 26, male, cigarettes/smokeless/ENDS) is stimulated by the sensations of dipping while doing office work:

You know, the tobacco in your mouth, and you’re constantly moving around, like, spitting in the bottle, drinking water. [...] It keeps you, like, it keeps you moving.

Another role played by all three tobacco products is a perceived *augmentation of physical and mental functioning*, an already acknowledged aspect of nicotine use (Piper et al., 2004). Participants described the use of these products as helping digest food, stay awake and feel energetic while working or studying, fall asleep, and to feel more sober after consuming too much alcohol.

The *pleasurable experience* of cigarettes, ENDS, and smokeless tobacco is often overlooked in tobacco research (Bell, 2013), but is clearly relevant to the integration of multiple product use practices into participants’ routines. Some participants provided almost poetic descriptions of the subtle, intimate delights of their tobacco use practices (Klein, 1993). For example, Khaled chooses vaping over cigarettes after dinner because the e-juice flavors make it ‘like eating dessert’ (age 23, male, cigarettes/smokeless/ENDS). For several participants, one of the appeals of maintaining a cigarette use practice is the desired ‘full lung’ (Victoria) and ‘burning throat’ (David; age 23, male, cigarettes/ENDS) sensation from cigarettes that is more difficult to achieve with many ENDS devices. However, Ajay found that a box mod provides the desired sensation: ‘My lungs are just toasty. Just toasted right.’ Participants also described different nicotine ‘buzzes’ from different products. Mathew says you ‘buzz harder for longer with dip’ but get ‘that little head rush’ with cigarettes.

The pleasurable relationship between nicotine and alcohol is well-documented (Gubner, Thrul, Kelly, & Ramo, 2017). Mathew described: ‘It’s like a double helix, man. You know, I feel drunker because I’m smoking this, and this feels better because I’m drunker.’ Many participants identified cigarettes as most pleasurable to pair with alcohol of the three

products. However, one smokeless tobacco user (Ethan) described pouring hard liquor into a dip can because it makes the effects of the tobacco ‘exponentially stronger’.

Finally, a few participants expressed the pleasure of becoming a tobacco connoisseur. This was evident in Logan’s excitement about sampling Dutch loose leaf tobacco:

It was great, fantastic. [...] When I went like this to touch it and everything, it was, like, moist. It was nice. So, when I rolled with it and I smoked it, it was a very - it tasted almost identical to that, to what I smoke, Turkish Royals, but very, very fresh, way more fresh, way more flavorful.

Multiple tobacco use practices can also integrate into participants’ routines by facilitating *harm mitigation*, meaning participants rotate between or modulate use of different tobacco products as a strategy to reduce symptoms or perceived harm associated with individual products. Relatedly, Keane and colleagues (2017) found that ENDS practitioners experienced an increased sense of control over nicotine addiction by using ENDS. For example, some of our participants exclusively use ENDS and/or smokeless tobacco for a period of time to give their lungs ‘a break’ (Adam) from cigarettes. David mostly uses ENDS but is ‘always kind of like coming back to cigarettes’. After several weeks of using cigarettes his respiratory symptoms intensify:

I might wake up with, like, more of a cough or a cough at all. [...] And so, I’ll get to that, and I’ll be like, all right. Well, time to vape for a little while.

Using ENDS for a few weeks provides him with symptom relief before smoking cigarettes again:

When I decide to stop, it’s just incredible to feel the transition in my body where that mucous build-up is just released [...]. And then it’s cool to see that sort of like break away. It takes like a week.

Ajay builds regular breaks from cigarettes into his weekly routine by only using snus on the weekends to ‘cleanse the body’. For Adam, this manifests as ‘bursts’ of abstinence from cigarettes while he continues to vape and dip, which he perceives as less harmful.

So, it’s just kind of like these little bursts, where I’ll try to stop for a few days, and I’ll go back. [...] I personally am trying to slow [cigarettes] down just for my own sake, because I want to be able to quit in time so I don’t have so many really bad and long-term effects.

While most participant accounts involved the use of ENDS or smokeless to mitigate cigarette use, one participant (Ethan) experienced such intense withdrawal symptoms while trying to quit smokeless tobacco ‘cold turkey’ that he started smoking cigarettes as an unsuccessful strategy to ‘ease himself’ out of dip.

One college student, Sarah, intentionally uses ENDS occasionally in places and times she would normally use a cigarette. She does this to prevent herself from forming habitual patterns in where and when she smokes cigarettes. She believes this will reduce her overall addiction to cigarettes, which she perceives as more harmful than ENDS.

Finally, tobacco use practices can help *cope with crisis*. There is a strong relationship between experiences of acute stress and the desire to smoke (Antin, Annechino, Hunt, Lipperman-Kreda, & Young, 2017; Gough, Fry, Grogan, & Conner, 2009; Kassel, Stroud, & Paronis, 2003). Participants described how cigarettes are uniquely well suited for coping with crisis as compared to ENDS and smokeless tobacco, likely due to the intense, immediate delivery of nicotine by cigarettes which provides ‘an actual sense of relaxation’ (John), as well as the forced break in time and space required for the practice, as described earlier. Smoking a cigarette from beginning to end is an absorbing, meditative practice in a way that dip, which ‘just sits there on your lip’ (Ethan), or taking a hit off of a vape is not:

[Y]ou don’t really think about anything else besides what’s in front of you. Basically you just think about the cigarette. So, it’s kind of relaxing in the sense of, you just kind of get away from all your worries for a moment. (Ethan)

Smoking cigarettes is also comforting because it is familiar and predictable, says Victoria: ‘[W]hen everything is going crazy, that cigarette break feels the same every single time.’ For these reasons, Sarah (age 19; female, cigarettes/ENDS) chain smokes cigarettes instead of using her vape when coping with stressful events. She goes to a solitary place and meditates on the unique elemental appeal and uniform decomposition of a lit cigarette (Hoek et al., 2017), soothed by the cyclical rhythm of starting and finishing a cigarette, and then starting and finishing another, which will be the same as the one before, and the same as the one that follows (Keane, 2002):

I like to watch the end of the cigarette burn - like, just stare at the orange-redness, or whatever. And I just like to watch it burn through. And then put out, light up another one, and just watch the smoke. I don’t know, it’s just weirdly therapeutic.

Perhaps for these reasons, many participants attributed the failure of past cigarette quit attempts to episodes of extreme stress. A small minority of participants, however, did not find cigarettes compelling when stressed. Mathew, for example, says: ‘I just like it. I don’t use it to, like, escape anything. I don’t use it to de-stress.’

#### 4. Discussion

Our analysis examined how and why multiple tobacco products can integrate into individuals’ daily routines. We focused on the use of cigarettes in combination with smokeless tobacco and/or ENDS. Similar to Pokhrel and colleagues’ study on the contexts of cigarette and e-cigarette use (2015), we found that different tobacco products are used within different everyday situations or activities. A practice theory approach (Blue et al., 2016) helped deepen our understanding of how and why this is the case. As observed in previous work on vaping (Keane et al., 2017), we found that the routinized use of each tobacco product involves the integration of a unique combination of materials, competences, and meanings. The uniqueness of each tobacco product use practice affords them with their own roles to play within individuals’ routines, allowing them to regularly integrate into different situations, contexts, and activities within the flow of the day.

Our findings highlight ways in which material objects are ‘*actants* in the human social world’ rather than passive props for human purposes (Gren, 2001; italics are Gren’s; Cohn &

Lynch, 2017b). Different products had varying potential to act within different contexts and situations within participants' routines. For example, within the shrinking geographies of smoking (Collins & Procter, 2011), the generous spatial and temporal flexibility afforded by the materialities and meanings of ENDS and smokeless tobacco allows them to 'act' within spaces and times no longer accessible to cigarettes. All the while, the materialities and meanings of cigarettes that restrict where and when they can be used allow cigarettes to serve as active stabilizers within the space-time fabric of participants' everyday lives (Gren, 2001; Schwanen, 2007).

Participant accounts suggest cigarettes lend themselves especially well to helping structure, bookend, and take a break from routine activities in ways less possible with ENDS and smokeless tobacco. Cigarettes also have particularly strong potential to act in moments of crisis due to their intense and reliable delivery of nicotine, and the forced break in time and space required for use. That cigarettes can fill these roles is due not only to the particular material qualities of cigarettes, but also the clean air laws and cigarette denormalization that has shaped how cigarette use can be practiced in this study context.

As Keane (2002) eloquently observed, cigarette use not only takes time through procurement and consumption in the absolute sense (as well as costs time in reducing life expectancy), but also facilitates the making of different kinds of time within the present. Our findings highlight cigarettes' capacity to create particular experiences of time and space in contrast with ENDS' and smokeless tobacco's facility in circumventing formalized constraints on times and spaces for use. All three products we examined can play a role in easing social interaction, transitioning, self-soothing, augmenting physical and mental function, and providing pleasure, albeit sometimes in different ways. Participant accounts point to a unique dimension of poly-tobacco use; the rotation between or modulating use of different tobacco products as a strategy to reduce symptoms or perceived harm associated with individual products.

Ecological approaches to understanding poly-tobacco use are important for several reasons. As Bombard et al. (2007) point out, most tobacco control interventions fail to address combined use of multiple tobacco products, and the use of non-cigarette tobacco products are on the rise due to legislative, environmental, and marketing factors. A practice theory framework can help trace and anticipate the evolution of substance use practices in where, when, and how people use tobacco as new products are introduced onto the market. For example, the rising popularity of small 'pod vapes', like JUUL (Bellefante, 2018; JUUL labs, 2018), may foreshadow an evolution in vaping as a practice. As Lucherini and colleagues (2018) observed, the meanings and norms associated with ENDS use are still ambiguous and highly in flux. Unlike large 'box mods' or 'vape pens', pod vapes have the size and appearance of a USB flash drive and omit little visible vapor. One simply charges the device and inserts a pod of e-juice, requiring little competence for use. These material characteristics may connote more familiar and innocuous personal electronics than stigmatized tobacco products. The increasing use of these devices could shift the meanings associated with vaping, in particular, reducing the ostentatious and performative connotations of vaping described by our participants. Their discretion could also enhance the

space-time opening capabilities of vaping for the consumption of nicotine in forbidden settings.

In another example, the already prevalent co-use of tobacco and marijuana may rise among young adults in places like California where non-medical marijuana sale has been legalized (Agrawal, Budney, & Lynskey, 2012). A practice theory framework could help trace the possible co-evolution or hybridization of tobacco and marijuana use practices, as exemplified by the cross-over utility of vaping devices for both nicotine and THC/CBD ingestion (Cobb & Abrams 2011).

Practice theory may also inform analyses of the impact of the changing tobacco policy environment on tobacco use patterns and experiences (e.g., implementation of clean air laws, new restrictions on ENDS marketing, restrictions on the sale of flavored tobacco products, price increases). For example, extending clean air policies to include ENDS is justified by compelling evidence that ENDS emissions are not harmless (Chun et al., 2017). As a consequence, the public consumption of ENDS may become further de-normalized, associating the sight and (often fruity) smell of ENDS emissions and devices with the same stigma and moralizing discourse that has socially marginalized cigarette smoking as a practice (Bell, 2011; Antin et al., 2017; Lynch, 2018; Lucherini et al., 2018). This may have the effect of eliminating the current ambiguity regarding the social acceptability of ENDS use in certain spaces where cigarettes are no longer tolerated (e.g., inside a friend's home), but may also stigmatize individuals who practice ENDS use as a smoking cessation aid.

Finally, practice theory could also be used as a framework for observing tobacco industry efforts to recruit and maintain practitioners of different tobacco use practices. For example, it can be used to document ways in which marketing strategies and material alterations to tobacco products (e.g., heat not burn devices like IQOS, in which small modified cigarettes are inserted into electronic heating devices) may manipulate the meanings of and competences required for tobacco use practices in favor of recruiting and maintaining practitioners.

## Limitations

Our findings are limited in several ways. Our study focused on young adults in a softly regulated tobacco retail environment. We did not delineate between participants who are actively trying to quit with those who are not. Nor did we examine differences in experiences of poly-tobacco use by demographic characteristics or product use profiles. This analysis was limited to three product use practices; additional tobacco products and co-use of tobacco and marijuana are topics that could be explored further and in different settings using a similar framework.

Methodologically, our study is limited by participant recall of their everyday routines and contexts, thus introducing self-report bias and emphasis on description of individual behavior, rather than shared practices. Future studies could leverage ethnographic and other research methods to explore poly-tobacco use among young adults. Furthermore, we cannot address the possible influence of tobacco marketing on how, where, and when participants

use different tobacco products. For example, smokeless tobacco is increasingly marketed as a way to circumvent indoor smoking restrictions (Curry, Pederson, & Stryker, 2011).

## 5. Conclusion

This study provided insight into how and why poly-tobacco use is sustained within the everyday lives of a sample of young adults in California. Future studies should apply similarly ecological approaches in other contexts (e.g., regulatory environments) and populations (e.g., those trying to quit smoking) to better understand the conditions under which diverse tobacco products can complement one another in recruiting and maintaining practitioners, versus the conditions under which they may displace one another or go extinct. The differential use of poly-tobacco products by gender, socio-economic status, race, and other demographic characteristics should also be explored.

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**Table 1**

## Participant demographics and product use

|   | Full sample<br>(n=60) |     |
|---|-----------------------|-----|
|   | n                     | %   |
| <b>Age:</b>                                     |                       |     |
| 18–20   | 22                    | 37% |
| 21–23   | 13                    | 22% |
| 24–26   | 14                    | 23% |
| 27–29   | 11                    | 18% |
| <b>Gender:</b>                                  |                       |     |
| Female  | 14                    | 23% |
| Male  | 46                    | 77% |
| <b>Product use in past 30 days<sup>1</sup>:</b> |                       |     |
| Cigarettes, ENDS, and Smokeless Tobacco         | 20                    | 33% |
| Cigarettes and ENDS                             | 30                    | 50% |
| Cigarettes and Smokeless Tobacco                | 4                     | 7%  |
| ENDS and Smokeless Tobacco                      | 1                     | 2%  |
| Cigarettes only                                 | 4                     | 7%  |
| ENDS only                                       | 1                     | 2%  |
| <b>Region of residence<sup>2</sup>:</b>         |                       |     |
| Bay Area  | 37                    | 62% |
| Central/Southern Farm                           | 14                    | 23% |
| Los Angeles                                     | 4                     | 7%  |
| North and Mountain                              | 3                     | 5%  |
| Southern California (without LA)                | 1                     | 2%  |
| Central Valley                                  | 1                     | 2%  |
| <b>Self-identified race and ethnicity:</b>      |                       |     |
| White   | 21                    | 35% |
| Latino <sup>3</sup>                             | 18                    | 30% |
| Asian   | 10                    | 17% |
| African American                                | 1                     | 2%  |
| Hawaiian or Pacific Islander                    | 1                     | 2%  |
| More than one                                   | 9                     | 15% |
| <b>Level of education:</b>                      |                       |     |
| Started high school but did not finish          | 1                     | 2%  |
| In high school now                              | 2                     | 3%  |
| Graduated from high school                      | 10                    | 17% |
| Started college but did not finish              | 7                     | 12% |
| In college now                                  | 25                    | 42% |
| Have a college degree                           | 12                    | 20% |

**Full sample  
(n=60)**

|                        | <b>n</b> | <b>%</b> |
|------------------------|----------|----------|
| In graduate school now | 3        | 5%       |

<sup>1</sup>Five participants reported poly-tobacco use on their eligibility screener but reported single product use in past 30 days at time of interview

<sup>2</sup>California Department of Social Services 2002 regional groupings

<sup>3</sup>Selected 'Latino/Hispanic' for ethnicity; includes multiple racial categories. Other racial categories are non-Hispanic. The proportion of Latino participants reflects the ethnic composition of the California population, where Hispanic / Latino people comprise 38.9% of the overall population (U.S. Census Bureau, 2017)

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**Table 2:**

Practice elements of three tobacco products (cigarettes, ENDS, smokeless)

|                   | Materials  | Competences   | Meanings   |
|-------------------|--|---|--|
| <b>cigarettes</b> | <ul style="list-style-type: none"> <li>-Fixed use duration</li> <li>-Strong, clinging smell</li> <li>-Distinctive tobacco/menthol flavor</li> <li>-Standardized &amp; prefabricated</li> <li>-Butts disposed after each use</li> <li>-Portable packs</li> <li>-Discrete units; easy to gift and track consumption</li> <li>-Delivers throat hit</li> <li>-Quick, strong release of nicotine</li> <li>-'Full lung' sensation</li> <li>-Creates visible burn</li> <li>-Clouds of smoke</li> <li>-Easily obtained in everyday environments</li> </ul>                     | <ul style="list-style-type: none"> <li>-Specialized knowledge of permissible places/situations for use</li> <li>-Strategies of concealment (e.g., wearing hat while smoking to prevent hair smelling)</li> <li>-Skill of hand-rolling</li> </ul>  | <ul style="list-style-type: none"> <li>-Uniquely stigmatized as unhealthy, undesirable, transgressive</li> <li>-Inconsiderate</li> <li>-Addictive / controlling</li> <li>-Often ritualistic</li> <li>-Highly social to use/exchange with other smokers</li> <li>-Isolating when requires stepping away from nonsmokers</li> </ul>  |
| <b>ENDS</b>       | <ul style="list-style-type: none"> <li>-Highly flexible use duration</li> <li>-Pleasing, non-clinging smell</li> <li>-Variety and customization (e.g., flavors, hardware)</li> <li>-Ranges from completely disposable to lasting hardware with replaceable parts</li> <li>-Variable cost; more expensive than cigarettes</li> <li>-Variable cloud production</li> <li>-Nothing to dispose after use</li> <li>-Hard to track consumption</li> <li>-Most devices require charging</li> <li>-Fragile, breakable</li> <li>-Lack of throat hit/full lung feeling</li> </ul> | <ul style="list-style-type: none"> <li>-Graduation from closed- to open- system devices</li> <li>-Performance of vape tricks</li> <li>-Adjust heat settings &amp; nicotine content to obtain desired throat/nicotine hit</li> </ul>   | <ul style="list-style-type: none"> <li>-Less and differently stigmatized</li> <li>-Safer than cigarettes</li> <li>-Not inconsiderate</li> <li>-A way to control and reduce nicotine intake; a potential cessation tool</li> <li>-Vaping identity: connoisseur vs. 'douche-y bro'</li> <li>-Sharing is intimate; less social than cigarettes</li> <li>-Highly personalized; akin to personal electronic device</li> </ul> |
| <b>smokeless</b>  | <ul style="list-style-type: none"> <li>-Hands free</li> <li>-Spatially flexible (e.g., can be used where flame or smoke/vapor not allowed)</li> <li>-Easily concealed</li> <li>-Portable cans</li> <li>-Slow release nicotine; flexible duration (20 mins to 2 hrs)</li> <li>-Multiple flavors</li> <li>-Causes mouth sores</li> <li>-Nausea / vomiting for inexperienced users</li> <li>-By-products are spit and used tobacco</li> <li>-Consumption trackable by cans</li> </ul>   | <ul style="list-style-type: none"> <li>-Skill of properly packing a lip, avoid getting stuck in teeth, spit cleanly, esp. while drinking</li> <li>-Strategies of concealment (e.g., spitting into an opaque cup, building tolerance for swallowing spit)</li> <li>-Rotation of tobacco placement in mouth to prevent sores</li> </ul> | <ul style="list-style-type: none"> <li>-Blue collar</li> <li>-Masculine</li> <li>-Women find it unappealing</li> <li>-Unhealthy (causes cancer and gum disease) and unclean</li> <li>-No second hand harms to others</li> </ul>  |

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**Table 3:**

## Roles of tobacco use practices within daily routines

| ROLE                                     | BEST PRODUCT                               | DEFINITION   |
|--|--|--|
| <i>Spatio-temporal organization</i>      |  |  |
| Structuring                              | Cigarettes                                 | Use shapes the rhythm, pacing, and space-time organization of activities over the course of the day.                         |
| Bookending                               | Cigarettes                                 | Use is part of the performance of another activity, marking the beginning/break or conclusion of an activity.                |
| Protected time or break                  | Cigarettes                                 | Use provides a forced break or excuse to pause from an activity or situation.  |
| Transitioning                            | cigarettes (lesser extent smokeless, ENDS) | Use provides a liminal space-time as an individual moves from one part of their routine to the next.                         |
| <i>Creating opportunity</i>              |  |  |
| Space-time opener                        | ENDS, smokeless                            | Use opens up times and spaces for nicotine consumption where cigarette use is prohibited or constrained.                     |
| Ease social interaction                  | cigarettes, smokeless, ENDS                | Use provides contact and an excuse to interact with others; a shared experience and a medium of exchange.                    |
| <i>Negotiating emotion and sensation</i> |  |  |
| Self-soothing or stimulation             | cigarettes, smokeless, ENDS                | Use provides sustained sensory engagement that allows the individual to redirect or focus attention.                         |
| Coping with crisis                       | cigarettes                                 | Use provides immediate comfort in response to overwhelming emotion.  |
| Augmenting physical/mental function      | cigarettes, smokeless, ENDS                | Use eases digestion, promotes alertness, helps improve physical or mental performance.                                       |
| Pleasure                                 | cigarettes, smokeless, ENDS                | Use provides a pleasurable experience.   |
| Harm mitigation                          | all products in collaboration              | Rotating between tobacco products as a strategy for reducing symptoms or perceived harm associated with individual products. |