A Function-Based Intervention for College Student Tech Use in Class

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The purpose of the intervention described in this paper is to provide guidance and support to help college students develop a personal tech-management strategy, so that they can reap the benefits and minimize the pitfalls of their personal technology use in class. Results presented suggested that this intervention can help students begin to develop a self-management strategy for their off-task tech use.

Within the college classroom setting, students are often using various forms of technology such as cell phones and computers. Use of these devices in class is sometimes class-related, but more often than not, it is a distraction from the task at hand, which is attending to and participating in the classroom session (Tindell & Bohlander, 2012). These behaviors are problematic for both the student and instructor, as they can interfere with both the quality of the learning experience and the classroom atmosphere. Therefore, strategies for managing these behaviors effectively and appropriately, given the fact that the students are adults, can serve both students and instructors alike. For the purposes of this paper, technology and tech are used synonymously.

Functions and ABCs of Behavior

All behavior, whether it be useful or destructive, serves a function or meets a purpose for the individual. The four most commonly cited functions for behavior are to gain attention from others, gain access to items or activities desired by the individual (e.g., tangible), to escape from discomfort or demands of the situation, or to experience a sensation that is desired by the individual. Additionally, all behaviors occur in an antecedent-behavior-consequence sequence. Specifically, there is always a stimulus in the environment that occurs before a behavior, then consequences after the behavior providing information to the individual regarding whether or not they should engage in the behavior again at a later time (Cooper, et al., 2020).

The functions and ABCs of behaviors shape the foundation for the development of strategies to rectify off-task technology in the college classroom setting because the most effective way to change a behavior is to create an intervention based on function. This is the case because function-based interventions address the root cause of a person's actions (Iwata, et al., 2000). The three-step intervention described below first helps students identify the functions and consequences of their off-task technology (tech) use. Then, it provides students with different strategies to decrease off-task tech use depending on the function of the behavior within a classroom setting.

Step 1: Determining the Function(s) of In-Class Tech Use

This intervention begins by presenting a list of all possible functions of using tech in class to students using an anonymous polling format (e.g., Kahoot). Anonymous polling should be used for this discussion because it is a non-threatening method of promoting student participation in class conversations (Barr, 2014).

Students from three sections of a Career Development in Psychology course taught by the first author between 2018 and 2019 (N = 54) endorsed the following functions of their in-class tech use. Please note that students reflected on their tech use in all of their current courses, not just Career Development in Psychology. Additionally, they could indicate multiple functions if they were on their tech during class for multiple reasons. This list indicates only one category of on-task tech use during class and it is denoted by italics.

Tangible (access something desirable):

- Need to make plans with friends. (80%)
- Need to make plans with work. (44%)
- Have another test or assignment. (56%)
- Online shopping. (32%)
- *Need information for current class. (74%)*

Attention (gain the consideration of others):

- Expecting a call/text. (69%)
- Just posted something on Instagram/Snap Chat and want to see "Likes." (28%)
- Having a conversation that I need/want to finish. (85%)

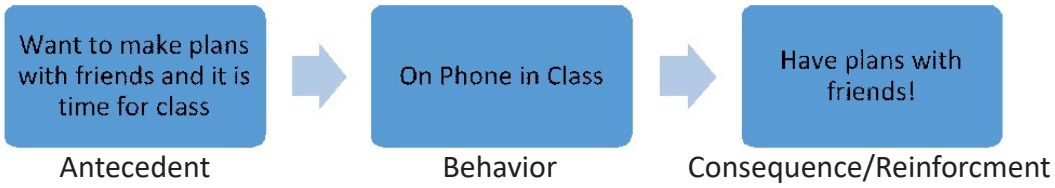
Escape (remove oneself from a disagreeable situation):

- Class is boring. (65%)
- Class is aversive. (44%)
- Family members/Friends expect me to respond immediately. (43%)
- I don't like to be away from my phone. (52%)

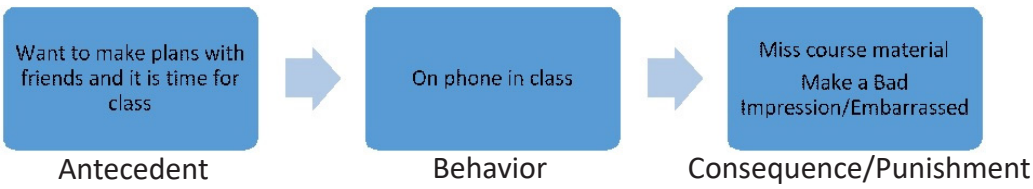
No students to date have suggested a sensory-based function for their tech use in class, such as wanting to see the light on their phone or feel the phone vibrate, therefore sensory functions are not listed above. Be forewarned that this activity generates quite a bit of conversation, laughter, and general classroom chaos! Therefore, it is best presented at the end of a class meeting with the follow-up conversation to be described below happening during the next class.

Step 2: Explain the Functions and ABCs of Tech Use in Class

In the following class meeting, the course instructor explained that all behavior occurs in an ABC sequence that ends in a consequence, and the common functions of behaviors were explained (Cooper, et al., 2020). The instructor then presented the results of the poll taken previously to the class, and several ABC diagrams of in-class tech use were shared. The first example shared depicted off-task tech use producing desirable consequences, making such use of tech in class likely to reoccur.



An ABC sequence of less desirable consequences of being off-task tech use in class that may be overlooked by students was shared next. For example, missing course material is the most common negative consequence of being on tech in class (Baumgartner, et al., 2014; Wei & Fass, 2014). Other consequences students may overlook is that they might make a bad impression on their instructor or find themselves embarrassed if called on in class.



Step 3: Help Students Develop a Personal Tech Management Strategy Based on the "Why" or Function of Their Problematic Tech Use

Now that students understand the functions and some possible consequences of their own problematic tech use, it was time to help students develop a personalized tech management strategy. Technology management strategies were presented based on the reason or function of the student's off-task tech use. When making this presentation, faculty should remind students that they may need multiple strategies for different classes if the functions of their tech use varies by class.

Strategies to Manage Off-Task Tech Use for the Function of Attention or Tangibles:

Tech use that functions as a way to access attention (e.g., make plans with friends or work) or tangibles (e.g., expecting a call or finishing a conversation) were frequently mentioned by students. The primary strategy for managing off-task tech use that serves these functions is to *remember that you may experience unwelcome consequences for your off-task tech use in class!* Specifically, you may miss material and that will slow down course progress, you may make a bad impression on the instructor, or you may experience public humiliation if you are called upon during class. As mentioned earlier, these unwelcome consequences tend to be less salient than the reinforcing consequences of off-task tech use in class, but they are problematic for the student and should not be ignored.

It should also be explained to students that the job of a faculty member it to open doors for students. Specifically, faculty receive many opportunities to recommend students for activities, scholarships and awards, and we write letters of recommendation for graduate school and serve as references for jobs. It is our job to make these referrals, and in the classroom, is where we often make our first connections with students. Therefore, it is *helpful if students assist us in feeling good about promoting them by being attentive and participating in our courses.*

Additional strategies for managing off-task tech use that are classified as seeking attention from others and access to tangibles typically involve *creating space between yourself and your technology*. Strategies for creating this space include using the Do Not Disturb features on your phone in class, leaving your phone in bag/dorm/car during class, or create a text replacement to quickly let others know you will respond at a more opportune time in the near future (e.g., WRS – Will Respond Soon).

Students should also *consider the cost/benefit of doing work for one class while in another class*. Students are taught that it is important to attend class sessions. They may not be empowered to forgo a class meeting in order to study for a test or complete homework for another class, and thus use their technology to do this multitasking during class. Students need to be told that they cannot effectively attend to one class while studying for another, and doing so does not make a good impression on the instructor. Therefore, it may be in their best interest to miss a class in the service of another, as long as this behavior is infrequent. Faculty can further decrease this practice by students by making attendance policies moderate stakes. High stakes attendance policies will make it difficult for students to make the choices needed to balance out their many responsibilities.

Strategies to Manage Off-Task Tech Use That Serves Escape Functions

Tech use that functions as a way to escape (e.g. Class is boring or aversive, family expects an immediate response from me, discomfort disconnecting with phone) were also frequently mentioned reasons for in-class tech use. Boredom in class can be managed by strategies such as *bringing a fidget toy to class, chew gum, eat candy, or drink coffee/soda during class*. Students will be more engaged if they *sit in front of class and participate in class*. They should be encouraged to *pick courses that interest them when possible*, and to *schedule classes with their circadian rhythm in mind*. Faculty can support these efforts by including active learning activities in their courses, and utilizing student technology for class purposes as often as possible, such as asking students to look up a term instead of the instructor doing this for them.

Sometimes students find disconnecting with their phone while they are in class uncomfortable, and regularly checking their phone relieves this discomfort. Other times, students have friends or family members who are uncomfortable disconnecting from the student, and the student is on their phone to mitigate the discomfort in others. In both of these situations, *tolerance training can be helpful.*

Students who find disconnecting with their phone uncomfortable can put the phone one degree further away than is typical for them. For example, if they typically put the phone on the desk, they are encouraged to put it in their lap or bag. Then, gradually increase the distance between themselves and their phone as they become comfortable with the new location. Students can also gradually increase the time between phone checks. If they typically check their phone every three minutes, increase the time by one minute per class meeting until they can go the entire class without checking their phone.

Students who have friends and family members who require an immediate response from them can gradually decrease the speed at which they respond when contacted by the individual. If the student typically responds within one minute, wait two minutes to respond, and gradually increase this time interval. Use of text replacements described above can also be a helpful way to respond quickly to impatient friends and family members, while also letting them know you will be available for a longer response later.

Additional Ways That Faculty Can Help

Faculty can support these student efforts by making all class announcements and/or by having an activity at the start of class to help students to transition away from their tech device and into class quickly. Also, giving a reminder to students to put their phones away at the beginning of class can also be helpful in promoting a swift student transition into class mode.

Assessment of Device Tolerance Intervention

An assessment of the effectiveness of this intervention was conducted in the first author's Spring, 2018 section of Career Development in Psychology. Following Steps 1 – 3 of the intervention described above, students were given the option of practicing their selected function-based tech management strategy in class in place of one of their upcoming assignments. Nine of the eighteen students (50%) voluntarily completed this assignment, and the second author noted off-task tech use during two class periods before and two class periods after the intervention.

Significantly less off-task tech use was noted after the optional assignment, $t(68) = 2.92$, $p<.05$. These results are presented in Figure 1. Figure 2 shows the percentage of students engaged in off-task tech use across several class meetings.

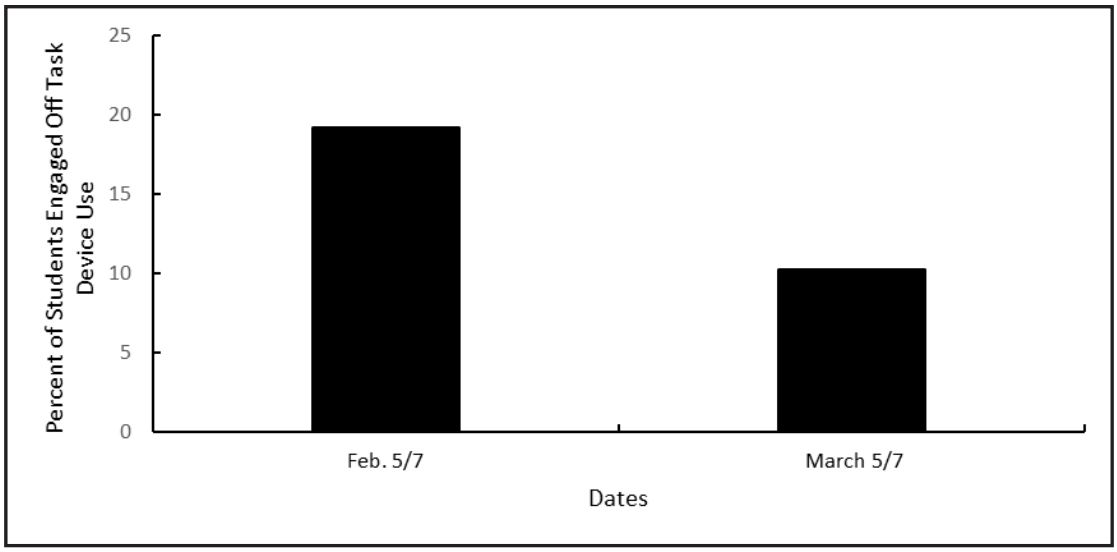


Figure 1. Average Device Use Before and After Assignment of "Device Tolerance" Career Development in Psychology, Spring, 18

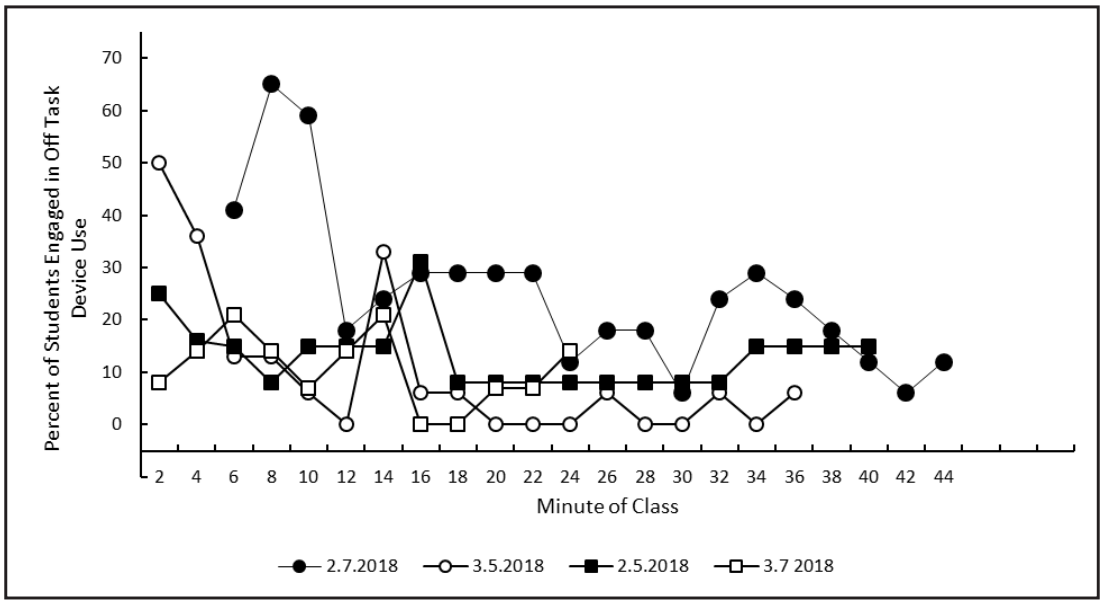


Figure 2. Percent Device Use Across Class Meeting Before and After Assignment of "Device Tolerance" Career Development in Psychology, Spring 18

Note: Filled shapes before intervention. Unfilled chapes after intervention.

Student comments about the benefits of implementing this strategy indicate that they found this intervention helpful and insightful:

> "My… strategy the past 2 weeks was phone tolerance training. I implemented this by keeping my phone in my bookbag during all of my class periods. This worked very well. It definitely helped me overcome some

social anxiety I get when I don't have my phone in sight. It was also kind of rewarding to check my phone at the end of the hour and seeing messages build up."

"I cut back majorly on my phone usage during class. To make sure this was being done I made sure to leave my phone in my backpack during class rather than on my desk. This way I was less inclined to look at it. I will definitely continue to do these things because it allowed me to get a lot more out of my class meetings."

"In order to implement my tolerance training, I put phone across the room and set specific tones for important people when doing other things to avoid looking at my phone for unnecessary reasons. I also kept it in my backpack during classes and made reminders on paper rather than in my phone. I was pleasantly surprised…; I was more involved in interactions with others and less stressed over that I was missing in the digital world. I will definitely continue my training, as I realized my phone is not as useful and important with interactions and tasks as I initially thought it was."

This comment below brings up an important point that faculty need to remember. Students are busy managing many things at once, and there may be some reasonable reasons for limited in-class tech use.

"The past two weeks I tried to turn my phone off during class or put it somewhere that I could not see it. This allowed me to pay more attention in class and stay off my phone. I thought it was really hard to stay off my phone. The past two weeks have been crazy with our last Mock Trial tournament and getting ready for that. Along with that, SGA elections were going on and my phone was constantly blowing up due to being on a campaign team. Honestly, it would have been better to do this a different week because not being on my phone stressed me out due to fear of being needed for campaigning or other things like work or mock trial. I will try to continue this strategy this next few weeks as my schedule is not as hectic."

Conclusions and Implications

The assessment outlined in this paper indicates that providing function-based strategies geared towards specific reasons for off-task technology use in class can encourage college students to independently manage their tech use. A three-step intervention such as the one described here places the burden of managing one's tech use on the student, reinforcing self-responsibility. It begins the development

of what will hopefully be a life-long understanding and self-management of one's off-task tech use.

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