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# The Technology Fast: Transformational Learning as Changes in Behavior and Perception Beyond the Classroom

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## Abstract

*Digital technology has become an integral, if not overwhelming, part of many people's lives. As the use and pervasiveness of technology has increased, the popularity of taking a sabbath from it has also increased. In this paper we ask if and how a technology fast assignment influences students' lives beyond the classroom. Transformative learning, supported by active and experiential learning, suggests that in order for students to reap the greatest benefits of education, learning must influence perceptions and behavior outside of the class environment. In two semesters of "Human-Computer Interaction" classes, students were assigned a technology fast in which they recorded their experiences in reflective writings. We analyze all twenty-three students' responses identifying recurring themes including transformations in preparing for, within, and due to the influence of the technology fast. These themes revealed that the technology fast assignment influenced both perceptions of and behavior related to technology within and beyond the classroom.*

*Keywords:* human-computer interaction, transformative learning, technology fast

## Introduction

*"[The technology fast] helped kick start my process of not using social media, my greatest downfall with regard to problematic technology use. As I am on a quest to be the best version of myself, the insight I have gained about myself during the fast will be invaluable."  
—A Student's Reflection on the Technology Fast Assignment*

Jean Twenge in her top-selling book *iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy—and completely unprepared for adulthood—and what that means for the rest of us* (2017) argues using demographic data that a definitive shift has occurred for the generation after millennials due to the smartphone. While some of her findings highlight positive potentials such as the younger generation being less risky and more accepting of others, other findings strongly tie the heavy use of technology to depression, emotional distress, lack of sleep, and many other negative outcomes (Twenge, 2017). Additional studies, using other datasets and methods, have provided evidence to the contrary—that the association between technology use and well-being is fairly small (e.g., Orben & Przybylski, 2019). However, technology-use is not a monolithic concept, and like any large conceptual category, technology varies by type of use, domain of technology or media, personality variables, and the changing technology itself.

In our technology-saturated culture, many people may benefit from taking a structured break from technology and/or media, and indeed technology sabbaths have become popular in recent years (Dholakia, 2016). Many claim that these sorts of technology fasts allow someone to regain “wasted” time, improve emotional and psychological outcomes, critically reflect on their use of technology, and focus on themselves and their own mental health (Hamblin, 2017). Essentially, the claim is that they will lead to transformative outcomes, outcomes of changed behavior, perception, health, and relationships in the rest of one’s life. Our purpose herein is to better understand how technology sabbaths implemented in a pedagogical setting influence transformative learning within that course and into one’s life as well. Examining them as a classroom activity also has the advantage of engaging students in a technology fast who would not normally do one.

In this paper, we overview transformative, active, and experiential learning, review the extant pedagogical work on technology fast assignments, and then report a thematic content analysis of a technology fast from two sections of a university course. That data shows important transformative outcomes that occur in preparing for the fast, within the fast, and due to the influence of the fast.

### **Transformational, Active, and Experiential Learning**

Not a singular concept, transformative learning, as originated by Jack Mezirow, forks into particular orientations of the central theory components (Taylor, 2008, pp. 5-15). Two orientations relate to our purposes here, the first being one of Mezirow’s most cogent definitions of transformative learning: “Transformative learning . . . transforms problematic frames of reference—sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets)—to make them more inclusive, discriminating, open, reflective, and emotionally able to change.” (Mezirow, 2003, p. 58). This approach to pedagogy changes mindsets not by imposing top-down information, a flaw of some traditional models of education, but by presenting students with the environment and selective experiences that encourage broadening of—and even revolution of—paradigms. The second orientation of transformative learning is what Taylor (2008) calls the “cultural-spiritual view of transformative learning,” which is concerned with the relation between individuals and social structures under the domain of transformative learning experiences that emphasize perspective. Ann Davis’s (2009) focus on the social construction of the self as a path to transformative learning further circumscribes transformative learning as happening by questioning the default views of one’s self and one’s world. As our study of the technology fast *vis-à-vis* transformative learning accounts for not just a course-mandated set of actions but for a student’s own personal reflections and changed worldview in relation to technology, so does the cultural-spiritual view of transformative learning present a narrowed framework in which to record that interaction.

Moreover, transformative learning develops in response to the frustrations with typical pedagogies that ineffectively provide learning conditions to students (McWhinney & Markos, 2003). Such a new conception must see students as both rich, autonomous selves and as having a capacity for caring about knowledge, not just retaining it. Mezirow (2003) attests to such self-awareness when describing transformative learning as “metacognitive reasoning involving these same understandings but [which], in addition, emphasizes insight into the source, structure, and history of a frame of reference, as well as judging its relevance, appropriateness, and consequences” (p. 61). As a result of demanding inclusion of so many mental and experiential elements, transformative learning may not be as precisely assessable as some more narrow measures of pedagogy (Alhadeff-Jones, 2012), but the potential payoff for students is greater because it takes into account personally-observed spiritual and academic qualities and then strategically intervenes.

Related to, but distinct from transformative learning, active and experiential learning suggest the need for classroom pedagogy to go beyond lecture. In a limited capacity, these methods mean use of discussions and group projects, while in more developed conceptions, active learning takes risks in trying out innovative, theoretically-grounded practices to engage students. Drawing on a large body of research, Harris, Harris, & Fondren (2015) explain that “experiential and active learning” foreground an array of “exercises and activities” that are intended to both be “authentic” and “deepen learning.” They go on to

bolster their high value, saying that “Students who are exposed to experiential and active learning exercises, including simulations and role-playing, have reported higher levels of information retention, enjoyment of courses, course evaluations, and desire to change majors” (Harris et al., 2015, pp. 115-116).

Harris et al.’s contention, while expressing a set of results that are difficult to measure, emphasizes the importance of pedagogy and its payoff of learning, going beyond the material of the course, a point that recalls transformative learning, in that active learning is inseparable from its impact beyond course learning outcomes—that it affects the person’s self-understanding, belief systems, and lifestyle.

John Bean wrote the bible on active learning for writing in his far-reaching and widely-applied text *Engaging Ideas*, a work that intervenes effectively in pedagogy by seeing students’ beliefs as central to their capacity for learning (2011). While driven toward exercises which have a stronger pedagogical impact—the kind that many researchers go on to measure but lies outside the purview of this study—Bean persuasively clarifies that successful writing assignments engage the student, by which he means, “To grow as critical thinkers, students must develop the mental habits that allow them to experience problems phenomenologically, to dwell with them—to understand, in short, what makes a problem problematic” (p. 3). Drawing on Meyers (1986), Bean (2011) goes on to admit that students must reflect on their own beliefs by feeling cognitive dissonance which then “undermine[s] students’ confidence in their own settled beliefs” (p. 27). Such “decentering” tasks provoke students into awareness of what they think, engaging them actively with the material rather than, to Paolo Freire’s well-known critical pedagogy critique, being passive vessels in which information is deposited (1996).

However, not all studies have valorized active learning. J. A. Linneman’s comparison of group discussions and lectures left the following conclusion, “Despite recent attention on the importance of adding active learning components to lecture-based courses, these data failed to demonstrate consistent positive impact across various student performance outcomes” (p. 29). Admittedly, active learning provides no guarantees of improved student learning. And while improved student learning is a valid line of study to pursue, our intent is different: we seek to discover if the technology fast qua active learning and transformative learning can improve a student’s life more broadly, by challenging and defamiliarizing her beliefs, a problem with a fundamentally different orientation from most studies of active learning.

While this assignment’s main use of active learning that precipitates transformative learning was the use of a technology fast, the methodology also included reflective writing. Although less flashy, reflective writing occupies a well-defended position within the fields of composition pedagogy and writing studies. Defined from the well-trodden work by Flavell, Wellman, Kail, and Hagen (1977), metacognition encompasses a student’s knowledge of the writing assignment and the monitoring of thinking on that writing. Students with strong metacognitive skills are aware of both the processual steps they are working through to do the writing and the knowledge of the writing product itself (Sitko, 1998). Developing cognitive awareness of something through the umbrella process of metacognition means engaging in rhetorical and cognitive acts which draw attention to the process, including use of instructional strategies such as “dialogue ... scaffolded instruction, graduated questions, and procedural facilitation” (Sitko, 1998, p. 101). In other words, reflective practices are linked with the development of metacognition.

Extending this point as they apply it to writing center tutors, Michele Eodice, Anne Ellen Geller, and Neal Lerner argue for educators to engage in “an incremental theory of learning” by “slow[ing] down their cognitive process a bit whenever [they] can, subject them to scrutiny, and disrupt the commodification of knowledge that can follow from perceived expertise” (2017, chapter 4). Developing metacognition through reflection helps disrupt the engrained and often institutionalized assumptions students have of the learning process. Armed with one of the few longitudinal projects in Writing Studies, Eodice et al. believe that such disruptive, engaging practices *can* create meaning for students; indeed, the payoff is potentially significant, as “students’ sense of meaningfulness *was* a particular kind of agency rooted in ‘new ideas, practices, or discourses learned through their participation in a learning activity,’ namely their meaningful writing projects” (p. 35). Reflection that stirs metacognition, following the

theories of active and experiential learning, suggests the right conditions for transformative learning and consequently for students to further their own selves and beliefs.

### **Technology Fasts and Related Research**

Technology fasts, also known as technology sabbaths, may occur in the higher education classroom but are perhaps more prevalent in popular culture (Dholakia, 2016; Hamblin, 2017). The idea that technology overwhelms people's lives and so needs limiting or eliminating is well-rehearsed, but it is described often in the workplace with the spiritual, holistic terms that the name suggests and that align with the cultural-spiritual view of transformative learning discussed above. As Bryan Brooks (2011) points out on his book on the topic, "It was time to unplug my mind, restore my spirit, and transform my technology lifestyle" (p. 19). The reason for doing technology fasts relates to the shared implications in its two names (technology fast and technology sabbath), both of which signal deprivation for a loftier purpose. Whether that purpose be relief from anxiety, a religious self-dedication, a need for holistic calm, or something else, technology fasts ought to be studied with this broader use in mind. Our analysis below reflects that abstaining from the use of technology is for more than pedagogical learning outcomes alone. That is to say, technology fasts develop more than knowledge in the academic context; they give the student distance from their technology in order to reflect on their lives with an improved, more objective social and historical perspective.

The value of this kind of perspective is asserted by Katrina C. Hoop (2012) in her article analyzing an academic technology fast. She asked her sociology class to refrain from checking social media or using cell or smart phones for any reason except for emergencies for 72 hours. Unlike some technology fasts, Hoop's study still allowed for computer use, but not for social communication. Responses from students, taken up via a date-entry journal they were required to keep, indicate both frustrations with the project, as they wished they could use these devices, and appreciation for not having to be distracted by them. Hoop saw the project as a success for her goals of developing a more objective sociological perspective by acting outside the typical habits students had become used to following (p. 163). She affirms the project as both "engaging students" (p. 163) and "a powerful learning activity" (p. 164). The technology fast's disruptive feature stands out as being its most provoking element, aligning well with Eodice et al.'s theory that meaningfulness comes from putting students in moderately cognitively dissonant situations (2017), as well as accounting for the complexity of the cultural-spiritual view of transformative learning. In sum, we find that while technology fasts have been suggested and promoted as a way to transform one's life (Dholakia, 2016; Hamblin, 2017) and can sometimes be implemented in the classroom (Hoop, 2012), they have not previously been studied as a classroom assignment that could produce transformative learning.

### **Methods**

#### **Overview of the Assignment**

In order for students to better understand how individuals interact with technology, they were asked to take part in a technology fast. For this fast, students were asked to give up most, if not all, personal technology for two to four days as part of a class assignment (see Appendix for full assignment wording). While participants were urged to give up as much technology as possible, each student set his or her own restrictions and goals for the project. Commonly avoided technology included computers, phones, TVs, and video games. Students were asked to document before the fast began what technology they would be giving up, how they planned on restricting their use of said technology, and if they had any exceptions for work or personal responsibilities. After the completion of the fast, students were asked to write a reflection between 750-1,000 words detailing the following: a summary of their initial plan, how well they believed they met their goals, what they did with the extra time they had, what their challenges were, what they learned overall, and to relate the fast to material discussed in class (See Appendix).

## Classes and Responses

All participants in this study were students in Daniel Shank’s “Human-Computer Interaction” course, a 4,000-level psychology elective, offered in either spring 2017 or 2019 semesters at Missouri University of Science and Technology. Because this is an engineering and technology university, knowledge and engagement with all types of technology on the campus is generally high. The technology fast followed requirements outlined in each class syllabi. In 2017 the fast was included as one of five options students could choose for a required project. Thirty students took the course in 2017 and ten out of the thirty chose to take part in the fast. Because of its success, in 2019, Daniel Shank made the technology fast a requirement for the course and thirteen out of fifteen completed the project (one student failed to complete the fast and one student completed alternate assignment due to extenuating circumstances). Between both classes twenty-three responses were analyzed. The twenty-three responses were compiled in one document that was 16,978 words total, or 29 pages single spaced in Times New Roman 12-point font. There were 16 males and 7 females that took part in the fast with responses that ranged from 208-1,003 words.

## Analysis

We analyzed the responses in several steps adapted from thematic content analysis (Anderson, 2007). First, we read through the set of responses and identified potential themes that stood out as being most important and salient to the students. Second, based on these summaries, we iteratively created a list of recurring themes—both adding new themes and combining existing ones until we reached consensus about the most prominent ones (Anderson, 2007). Third, we returned to the data and identified which responses included each theme. Fourth, we searched within the responses that included each theme to find quotes that best exemplified how the themes represent the student’s experiences.

## Results

We identified eight major themes which we grouped into three larger categories of transformation based on their temporal relationship to the fast: transformations in preparing for the technology fast, transformations within the technology fast, and transformations influenced by the technology fast (Table 1). Each of the eight themes were included by at least a third of the subjects; the most prominent theme was found in over two-thirds of the participants’ answers (Table 1).

Table 1

*Eight emergent themes grouped into three categories of transformation.*

Category of Transformation and Themes	Percent of Sample
Transformations in Preparing for the Technology Fast	
Obligations in Preparing for the Fast	48
Inaccurate Expectations of the Fast	61
Transformations within the Technology Fast	
Increased Productivity	70
Increased Socialization	52
Increased Relaxation	43
Increased Anxiety	52
Transformations Influenced by the Technology Fast	
Realization of Dependency on Technology	44
Plans to Limit Technology in the Future	34

### **Transformations in Preparing for the Technology Fast**

**Obligations in preparing for the fast.** While the goal of the technology fast was to reduce the use of technology for a period of time, some students (48%) described the necessity of making preparations for the fast. Some of the preparations mentioned were expected as part of the assignment, such as notifying friends and family (see Appendix). Other responses reveal a more interesting phenomenon of spending additional time using technology to prepare, and sometimes compensate, for the fast. One student who took on the fast during a hiking trip during spring break refrained from all forms of technology besides a GPS and a few phone calls to update his family that he was safe. Yet in order to do so he spent more time beforehand to prepare:

I knew I would enjoy some time away from technology, but since I have a lot of obligations (i.e. internship, school, and research) that have to be done on a computer, I had to spend a lot of time beforehand getting extra work done to make up for me taking a week off. (Male, 2017 class)

This student's experience shows that in order to justify time without technology, he increased his time online related to his obligations. The next quote is from a computer science major who discussed that because of his major he would be spending a significant amount of time on the computer, but he wanted to be more conscientious of his use. In order to make sure that he adhered to the fast, this student spent time beforehand researching and installing an extension that would keep him off nonproductive websites.

Recognizing before the fast that I would likely get distracted during my homework and want to turn on Netflix or music, I installed a website whitelisting extension for my web browser. With this extension, I blocked all sites excluding Canvas, Joe'SS, and MyMathLab (for the homework). I proved myself right with this assumption and felt a very real urge to go on Reddit just for a while, or open Netflix just for the duration of my work. (Male, 2017 class)

This student's reflection shows that he knew his habit of using technology would be difficult for him to resist. Ironically, he employed technology in the form of a browser extension to stop himself from giving into the temptation brought about by technology.

**Inaccurate expectations of the fast.** Some of the students reported specific expectations going into this experience that were not fulfilled (61%). Nine students (39%) mention initial expectations that the fast would be easy but upon reflection note that it was much more difficult than they expected.

Looking back on it now, I can honestly say I was shocked to find how difficult it was to follow through on the fast. The struggling began on Tuesday, the first full day of fasting. When I got home from classes, it was unbelievably tempting to listen to music while doing homework, or take a break and play a game for a while. At that point I knew it was going to be rough moving forward. (Male, 2017 class)

This student explains it as "unbelievably tempting" for him to use technology, suggesting it had become his primary activity during downtimes. The temptation this student feels could be explained by the allure of technology, compared to a less exciting activity like studying or homework.

Other students experienced the reverse: five students (22%) actually found the technology fast was easier than they had expected.

At first, I thought it was going to be challenging because I was always on my phone when studying (multitasking), but when I actually started it, it wasn't too bad at all. I thoroughly enjoyed not being on my phone constantly because it lets me be in the "real world" (engaging

with family, not just staying home all the time, going out and helping where I'm needed).  
(Female, 2019 class)

The time away from technology was easier and more enjoyable for this student, as she was more present with the people in her life. While students misjudged the difficulty in both directions, this misjudgment may be due to how they spend the time away from it. In the former quote, the student desired to default to his typical routines, whereas in the latter, the student was pleasantly distracted by other opportunities. In this next section, we explore how this time away from technology was used.

### **Transformations within the Technology Fast**

**Increased productivity.** While abstaining from technology use, students found that they had a large amount of unused time. Sixteen students (70%) mentioned being more productive in their downtime during the fast. The following student actually found his newfound productiveness so enjoyable that he reported extending the fast past his originally planned four days:

While away from video games I discovered that I was able to manage time much more efficiently. I was not procrastinating as much and made sure to finish my homework earlier rather than later. I also felt like I had more time in the day as I was knocking out my gym workouts and run sooner thus giving me longer evenings. (Male, 2019 class)

This participant's quote shows just how productive he was able to be without the distraction from technology. Another student was able to use her time away from technology to complete tasks around the house. "My time away from technology meant a lot of quiet activities. I primarily focused on doing housework like dishes, meal prep, and laundry that had gotten out of hand in recent weeks due to exams" (Female, 2019 class). Several students, like this one, were able to catch up on activities that are often postponed due to the distractions that technology can provide.

**Increased socialization.** Several participants found that even after completing their required tasks they still had free time, and so many of them filled that time by being more social. Twelve participants (52%) described being more social during the fast, either with friends, family, or both.

My interactions were changed without always being on technology and as an example: I actually got to sit down and eat dinner with my mom while having a conversation with her about my day. I never get to do that but during the fast I did, and I thoroughly enjoyed sitting down and talking with her. (Female, 2019 class)

The student clearly enjoys and values having a sit-down meal and conversation with her mother. While the student's sentiment is that she "never [gets] to do that" might be an exaggeration, it illustrates how profound a difference using and not using technology makes to her relationships.

**Increased relaxation.** Along with better communication skills, some participants found that they had time to rest and relax without technology. Ten students (43%) realized that without the distractions of technology they were able to spend more time relaxing; one participant described how the fast meant she had time to read: "I had more time and energy to spend reading. I love to read, so it is a shame that I often trade reading for time wasted on Instagram" (Female, 2019 class).

**Increased anxiety.** While many students felt that the fast created positive changes in their lives, several experienced anxiety as a result of giving up their technology during various stages of this journey. 12 students (52%) mentioned anxiety or a related feeling in their reflection; 11 experienced anxiety themselves and 1 declared that their abstinence caused their family to feel anxious. "What this fast told me was that I don't like silence or solitude. Even though I chose to live alone for that reason, being

completely cut off from any noise and socialization made it deafeningly quiet” (Female, 2019 class). This student’s quote illustrates how ingrained technology has become in her day-to-day life such that she felt extremely isolated when it was not available.

Another student mentioned that she felt disconnected without technology and that she had not realized how many aspects of her routine require technology. “I felt like I was always rushing more because I was more uncertain on the time and felt like I was late constantly” (Female, 2017 class). This student experienced mild anxiety without her phone when she realized that that was her primary way of telling time and keeping her on schedule.

### **Transformations Influenced by the Technology Fast**

Based on these changes during the assignment, students reflected on transformations that occurred due to and potentially beyond the technology fast assignment. Two themes emerged dealing with new realizations about their own lives and behaviors changed based on those realizations.

**Realization of dependency on technology.** Many students found the assignment to be eye-opening with ten students (44%) describing a realization of their dependency on technology throughout this process.

Overall, from this fast I learned that I use a lot of technology in my day to day life even if I do not actively realize how much I use technology. Even by trying to limit myself from large, obvious forms of technology use I noticed just how often I turn to my phone for entertainment without even thinking about it and how difficult it is to not use it all for an extended period of time.  
(Male, 2017 class)

By describing how difficult it was for him to give up technology, this student admits metacognitively how he realized that often he reaches for his phone or other technology without even thinking about it, and how he depends on his technology throughout the day. Other students found value in understanding their dependence:

I learned just how reliant I am on technology. From doing schoolwork, to hanging out with friends, to blowing away free time, technology is an important part of my life. It was difficult to find ways to spend all of the free time I had and, in the end, I think it was a positive experience.  
(Male, 2017 class)

This participant’s quote shows that while he underestimated the difficulty of the fast, he found it to be worthwhile to see that he could live without using technology, even if the fast was temporary.

**Plans to limit technology in the future.** The technology fast also gave students the opportunity to see what their lives would be like without constant use of technology. Eight students (34%) enjoyed or saw the benefit of the experience so much that they expressed desire to limit their future use of technology:

Moving forward, I will use the experience gained here to “live in the moment” and find other outlets to channel my thoughts, actions, and time. I still love technology and the seemingly unlimited potential it offers, and I will probably still use social media despite its flaws and potential to suck away my free time. (Male, 2019 class)

With dedication to my new routine, I can get on track and get ahead with everything in my life giving me more freedom to be with friends and family ultimately making me happier in general. This will increase my quality of life as I will be able to accomplish more and have more confidence to do so. (Female, 2019 class)

Both of these students see a potential for improving their lives through the limiting of technology. The first realized that technology keeps him away from living in the moment and redeeming his time. The second, following her discussion of her time on video games, decided that in order to become the person she wants to be, she needs to attempt to monitor and potentially limit the time she spends.

Another student captures this strong interpersonal and identity-creating sentiment by mentioning the idea of a *better me* when abstaining from technology use:

Overall, this is a great project and it helped kick start my process of not using social media, my greatest downfall with regard to problematic technology use. As I am on a quest to be the best version of myself, the insight I have gained about myself during the fast will be invaluable.  
(Female, 2019 class)

While not every student expressed these sentiments and not everyone who did will follow through, the invaluable insights that can be applied to becoming the best version of oneself is what transformation—and as a result, transformative learning—is all about.

### Conclusion

Classroom assignments play multiple roles, each with its own importance. Fundamentally, they serve to train students and provide assessments of the achievement of that learning. However, in the spirit of transformative learning, active learning, and experiential learning, one would hope that material in the classroom is not only the domain of academic subspecialties and thus remains locked in the ivory tower. After all, Taylor (2008) cautions us against using transformative learning as simply “implementing a series of instructional strategies.” Instead, as students reflect through metacognitive writing on experiential learning assignments, they become aware of the pedagogical reasons of the assignments they have been tasked with and so can judge how the purpose of those assignments will affect their thinking and behavior, thereby implementing the goals of “a particular educational philosophy” (Taylor, 2008, p. 13). Metacognitive reflection, too, encourages student buy-in to the project and lessens the autocratic divide between instructor and student, replacing it with a critical thinking-driven democratic engagement with course material. When students are allowed to respond to a class assignment, as our technology fast reflections stipulated, they become the kind of learners that John Dewey imagined across his *oeuvre*: learners who become their own educators.

Technology is widely studied and taught in academia; it also creates significant social, cultural, political, environmental, and personal changes. As a result, the use of a technology fast in the higher education classroom provides students with the chance to take learning beyond their career-specific use and determine its role in their lives. In the students we studied, the technology fast precipitated not only, through its role as one of the course assignments, successful completion of course goals but attention focused on the role of technology in students’ lives. That awareness developed in the context of their cultural identities and the actions that make up those identities in the sense of students’ work habits, social communication styles, media consumption, and familial relations, to name a few. Although not many people would doubt the influence of technology on American culture, the technology fast provides a hiatus and interregnum in which its influence can be studied and seen in its specifics. The results, therefore, remind us of the significant role technology plays and the withdrawal symptoms occurring in its absence.

Herein, using thematic content analysis and illustrative quotes, we examined how a technology fast assignment have transformation influences in students’ lives, furthering the practices and goals of transformative learning. We did not analyze how the student made connection with the course content (e.g., theories, definitions, concepts, and processes in human-computer interaction), but instead how the fast interacted with their own lives, routines, cognitions, and outcomes. Clearly, our sample is limited in its generalizability, as it studies only two semesters of one course at a single university. Additionally, other ways to implement technology fast and other types of students (e.g., graduate, high school) might

lead to different and additional insights. Given the lack of research in the area of pedagogical technology fasts, we see those limitations as suggestive of future research in this area.

Transformations occurred while preparing for the fast, within it, and because of it, showing that taking a sabbath from technology has influence beyond the activity itself. In fact, such types of active learning teaching strategies play a vital role in the university, a place where, despite continual influence of career-training styles of curriculum, the importance of developing minds through belief systems remains crucial. To teach a course with assignments that cannot only accomplish curricular goals but can provoke students into thinking about their beliefs moves toward an ideal of college education as developing the whole person. Our results suggest the power of a technology fast to be one step in that direction and so be a model for future studies with these same objectives.

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## Appendix

### Wording of Technology Fast Assignments

#### **Technology Fast Assignment in the course Human-Computer Interaction in 2017**

Choose a number of days (2-4) to fast from (give up) all personal technology. Decide ahead of time when you are going to do this, how you will accomplish it, and if there will be any exceptions. For example, if you are on call for work you should not turn your phone off or if you have an assignment due you should use your computer for that schoolwork. However, some people might have specific devices they can turn off completely. You may also need to let others (family and friends) know about it so you don't offend them or so they could reach you in case of an emergency. Document ahead of time when you will do this, what you will turn off, what you will restrict, and what you have told your contacts. You must (1) turn in this documentation ahead of time here on Canvas. After the fast, write a self-reflection paper which (2) summarizes your initial commitment that you documented and turned in on Canvas, (3) discusses how you did and felt in relation to staying off the technology and if any challenges or problems arose, and (4) discusses how you used the time away from technology, if that was challenging, and what you learned about your own interaction with or reliance on technology.

#### **Technology Fast Assignment in the course Human-Computer Interaction in 2019**

For this assignment each student will choose a number of days (3-5) to fast from (give up) all personal technology use and write a reflection on the experience. Part 1 involves turning in a technology fast plan. This plan should be a word document less than 200 words and include (1) when you are going to fast, (2) what specifically you will fast from, (3) if there will be any exceptions, (4) how you will implement those exceptions, and (5) who you will need to inform. For example, if you are on call for work you should not turn your phone off or if you have a computer assignment due you should use your computer for that schoolwork. You should consider if you can turn off a device completely, disable apps, not use websites, or if you simply should restrict time on those. The goal is to maximize the fasting. You may also have to let some family, friends, or bosses know so you do not offend them and so they could reach you in case of an emergency. Part 2 involves writing a self-reflection paper of 500-1,000 words which (6) summarizes your initial plan, (7) discusses how well you met that plan, and (8) discusses how you used the time away from technology, (9) if and how it was challenging. Then in at least a substantive paragraph each should you discuss (10) what you learned about your own interaction with or reliance on technology and (11) how that and the fast relate to content from class. Grades are in 5 point increments based on clearly documenting and discussing the fast according to the 11 criteria. Technology fast grades lose 10% per day that the plan is late and per day that the reflection is late.

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