High School on Facebook:
An Ethnography of Social Media, New Technology, And Psychosocial Risks with "Always On" Teenagers

A Master's of Science Thesis
Submitted to the Department of Symbolic Systems of Stanford University

Neekaan S. Oshidary
Spring, 2012

Adviser: Tanya Luhrmann
Second Reader: Terry Winograd

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More than ever, youth grow up increasingly tethered to technology. These youth live in a culture dubbed as "always on" with smartphones, Facebook, and social media that keep them constantly connected. In recent years, growing concern has emerged regarding the psychological and social effects on a generation that grows up increasingly wired to technology. Research has found that heavy media multitaskers perform significantly worse on task-switching and other cognitive measures than light media multitaskers (Ophir, Nass, Wagner, 2009). Furthermore, while this present work was underway, newer research linked greater amounts of multitasking and media use in 8-12 year old girls to poorer social well-being compared to girls that engage in less screen-time (Pea et al., 2012). In addition to quantitative research, Sherry Turkle's (2011) ethnographic work, *Alone Together*, examines critically the dangers and pitfalls of our modern tech culture. Turkle describes a society that has grown increasingly connected, but in the process increasingly isolated and lonely. Technology may keep us endlessly busy occupying our multitasking and virtually tethered minds. But media like text and email also provide means for "dialing down" the intensities and demands of real human contact, leading to less fulfilling relationships. In some sense, our wired society undergoes a great social experiment. Most especially, we wonder how this changes the development of youth and adolescents raised in this digital world.

In the ethnography presented here, I explore my interview-based research looking more closely at how social media and mobile technologies impact the lives

of high school students, the problems that arise, and what kinds of redesign may remedy these problems. My research remains preliminary, as it only looks at students at one private, college preparatory high school in Silicon Valley. However, these interviews provide a picture of teenagers with lives increasingly shaped by an "always on" lifestyle. They still confront the challenges of adolescence and high school, but social media amplifies many of the psychosocial challenges students face and often presents new ones. The danger especially lies in the over-exposure of these problems with an "always on" lifestyle. Constant connection may prevent opportunity for respite from these problems. Without this, teens may have difficulty stepping back and gaining the space to overcome these problems.

I break down these teens' "always on" lifestyle into three domains of concern, all of which suggest needed remedies for better supporting self-regulation. Firstly, these students repeatedly raised concerns of "time waste," "addictive" qualities, and effects on productivity, stress and fatigue, and sleep. Secondly, social media appears to exacerbate more adolescent-sensitive challenges related to social comparison and jealousy, focus on self-image and appearance, and cliques and identity. Finally, students and teachers report changes to interpersonal and social skills, which suggest students increasingly rely on the "mask" of technological media to tone down intensity of human contact to more comforting degrees, especially when discussing personal or emotional topics. The body of this ethnography breaks into three parts devoted to these respective domains. At the heart of the problem, social media can create an around-the-clock infrastructure that exposes teenagers to and may even amplify persistent psychosocial risks.

Part I of this ethnography explores the most persistent complaint students raised regarding social media and Facebook: the sheer amount of time it takes out of one's life. Students describe struggles with trying to control their Facebook use while doing homework. Students and teacher interviews also suggest excessive use leads to less sleep (and sometimes less in quality) and as a result more stressed and fatigued students. It then explores how some features may contribute to excessive use, as many students describe being "hooked" to Facebook even though it often does not feel very rewarding.

Part II focuses on how an "always on" lifestyle keeps always on and accentuates the various challenges of high school and adolescence while presenting new ones. Problems with social comparison and jealousy become amplified when the self-selected positive, happy content of others leads to what one student described as a misleading sense of others having a "better life." Furthermore, insecurity about one's appearance may be exacerbated when girls begin using Photoshop for uploaded Facebook photos. Similarly, the "like" and comment system of Facebook may make some students increasingly self-conscious and occupied with their online image. Lastly, high school cliques transplanted onto social media sites may leave some students feeling they have little chance to express their full personality and more confined around-the-clock to their now online clique identities.

Part III explores social and interpersonal skills and the kinds of "always on" modes of communication that can increasingly "titrate" down the discomfort of human communication. Students describe the added comfort of the "mask" of text

and the computer screen. This mask can provide opportunity to take time to think of a response, avoid saying something wrong, and shield others from revealing emotions or reactions. With these tools of text and online chat, some students risk increasingly relying on these media for toning down the intensity of discussing personal, emotional, or deeper conversations. I conclude each of these sections with considerations for potential technological redesign for addressing these problems and ultimately supporting better self-regulation among students.

Background

Various research and ethnographic work in recent years has begun to raise concerns about the negative impact of increasing technology use on our lives. One of the earlier often cited studies comes from Ophir, Nass, & Wagner (2009) on cognitive control and media multitasking. This study compared college students who fell one standard deviation above the norm on measures of media multitasking (high media multitaskers or HMMs) and one standard deviation below the norm (low media multitaskers or LMMs). A series of cognitive tests found that HMMs had greater difficulty in tasks involving (1) filtering out irrelevant environmental stimuli, (2) irrelevant representations in memory, and (3) irrelevant tasks when engaging in task switching. These data suggest HMMs may have less cognitive control than LMMs in ability to filter out distractions, even during instances of multitasking.

Such data on cognitive effects on college student becomes especially pertinent to the discussions in Part I on the seeming ubiquity of multitasking among high school youth. Given that the Ophir, Nass, & Wagner (2009) study looked at

college students a few of years before my ethnography, there remain important questions to ask about the longitudinal impact of multitasking habits. Negative effects may be more potent, especially when students develop these habits at a younger age and reinforce them more frequently as is likely the case with high school students in this ethnography.

While we still need more quantitative research on the cognitive effects of media multitasking in youth, recently published research explored the correlation between heavy media use and multitasking and social well-being in young girls. Pea et al. (2012) conducted an online survey of 3,461 North American girls between the ages of 8 and 12 to assess correlations between media use and multitasking, face-to-face communication, and social well-being. This study found higher levels of media multitasking correlated with a series of negative social and emotional measures in these girls. These negative measures included "feeling less social success, not feeling normal, having more friends whom parents perceive as bad influences, and sleeping less." Interestingly, high levels of media use, whether it is interpersonal (e.g. phone, text, chat) or not (e.g. video, music, reading), correlates positively with negative social well-being. By contrast, face-to-face communication strongly correlated with positive social well-being. While it remains important to not infer a direction of causality here, the qualitative descriptions in this ethnography compliment and provide insight into better understanding potential sources for these findings.

In contrast to a more conservative stance in terms of causality, Elias Aboujaode is a psychiatrist, researcher, and author who more assertively points to

problematic Internet use and the changes it makes to offline psychology. Aboujaoude et al. (2006) conducted the first large-scale epidemiological study of "problematic Internet use" through a phone-survey of 2,513 individuals. This study suggests that Internet addiction should be considered as a psychiatric problem with symptoms similar to impulse control disorders recognized in the DSM. In his book, *Virtually You: The Dangerous Powers of the E-Personality*, Elias Aboujaoude argues further that problematic Internet use has led to negative personality changes in once healthy individuals. While most of Aboujaoude's claims come from anecdotal experience and psychiatric analysis, his claims remain provocatively alarming. Aboujaoude suggests that the Internet has contributed to changes in personality traits leading to an "e-personality" characterized by more grandiosity, narcissism, aggression, impulsivity, infantile regression, lust, deluded sense of knowledge, and addiction. If such a claim proves true – that problematic Internet use can alter personality for the worse – even greater attention ought to be paid to youth who are raised increasingly tethered to the Internet often with little safeguards.

Additionally, there exists more ethnographic work that has explored the negative consequences of our tech culture. Sherry Turkle's 15 years-in-the-making ethnography, *Alone Together*, provides perceptive analysis into the changing psychological and societal terrain that comes with our increasing technology use. While the first half of her book addresses concerns with social relations with robots, the latter half of her book stands as directly relevant to my ethnography with her theme of "in intimacy, new solitudes." Turkle describes the increasing feelings of loneliness within our modified and new means of social interaction. Directly

apropos to the Pea (2012) study above on media multitasking infringing on face-to-face communication, Turkle describes the now commonplace absence of those physically present because of their technological devices: dinners, communal spaces likes parks or train stations, places of meeting and departure no longer provide a full presence of human interaction when individuals bring texting and phone checking to these places. Children grow up in an environment where multitasking with devices becomes the norm.

Additionally though, Turkle provides valuable insight to why these changes tempt us so seductively. She succinctly describes her book's thesis in an interview:

> As it turns out, we are very vulnerable. We are lonely but fearful of intimacy. Constant connectivity offers the illusion of companionship without the demands of friendship. We can't get enough of each other if we can have each other at a distance and in amounts that we can control.
>
> (Greengard, 2011)

Turkle describes in her book the growing sense of comfort that technological mediums provide to "dial down" or "titrate" the intensity of human communication. She suggests that these technologies turn us into modern "Goldilockses." Youth gravitate toward texting over phone because texting allows them to be "not too close, not too far, but just the right distance" (Turkle, 2011, 15). These new controls enable users to hide as much as they show in their communication, leading to a shying away from more real-time exchange that remains more demanding. Part III of this ethnography takes up this line of analysis with how students feel conversational intimacy has changed among students and friends.

Lastly, Turkle's analysis warns of the danger of a diluted sense of intimacy that, while not nourishing, constantly remains connected. That is, Turkle suggests

that with constant connectivity, youth lack the opportunity for solitude and ultimately the chance to learn how to be alone. She concisely says, “If you don't teach your children how to be alone, they'll only know how to be lonely” (NPR, 2011; TEDx, 2011). Turkle suggests a fundamental feature of psychosocial development that ultimately leads to individuation and healthy maturation first requires periods of solitude. Moments to be with one’s own problems and turmoil remain necessary to overcome them and develop an autonomous, mature self. In this light, Turkle’s thesis stands as similar to my own in that I also argue that the “24/7” or “always on” lifestyle of youth may exacerbate certain psychosocial risks while depleting youth of the time and space to recalibrate and adaptively overcome their difficulties.

Setting and Methods

My ethnography involved interviews at a parochial college preparatory school in Silicon Valley, where I attended high school. As such it is important to recognize that this ethnography deals with a very limited sample of high school students. This school is a private Catholic school known for its high caliber academics. Students generally come from far higher socio-economic backgrounds than other public schools. The school emphasizes student growth academically as a college preparatory school, socially with a strong base in extracurricular and athletics, and spiritually as a Catholic school with religion included in its curriculum and activities.

I received permission from the school principal to conduct interviews with students and teachers to investigate the impact of new technology and social media on students' lives. While my ethnography focused more on student interviews, I first conducted interviews with teachers and staff. I interviewed some teachers individually, but also interviewed other teachers as a group during lunch in their faculty lounge.

I interviewed students through several means. Firstly, one teacher of religion offered to have me come in and lead a class discussion with two of his classes, each containing roughly 25-30 students. One class consisted of sophomores and the other consisted of juniors. These discussions probably most represent the student body because religion classes at this school have a full mix of students, whereas other classes may be split along Advanced Placement (AP)/honors or "regular" class lines. In my ethnography, I do not give pseudonyms for these students, but introduce their quotes as "a sophomore" or "a junior" "in a class discussion." My interviews with each class lasted about 30 minutes. Additionally, I conducted individual interviews with 21 students. In nine of these, I interviewed seniors taking AP Physics, since the AP Physics teacher advertised my project to his students and helped recruit them. The rest of the individual interviews consisted of students I found after school hours chiefly in the library, where I also received help advertising and recruiting from the library staff. I offered students doughnuts in exchange for their participation. Interviews typically lasted 30 minutes, but time constraints cut some short, while a few others lasted significantly longer. These individual interviews consisted of 8 males and 13 females, while the breakdown of

grade-level consisted of mostly upperclassman with 11 seniors, 6 juniors, 3 sophomores, and 1 freshman. Lastly, in addition to interviews I recruited 39 students to fill out an online Google Docs survey to compliment my interviews. I also offered doughnuts for participants. These 39 students consisted of 29 males and 10 females, and 3 seniors, 18 juniors, 10 sophomores, and 8 freshmen. I utilize pseudonyms for all interviewees to maintain anonymity.

A very important caveat to this ethnography remains that this sample fails to be fully representative of a larger demographic and also completely representative of the school. While I did engage two class discussions in a religion class that represents an even distribution of the school, my individual interviews heavily weight toward interviews with more higher-achieving students. As mentioned, I interviewed a sizable portion of seniors in AP Physics, most of whom tend to take more AP and honors classes. Additionally, because most of my other recruits came from the library during afterschool hours, these students may likely represent more academically inclined students who do not represent all the social circles at this school. Additionally, given the high emphasis on academics and the high socio-economic background of this school, we cannot necessarily generalize these findings to a broader demographic. Sometimes in my analysis I refer to effects on "students" as a general group for ease of communication. However, it should be emphasized that this analysis should be limited to the context of these interviewed students. Nonetheless, this ethnography can shed light on phenomena that may apply more broadly, especially in junction with further in-depth research.

Part I: When Online Distractions are Always On Outside School
Balancing Educational Benefits & Time Management Risks of New Technology

Teenagers in high school live increasingly wired than ever before. They check Facebook prior to coming to school. After school, they may collaborate on schoolwork through collaborative technologies or spend hours on social media and surfing the Internet as they do homework. This section explores some of the most commonly described benefits and drawbacks with an "always on," always connected lifestyle as it affects academic performance, time management, sleep, stress and fatigue, and feelings of "addiction" to social media. That is, we will look more closely here at the academic and cognitive effects of an "always on" lifestyle, as opposed to the more social and interpersonal considerations explored in the final two parts of this ethnography. Firstly, I discuss some of the strong benefits described by teachers and students in terms of collaborative abilities with new technologies. Keeping these benefits in mind, I then consider observations that students do not seem to underperform, but appear increasingly stressed and fatigued. A likely source may be the amount of "time waste" that students describe as a result of multitasking with social media like Facebook. I consider the effects of online distraction on the homework process and also effects on sleep quantity and quality in some students. Finally, I discuss some features that may lead to the "addictive" pull of Facebook that these teens describe and prospects for how these problems can be addressed with redesign of technologies.

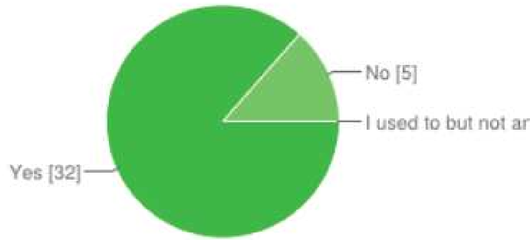
Educational Benefits of Facebook Groups and Collaborative Technologies

While we often see social media as an academic distraction for students, social technologies also provide potential for improved academic achievement. In addition to being able to keep in touch and communicate with friends, high school students resoundingly brought up the benefit of Facebook – particularly Facebook Groups – for studying and schoolwork. Facebook Groups allow individuals to form an online space around a particular area of interest. These groups can be kept private to those in the group. Many high school students, especially those in demanding AP or honors classes, have formed Facebook Groups for each of their classes to facilitate collaborative study. These Facebook Groups provide an afterschool and online forum where students can fill each other in on what some may have missed, answer each other's questions, work on group projects, test each other on understanding, and consolidate study materials. In my interviews, students repeatedly brought up the benefit of Facebook Groups for studying as one of the positives they associated with Facebook. In a sample of 39 students, 37 students said they were on Facebook. Of these 37, 32 (86.4%) said they used Facebook Groups for schoolwork. Eighteen students (51.4%) rated Facebook Groups as "very helpful" for studying and schoolwork, 10 (28.6%) as "somewhat helpful," and 7 (20%) as "neutral."[1]

Figure 1. Survey Data for Questions on Facebook Groups.

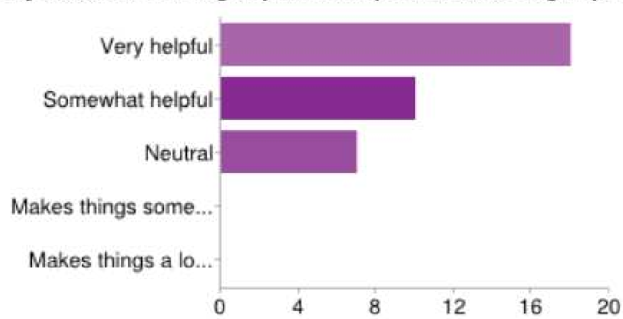
[1] The percentages in this statistic are out of 35 students because 35 students answered this question; some students may have used Facebook Groups in the past, but do not currently use them, hence the discrepancy with 32 students who say they use them.

Do you use Facebook groups for school work?



Yes	**32**	86%
No	**5**	14%
I used to but not anymore	**0**	0%

If you use Facebook groups, how helpful is Facebook groups for studying and schoolwork?



Very helpful	**18**	49%
Somewhat helpful	**10**	27%
Neutral	**7**	19%
Makes things somewhat worse	**0**	0%
Makes things a lot worse	**0**	0%

Very often Facebook Groups provide a useful tool for students seeking help from others on understanding material or just getting briefed on what they missed in class. Jackie, a high-performing junior, describes:

> I think for us, now that we're juniors, I think we've gotten a lot smarter on Facebook, so we have Facebook groups for AP classes. So if people need help on something, they'll post on that, and other people who are in the group will help them out. Or like, if you're asking for homework, then they'll tell you what the assignment is and the due date is. So that helps a lot.

Another student, Nikhil, concurs with the advantages of Facebook Groups:

> I think Groups are very helpful. Like, for example, Euro [European history] students this year have a Euro study group, which kind of – which really helps me because we can interact with, like, study questions or how to do homework for this section but still with academic integrity.

Many of the students interviewed voiced very similar descriptions of the benefits of Facebook Groups. While students repeatedly paint Facebook as a distraction and time waste, Facebook Groups in particular can be advantageous for studying.

According to these students, while students have always been able to access other students for help, Facebook Groups provide the great benefit of the degree and number of people made accessible. A sophomore girl describes that through Facebook Groups a student does not need to know someone very well to be able to seek help for a particular challenging class:

> I think education-wise it's a lot easier to communicate – and with people who you don't necessarily know their phone – like, you don't know them well enough to have their phone number, but Facebook is more broad in terms of how many people you have, so you can actually have groups of, like, certain classes that our whole sophomore class is taking, so it makes things a lot more easier.

Facebook Groups in effect enable collaboration and communication for studying where it otherwise remained far more difficult. According to these students, the focused interest of the group encourages help and collaboration in a way that circumvents the awkwardness of seeking help from those they do not know personally.

Some of these students even suggest that Facebook Groups, coupled with other technologies like Skype and Google Docs, provide great tools for building communities through the collaborative study process. Alok, a sophomore, describes how Facebook Groups often provide a forum for study materials and answering questions, but prior to a test students will initiate Skype conferencing to quiz each other in real-time:

> 'Cause a lot of times with the groups on Facebook, if you have tests like the day before, we'll all get on a huge Skype session and just quiz everybody. That's why I'm saying it's beneficial because it builds a stronger community like that.

Students that would otherwise be separated by distance after school can collaborate and test one another. Alok goes a step further and suggests that such capabilities provide for a stronger sense of community between the students.

The praise for this high-quality collaborative capability extends to certain teachers as well who have commented on the in-depth study guides students create through technologies like Google Docs. Students often bring up that they use Facebook Groups and Google Docs in tandem to create study guides and other materials. One long-time teacher of AP English Literature offers a great deal of praise for recent changes he has seen in a school where several years ago distance limited student ability to collaborate:

> The biggest change I've seen has been in terms of collaboration. You know, years ago, I would always recommend students get together and form study groups before the exams. I'd tell them to get together and discuss what questions might be on the test and to consider some possible answers. But this was often a challenge for students since, with our school, kids come from all over the place, so just getting together was tough. But with Google Docs students could collaborate in these groups from their own homes where physical proximity isn't an issue. And through this, my students would come up with really detailed study guides they'd make – all on their own without me suggesting it. So now these students can produce these really great study guides and collaborate without having to try and struggle to meet at collaboration [a free work period] or lunch when they really don't have the time to do so. So I see that as a really good thing. That's the one thing that I can really see and has affected me.

This English teacher feels especially pleased with how these technologies enhance the learning and collaboration process for his students. Not only has collaboration increased, but he also feels these technologies improve the quality of student work.

Interestingly, contrary to certain criticisms that technological distractions lead to more poorly performing students, this teacher suggests the opposite. I asked

him if he saw more distracted or underperforming students in recent years, but he suggests otherwise: "I haven't noticed it, but I've got the AP English kids, and they're pretty focused, probably more focused than when you were in high school [six or seven years ago]. They're taking more APs, more higher pressure activities to get in to college and what not."[2] We should recognize the important caveat here that this teacher instructs high-performing honors and AP students. However, these students' use of technology and performance underscores that, for a subset of students at this school, technological distractions do not necessarily lead to underperformance.

The follow sections explore several problematic areas for students and their use of social media and mobile technologies. However, as this preliminary section on these educational benefits outlines, there also exist many emerging benefits from these technologies, especially in the collaborative academic sphere. I aim to outline both the positives and negatives and sketch a preliminary dialogue on how social media might be redesigned to retain these benefits while minimizing the negatives.

The Time Drag, Stress and Fatigue, and Multitasking

While various teachers felt that at this high-performing school students have not been underperforming, teachers I interviewed agreed that students show greater signs of fatigue and stress than in the past. A chemistry teacher who teaches both regular and honors classes describes what was echoed by other teachers:

[2] This teacher went on to say though that the downside he's seen is that these children are just far too busy to take advantage of other "fun" activities and more time for family. I will take this up later alongside the connection between social media and free time.

> I don't think there's been changes in performance, but there seems to be a lot – I don't know, it feels like they're more stressed out. Like more, I feel like I see more tired kids in my classes than ever before, and I think it's because they're staying up later because, you know, there's a lot of things that take their attention before they get to homework.

Students end up producing the same work, but the effort it takes to accomplish it seems to be drawn out longer. This dragging out process of time and energy may give rise to more fatigue and stress.

Another teacher, a veteran junior-year honors/AP English Language teacher, makes a similar observation. He also tells me that he has not seen any change in the quality of performance among his honors students. But he describes how, compared to previous years, students spend more time working through the night when essays are due:

> Most of these kids as usual will end up writing the bulk of it the night before. That hasn't changed. And you see it in them. They look haggard the day it's due. But one of the interesting things I noticed is that kids these days start to provide "timestamps." These days, I get more kids saying things like, I was up till 4am working on the paper. They'll give me this timestamp of how late into the night they finished. And I ask them about it, well, since they definitely weren't writing for that whole period of time. Then they'll admit, "Well, yeah, ok. I was also on Facebook," or "chatting with that person." So it seems they are working later into the night and doing more things as they write.

These high-performing students still meet the same demands as previous generations in terms of academic performance. However, they meet these demands while juggling greater degrees of distraction that often push their working hours later into the night. The less time for sleep that results may cumulate into more fatigue and stress.

Of course, the concern of the time drag due to social media repeatedly came up in student discussions as well. In fact, how much time students felt they wasted stood out as the most common concern or negative complaint associated with

Facebook (mentioned in nearly all my interviews). Diane, an articulate senior, describes how one can often lose track of time when on Facebook:

> You can get really distracted and can really just lose track of time when you're on Facebook, even when you should be busy. It just consumes a lot of time because you lose track of what you're supposed to be doing and you end up stalking people on Facebook.

Alok, a sophomore, also describes how procrastination goes hand in hand with easily losing track of time on Facebook:

> Procrastination is a big thing. People spend so much time looking at other people's things that – I mean, you go on your friends wall, you say hi, you have a couple lines of conversations, and that's 30 minutes gone already. It's in the sense that logging on to your Facebook I feel – sometimes the amount of time you spend after logging on is equivalent to doing homework for, like, three classes.

Homework has traditionally been a tedious process for students, leaving the door open for many different means for procrastination. However, Facebook and social media appear to be an especially potent force. Social media offers the potential to endlessly occupy students with different streams of media in a way that often skews their sense of time.

Furthermore though, for many students Facebook integrates itself into the homework process as a kind of compulsion to multitask. Some students always have Facebook on in the background while they work, while others close and open it in between work. But it seems clear that Facebook very often acts as the default "break" from homework. I asked Diane to describe her process of constantly opening and closing Facebook while doing homework: "It's like going on, and then exiting, and telling myself, 'Ok, I need to do work now,' and doing one little part of the work, and then going, 'Ok, just one more little break,' – so it's just really bad." A sophomore in a class discussion similarly describes that he undergoes a kind of

Facebook-homework cycle, where Facebook provides a kind of background to his time at home and time on the computer:

> I feel like it's almost like a rotation. When I get home, I check Facebook for like 10 or 15 minutes. Then I'll finish some homework, and then I'll go back on Facebook. I do that cycle. But, like, every time I log on to the Internet, I'll check Facebook just to see what's going on. So it's kind of always there.

Facebook in effect becomes the default "filler" with what students do in between short bursts of doing homework. It stands as a constantly accessible background waiting to be switched to.

This constant background and multitasking seems to make it increasingly difficult for students to stick to work when it gets challenging. In a class discussion, a sophomore girl describes the switch to Facebook when she gets tired of homework:

> I do homework, but then I have Facebook logged-in on the back. So I'm in the middle of my homework, but all of a sudden I get tired of doing homework, so then I'll just go onto Facebook. And I end up wasting a lot of time, and then it's late, and I still have to finish up a bunch of homework.

Another student succinctly describes the switch when things get challenging: "It takes me longer to do things. If I'm doing a project and it's hard, then I'll just go on Facebook, and then I just don't want to do it." These students describe a kind of habit of "jumping ship" to Facebook when work gets difficult. Furthermore though that switch can lead to longer periods of avoiding getting back on task.

As a result of this difficulty in sticking with work when met with challenges, students may lose an ability to cultivate a kind of work-ethic "rhythm" or a preliminary kind of "flow." A junior boy in a class discussion describes this impediment:

> When I go on Facebook, I stay up longer and it takes longer time to do stuff because you lose focus. So, you may be focused, and you're almost about to get through something and get a rhythm at doing work and be productive, and then you go on Facebook and you spend like 15 minutes on that and you go back switching between the two. So that's a really big problem.

This student at times appears to be on the cusp of establishing a kind of drive or rhythm in study habits. However, Facebook pulls him too strongly. A small switch to Facebook can easily break him out of the kind of focus he struggles to sustain.

Sleep

In line with teacher observations, these student descriptions of the drawn out homework process suggest that students stay up longer into the night losing sleep. In a sample survey of 39 students, of the 37 students who use Facebook, 18 or 48.6% of students agreed that "Facebook or social media keep me up later at night and cut into my sleep time," while 8 or 21.6% percent were unsure and 11 or 29.7% disagreed. By their own self-observations, therefore, nearly half of students believe that social media contributes to a loss in sleep.

Interview data as well echoed that a subset of students experience interference with sleep. Diane described the concern:

> I think Facebook and, like, social networking in general is contributing to sleep deprivation too in students. 'Cause even though we're already stressed out with all our busy schedules and homework loads and everything – just having this distraction on top of everything just makes it even worse.

Students like Diane voice the same concern that teachers raise. She feels that students take longer to get homework done because they multitask into the night with distractions like Facebook.

Similarly, students who have given up Facebook for short periods of time often describe the sudden change they feel in being able to get sleep. One junior girl in a class discussion describes how, once she finishes her homework around 9pm, she usually goes straight onto Facebook for the rest of the night. However, she describes the sudden change when the Internet went down:

> So, the last two days, the Internet has been out at my house, so on my phone is the only way I get Facebook. So, like, right when I finish my homework or watch TV it's like 9 o'clock. And normally that's when I go on Facebook and stay up till, like, forever. But yesterday I was able to go right to bed, so I got a lot of sleep in.

This student at least exhibits a good deal of self-control in that she first commits to finishing her homework prior to going on Facebook. However, once she completes her work, her nightly routine of going on Facebook seems to keep her up into the night cutting into a healthy amount of sleep.

Interestingly enough, some students also experience an interference with quality of sleep, not just quantity, as a result of online and phone distractions. One girl in a junior class discussion described the interference with trying to fall asleep as her phone lights up with new messages:

> I think like a lot of the time why we have to check our phones right away or check Facebook is to see what's going on and to not be out of the loop. And like, this happens to me a lot actually. You get in bed, you turn off the lights, and your phone lights up from across the room. And you really don't wanna get up and get it, but then you're like, "I wonder who it is, I wonder what it's about?" and then you're like, "I'm not gonna get it," and then you end up getting it because it's really annoying, but then it's usually not that important.

We may find descriptions like these begin to sound commonplace for many, especially for those who sleep with their phone nearby and do not turn it off. But the description also reveals this student undergoes a kind of psychological tug-of-war over whether to give in to the temptation to check her message. This

psychological tension unfolds during a time when she should be better resting her mind and trying to fall asleep. The very urge to be in the know and check her messages remains too strong to overcome and extends beyond working hours all the way into the falling asleep process.

For some students this augmented sleep process with their phones extends beyond falling asleep and into the night, especially when they awake in the night. Interestingly, 19% of students surveyed said they check Facebook in the middle of the night when they wake. A boy in the same junior class discussion described how he gets a stream of incoming notifications through the night and will often check them when he awakes in the middle of the night:

> I use my phone as an alarm clock for waking up. So I need it, 'cause, you know, I don't have a bedside clock or whatever. So, I mean, I'll sleep, but when I'm trying to fall asleep and the phone will vibrate. And I mean, I'll try to turn off all the pushing notifications off on all my apps, but it never works. So like, it's continually lighting up from my Facebook over night. So I'll wake up at like 3 in the morning and go on my phone and check it, and then I'll go back to bed.

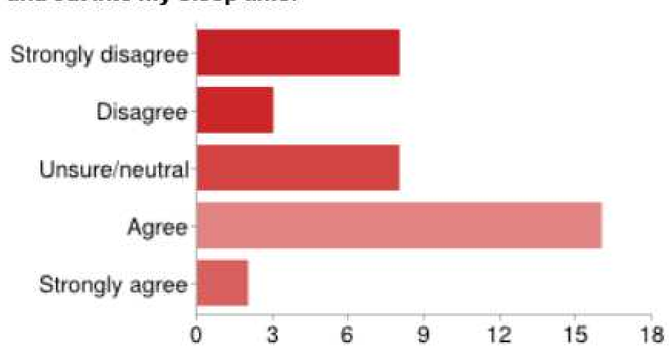
This student falls asleep to an intermittent stream of light and vibrations. This process acts as a kind of background noise through the night, until he wakes in the middle of the night and checks his notifications. Interestingly, this student sees his problem, but he does recognize that he can turn off all incoming messages and wireless by putting his phone in airplane mode. When I asked him why he does not use airplane mode, he said, “Oh yeah, that's a good idea.” This student thought he had to completely turn off his phone, but it did not occur to him that airplane mode would still enable the alarm clock but block messages.

It should be noted that, among the students I interviewed at this school, most of them did not have these problems of incoming messages as they are falling asleep

or waking in the middle of night. Many students I interviewed said they do not have this issue because they do not get too many messages at night, or they turn off their phones or put it in airplane mode when charging. However, there does seem to be a small subset of students including the two mentioned above who either are not aware of uses like airplane mode or for other reasons do not want to turn their phone off in the night. As mentioned 19% of students surveyed said they check Facebook if they awake in the middle of the night. The rest of the survey data also supports the claim that that a minority of students experience this interruption of sleep. In response to the question, "How often do you sleep with your phone?" 36% said never, 28% said sometimes but not often, 3% said only on weekends, and 33% said almost every night. In response to the question, "As you're trying to sleep or if you wake in the middle of the night, how often do you check or respond to incoming texts/messages?" 8% said often, 23% said sometimes, 62% said never, and 8% said the question was not applicable. In addition to other reasons provided (see below), 10% said, "Most of my friends are still on their phones too," 10% said "I text/talk when I should be sleeping," and 14% said, "I might miss an important call/text." Therefore this problem appears to affect a smaller subset of students, perhaps about 10-20% of them.

Figure 2. Survey Data for Questions Related to Media and Sleep.

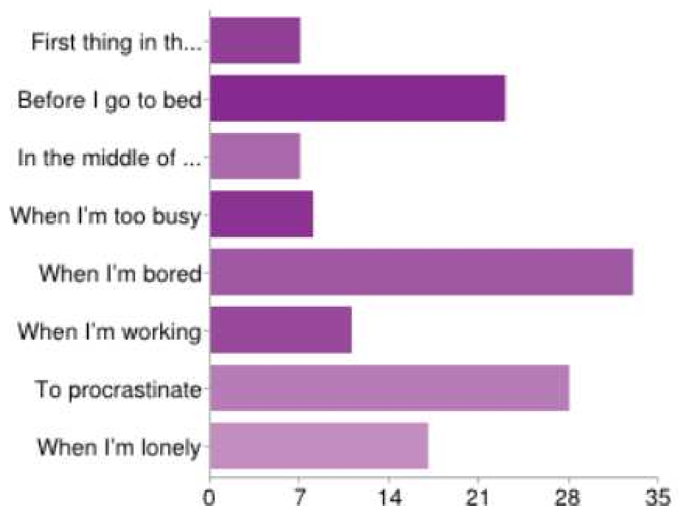
Please rate the following based on how much you agree or disagree. - Facebook and/or social media keep me up later at night and cut into my sleep time.



Strongly disagree	**8**	22%
Disagree	**3**	8%
Unsure/neutral	**8**	22%
Agree	**16**	43%
Strongly agree	**2**	5%

19% of students said they check Facebook in the middle of the night if they awake.

I check Facebook... (please check all that apply):

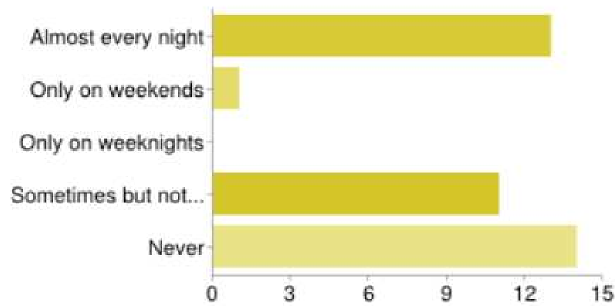


First thing in the morning	**7**	19
Before I go to bed	**23**	62
In the middle of the night if I awake	**7**	19
When I'm too busy	**8**	22
When I'm bored	**33**	89
When I'm working	**11**	30
To procrastinate	**28**	76
When I'm lonely	**17**	46

People may select more than one checkbox, so percentage
may add up to more than 100%.

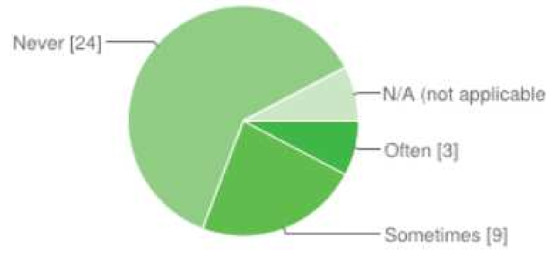
Figure 3. Survey Data for More Sleep and Phone Related Questions.

How often do you sleep with your phone?



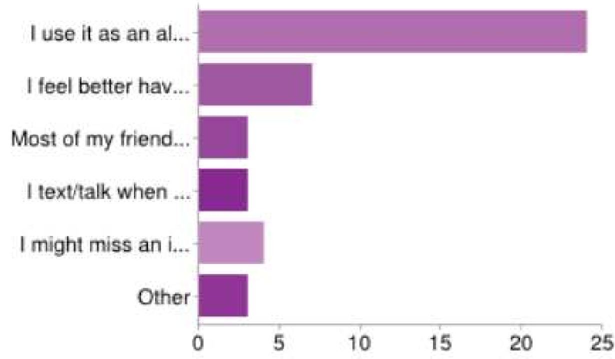
Almost every night	**13**	33%
Only on weekends	**1**	3%
Only on weeknights	**0**	0%
Sometimes but not often	**11**	28%
Never	**14**	36%

As you're trying to sleep or if you wake up in the middle of the night, how often do you check or respond to incoming texts /messages?



Often	**3**	8%
Sometimes	**9**	23%
Never	**24**	62%
N/A (not applicable)	**3**	8%

Why do you sleep with your phone? (Check as many as you like.)



I use it as an alarm clock	**24**	83%
I feel better having it near me	**7**	24%
Most of my friends are still on their phones too	**3**	10%
I text/talk when I should be sleeping	**3**	10%
I might miss an important call/text	**4**	14%
Other	**3**	10%

People may select more than one checkbox, so percentages may add up to more than 100%.

Taken as a whole, teacher observations and student responses suggest that social media and Internet use may be contributing to greater degrees of fatigue and stress in students. A large portion of students seem to be taking longer to complete

their work, either working into or staying up late into the night as a result of online distractions. Also for a smaller subset of students the sleep process may be interrupted by phone and media distractions that may detract from quality of sleep. I discuss some potential avenues for addressing this problem in the section on redesign below, but first I turn to some reasons for why students feel so "hooked" to Facebook.

Features Adding to "Addictive" Lure of Facebook

Given that many students struggle to limit their Facebook use especially while studying, it first helps to look more closely at what features of Facebook keep these students drawn so closely to it. To loosely use a loaded term, why do students find Facebook so "addicting"? A fully thorough consideration of the various factors lies beyond the scope of this work, as there exist many psychological appeals of Facebook that attract users. But two particular observations emerged in speaking with students as particularly relevant to them. Firstly, these teens often describe Facebook as not very rewarding, but a means of "fishing" that sooner or later stumbles upon an interesting "catch;" this randomly delivered reinforcement may contribute to "addictive" qualities. Secondly, for a subset of these high school students, they describe a sense of peer pressure of "staying in the loop."

Students often describe they experience Facebook as not that rewarding, but nonetheless they spend a great amount of time on it. One sophomore in a class discussion describes the amount of time he spends on it, despite its lack of value:

> I feel like – like, if I finish my homework early at like 8, then I'll stay on Facebook till I have to go to sleep. And then, after I'm on it, I'll be like, I didn't do anything. I

> could have used that time to do something productive. Even watching TV I think is better than staying on Facebook. Even when I'm on Facebook, I'm not, like, enjoying it. But every time I click on Safari, I'll automatically click on Facebook. I'll just go on it, but then there's no point for me to be on it.

This student feels that, despite his great deal of time spent on Facebook, he overall gets little out of his time on the site. He says for the most part he does not enjoy his experience. He instead seems to be driven by a kind of compulsion to always go on the site, and once on it, he can stay on for a long time. Certainly students do find features of Facebook entertaining and interesting, or at least psychologically rewarding; otherwise, they would not visit the site.

However, Facebook may in part be particularly "addicting" because it delivers the "rewards" of media that users find interesting in a random fashion as they navigate the site. In psychological literature, studies have compared the potency of delivery of different degrees of reinforcement with different time frames (Skinner, Ferster et al., 1957). One can deliver rewards of fixed sizes at fixed intervals, random sized rewards at fixed intervals, fixed sized rewards at random intervals, and random sized rewards at random intervals. Delivering random sized rewards at random intervals proves the most potent or "addicting" method. Interestingly, the very design of the Facebook Newsfeed provides a kind of scrolling through potential material, most of which may be uninteresting, but sooner or later a user strikes upon something very interesting.[3] Michelle, an articulate senior, describes how her experience with the Newsfeed fits this description:

> People will say irrelevant things and there's just all these random statuses and you're just like, "I don't care about this." I dunno, but something inside just wants to

[3] I must give credit to this idea to a teacher at this school who suggested this in a discussion more tailored toward surfing the Internet in general.

> keep scrolling and keep scrolling, even though you kind of know that half of it is stuff you don't actually want to read. But you'll keep scrolling until the last thing you saw last night or this morning. And if it's a photo album of someone that you know and you're interested, then especially now that Facebook has made it super easy to look through all of them, it'll be super easy to look through all of them, but then when you look at the clock, you're like, "Oh, that was a lot of time."

Michelle explains that much of the content she scrolls through remains uninteresting. Yet she also feels compelled to keep scrolling until she either reaches the end of the Newsfeed where she left off before or until she finds something interesting. For her, photos of an interesting person provide the kind of "reward" for this scrolling. Again, the degree of interest provided by a given reward remains uncertain and the timing of finding this reward remains uncertain. As such, this randomly sized and randomly delivered element may make this process of scrolling more addicting for these users.

While the comparison to the process of sitting in front of a slot machine may be premature and not exactly analogous, Michelle goes on to describe a kind of reason to keep scrolling. She says:

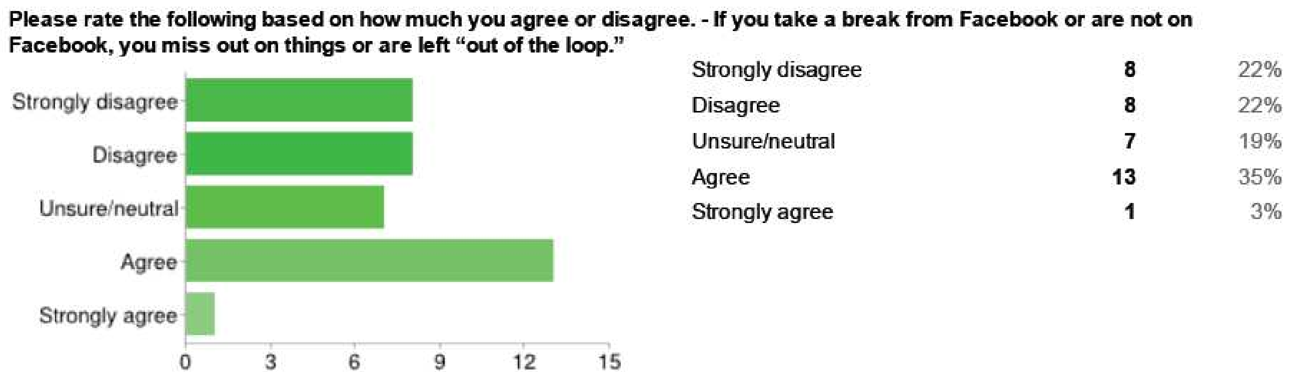
> Sometimes I'm scrolling, and I'll see something that someone copied and pasted somewhere else, and they're just trying to get likes and comments, and I'll just keep scrolling down, like, I guess maybe hoping to find something that makes the time worthwhile.

Michelle sees that her time could be better spent doing other things. But she keeps on scrolling with the thought that if she were to find something interesting she could justify her wasted time. This sounds analogous to a gambler who recognizes his losses, but continues to gamble hoping that he will be rewarded in a way that can justify his current deficits. While it remains too premature to make solid addiction claims, a promising area of future research would be to compare the neurobiological reward systems involved with Facebook use and addictive behaviors like gambling.

Both gambling and Facebook surfing have a kind of random-random reinforcement structure, which may contribute to similar kinds of psychological patterns.

Another element that may drive Facebook usage for certain high school students is the wish to not miss out or be "left out of the loop." A caveat here is that *some* of the students expressed this pressure. In fact, students gave fairly evenly distributed responses to survey statements like, "If you take a break from Facebook or are not on Facebook, you miss out on things or are left 'out of the loop.'" Of 37[4] students, 16 disagreed (42%), 7 (18%) were unsure/neutral, and 14 (36%) agreed with this statement. (See the figure below.)

Figure 4. Survey Data for Opinions on Facebook and Being Left "Out-of-the-Loop."



For some students, taking a break from Facebook runs the risk of not knowing about conversations that people then talk about at school. A male in a

[4] I designed my survey for efficiency so that if students said they did not have a Facebook account they automatically skipped Facebook related questions. In retrospect, it may have been wiser to include this question regardless of that response; however, because two students of the 39 said they did not have a Facebook account, they were not asked this question, hence a total of 37 students.

junior class discussion gave the following explanation for why he feels uneasy about taking a Facebook break:

> The thing is, if you take a break you'll be out of the loop. And you won't know what's going on. But Facebook has everything. Sometimes people will be like, "Oh, did you see that on Facebook?" and everyone will start laughing because they all know what it's about. But if you're not on Facebook you won't know what people are talking about.

According to this student, Facebook social life extends into real life at school. Students laugh and joke about conversations and developments that unfold between students on Facebook. When students take a break from Facebook, they can risk not knowing what other students at school talk about.

Some teens also experience a time-sensitive pressure to be on Facebook to not miss out on any drama. Gary, a junior, did not feel an excessive pressure, but he did acknowledge that occasionally sleeping early leads him to miss out on late-night drama that can unfold:

> There have been times where I sleep pretty early, at like 10. And I come to school the next day and my friends start talking about some online drama that I missed because it happened at like 12 when I was sleeping during that time. It happens like once every month.

For Gary, this does not feel too great a pressure, as this only happens once a month and he still seems fine with getting to bed early. However, his observation reveals that for other students, this unfolding nature of Facebook may contribute to students communally staying up later into the night. Students may be staying up later to do homework, but they also may simultaneously want to stay up later to see how an argument unfolds on Facebook.

While Gary's pressure appears tempered, some students may have personalities where being the first to know or running the risk of missing drama

that is "taken down" leads students to become excessively glued to Facebook. A female in a sophomore class discussion described this predicament:

> And sometimes you wanna make sure that you're on so many times that you don't miss it. So sometimes they'll have arguments on a comment on a picture, but then they'll delete it, so you'll miss the whole thing. So you'll have to ask someone else about it, but you don't want to do that. You want to know about it already. So – [other student says, "That's why there are screenshots."] Yes, there's screenshots too. But you want to be the first person to know about it, so you can tell other people. So you want to be on Facebook as much as possible because of that reason.

Here the ephemeral nature of Facebook drama becomes a strong catalyst for this student hyper-checking Facebook. This student already wants to always "be in the know," but also wants to be the first to know. She especially wants to know about all the juicy drama that unfolds on Facebook. But the most interesting drama and heated arguments may be the ones that get deleted. So in order to ensure that she does not miss anything, she feels an excessive need to always check Facebook. While this may not be the norm for most teens, it shows that certain teens may be become excessively hooked to constantly checking Facebook.

In effect, many students describe social media as a kind of mental distraction that can permeate much of their waking hours while not at school. Multitasking during homework, either with media on in the background or the constant switching between the two, likely instills novel mental and cognitive habits in these students. For some students these habits may feel too hard to overcome. At a high achieving school like this, the result may be students who feel increasingly fatigued and stressed because of the increased time required to complete work. Additionally, the context of this school plays an important role when considering other demographics. This school represents a high socio-economic background with

students who may have far higher norms for better academic achievement than other schools. While we should be careful about speculative generalizing, it seems likely that less academically inclined environments with lower socio-economic backgrounds may face even greater difficulties. At this school, teachers reported that students in high-performing classes did not underperform. But this school environment may contribute to students pushing to maintain standards of performance despite their multitasking and technological distractions. In other environments, these experiences may be more problematic.

Considerations and Avenues for Redesign

Given that many of these students feel a kind of strong and at times excessive pull toward Facebook, an important avenue for future design becomes how we can increase better habits of self-regulation of media use in youth. Importantly, students likely cannot gain better habits simply by a feat of willpower. For many of these students, the pull remains too strong, even when they see the problem and want better self-control. Students often describe this struggle typified by a girl in a junior class discussion:

> Like, you know, when I have homework and I need to get it done and I don't have much time, I'll say, "I'm not gonna go on Facebook." Like I did that last night with my WWII test. And it was taking a long time, but I still went on Facebook.

These students see the problem and their impinging time constraints. Yet even though they make a vow to not check Facebook, when they need to get work done, they still end up going on Facebook.

Several students even express a strong sense of regret over not becoming the optimal self they could have been if they went on Facebook less, seeing the problem clearly but not being able to reverse it. Diane, the articulate senior mentioned above, opened up about her feelings of Facebook "ruining" her potential while acknowledging the value of her parents' concern with too much Facebook time:

> I just can't express enough how much I think Facebook has, like, I don't want to say ruined my life because that sounds so depressing, but it has made my life – it's prevented me from doing a lot more than I could have done with it – because, I don't want to say this around my parents, but they're always like, "Stop going on Facebook. Stop wasting your time and go do other stuff," because they're right! I don't wanna say it. I don't want to admit it, but I'll admit it to you [laughs]. But, yeah, they are right. Without Facebook, and without being consumed on the Internet, and even on Tumblr and Twitter – it's just these things that we go on everyday, and they take up so much of our time that we don't even realize how much time they're using. But with all that time and energy we could be focusing on bigger projects and bigger things that could get us to better schools, better grades, get us, like better social lives, and sleeping hours and amounts of sleep time – just like everything. So, yeah, I just think I lost a lot of stuff because of Facebook, but then what could I do, 'cause with Facebook I needed to contact people, I needed to talk to people, and be in with the, like, social connection or whatever.

Diane expresses a deep sense of regret over how excessive time spent on the Internet and social media has limited her growth in many domains. She feels she stifled her potential in academics, possibilities for the future, her social life, and the sleep and life balance she could have better achieved. Interestingly, she really acknowledges the need to set more limits on her usage. She spoke to me of being annoyed at times when her parents tell her to get off Facebook, but ultimately she sees the great value in setting these limits. Yet Diane has difficulty setting these limits herself, despite eloquently describing her problem with Facebook. She went on to tell me, "Facebook's ruined my life, but then again, I want it, I need it because of like keeping in touch with people and group projects and stuff, so – it's kind of like I can't untie myself from it anymore." Diane cannot untie herself from the problem

she feels consumed by. In redesign, this challenges the need to consider: what tools can we give students to overcome this feeling of helplessness and to better regulate their use of media and Internet use?

While I cannot offer solutions to all the concerns raised by students and teachers here, I offer some preliminary avenues for redesign that can begin to remedy some of these problems. I highlight three particular areas here: (1) redesigning Facebook Groups to allow limiting temptations of distraction from the rest of the site, (2) developing games and challenges to aid the process of regulating social media and Internet time, which can be supplemented with (3) devising tools to encourage students to practice disconnecting on occasion or during periods of sleep.

Firstly, if we want students to adopt better study habits, it would be of tremendous help if students could better limit distracting temptations from appearing; this would be especially valuable with Facebook Groups, at least during periods when students try to intently focus on work. The irony of Facebook Groups remains that students often want to deactivate from their regular use of Facebook during finals, but they also want to study with Facebook Groups, so they often stay on Facebook. Cindy, a senior taking AP Biology, typified this problem:

> I deactivated like once during finals last semester before the biology final because I was pretty stressed about it. But then I reactivated it a couple hours later because we have a Bio Facebook group, which was really helpful because we were consolidating outlines and stuff, so I thought I might as well just keep it open.

Students like Cindy see the appeals of deactivating Facebook, at least during times when they need to really to focus. However, they perform a kind of cost-benefit analysis with how much studying they can get done on their own versus what they

get out of Facebook Groups. Many of them, like Cindy, remain willing to take on the extra degrees of stress and time required for the benefits of the Facebook Groups feature; perhaps that also gives them additional reason to not make the challenging commitment to leave Facebook temporarily.

Redesigning Facebook Groups with the option to compartmentalize use of Groups from the larger Facebook interface would be a valuable tool for students struggling to not give in to other Facebook distractions. In terms of developing focused work habits, students very much swim against the tide when Facebook Groups stands laced within an interface of surrounding display bars of notifications and links to other Facebook friends, messages, and pages. While obviously Facebook has certain short-term monetary considerations that may weigh against it, a more "distraction-controllable" user experience would be promising for developing healthier, more self-efficacious users. One simple change would be to enable users to access Facebook Groups without having to be logged-in and connected to the larger Facebook interface. In effect, students should be able to separate use of Facebook Groups from Facebook as a whole. Such a change would not solve the problem of students feeling the compulsion to switch to Facebook on a regular basis. But for students who may be already trying to limit their use, not having these temptations in the forefront of their vision may aid their attempts at self-regulation.

Secondly, a promising avenue for improving self-regulation would be to re-implement "self-control" applications in the form of games and challenges for students. Currently, applications exist like Self-control, Rescue-Time, and Freedom

that enable users to monitor statistics of their online and applications usage. These applications can also help limit or block access to distracting sites like Facebook. One of the challenges that would be very rewarding would to be to re-implement these tools in a form that appeals and does not annoy high school students. Diane saw the value of her parents' admonishments to get off Facebook, but in the moment when she uses it, these complaints annoy her. While I do not offer a concrete remedy here, interlacing these applications in the form of games may help students in this process. If students had more of a justifiable reason to limit their use, and especially if this reason was a game or challenge that they knew other students were a part of, there would be greater peer support in self-regulating social media usage.

One simple means of starting these games would be to first center them around very simple changes. For instance, students could be challenged to successfully turn off their phone or put it in airplane mode when they sleep. As a game framework rewards them for these steps, they could be challenged to take on more self-regulation challenges. For instance, they could see if they could devote 30 minutes a day to doing work completely free of online or phone distraction. Additionally, such challenges could work their way up into challenging students to practice occasional "technology Sabbaths," perhaps once a month on a weekend. Such kinds of breaks could provide this generation with exposure to what life may be like when one is not "always on."

Finally, in addition to games, basic features can be implemented inside phones and on social media that better diminish the potential obligatory "leash" that keeps students needing to respond. Text messaging currently has no option to set

an "away message." But if there were a simple auto-responding away message like, "I'm currently taking a small phone break till 4:00pm," students would feel less obliged to have to respond so quickly. Furthermore, with other teens seeing such away messages, it may increase a social understanding that it is ok to take periodic phone breaks. Such kinds of features could be implemented in social game frameworks with themes, for instance, like "Catch Me if You Can." The purposes of such games could make the process of reaching someone a fun challenge that also respects periodic breaks from being "always on."

Such features and games could be generalized toward a broad age group, not just high school students. However, the following section turns toward the features of the "always on" mode that particularly amplify various important psychosocial challenges that high school students may be particularly sensitive to in this stage of life.

Part II: When High School Is Always On
Psychosocial Challenges of Adolescence Extended and Amplified

No doubt, high school can be a very difficult time for people. As has always been the case, high school students face challenges of adolescence, identity, experimentation, fitting in, romantic relationships, and much more. While I do not mean to argue that these difficulties have changed, I want to stress that the "always on" and "always connected" feature of social media has the potential to accentuate student anxieties, challenges, and discontent. Teens no longer just worry about their appearance when they come to school or go out with friends. They monitor their online and social media identities, knowing that others can always view their virtual selves. They also can compare themselves with others around-the-clock when Facebook hosts countless photos for others to see. And the cliques of high school cafeteria get transposed onto the Internet, where students may find they play out and accentuate features of their clique-identity into the evening hours and night while away from school. In effect, teens run the risk of not being able to "unplug" from the many challenges of high school. I focus on three areas that came up: social comparison and jealousy, self-focus on one's appearance, and experiences of cliques and identity. Importantly, these certainly do not represent challenges limited to high school, as they can extend into adulthood. However, high school and adolescence represent important junctures in life where students face these challenges head on in a sensitive psychosocial period. Their experiences resolving these challenges in adolescence likely have important consequences for similar problems in later life.

Social Comparison and Jealousy

While jealousy and social comparison has always existed as a component of the high school scene, teens likely experience more of this both because Facebook can constantly expose them to these comparisons and also because users self-select positive, happy content on Facebook. Diane, the articulate senior quoted earlier, expressed in detail how students, especially girls, may end up thinking that everyone has a better life than them:

> People will look at what other people are doing, and be like, "Oh, they went on vacation in Hawaii," or "Oh my gosh, look at all their pretty photos and stuff," and they'll get, like, pretty jealous, you know. Just like talking to other people, they might talk to their friends and be like, "Oh, did you see so-and-so's pictures? I can't believe they went to that trip to the Bahamas" or something, "I'm so jealous." I dunno, I guess it is really stressful because when teenagers – especially teenage girls – if they look at other people's photos and they see that they're having a "better life" [gestures quotes]– and I say that in quotes because it is not necessarily better, but it seems like it's better because they're posting it on Facebook: but just like having fun, or having a better time than them, or looking prettier, or having better stuff. It just kind of puts you down, and you just get kind of jealous about it. Like, "Oh, I wish I could have that life," or, "Oh, I wish I could be happy like them in their pictures," you know. So I guess that's another downside of Facebook, and just, I dunno, it's good if you use it the right way, but if you let it get to you like that it can be harmful.

Photos stand out as one of the most attractive features of Facebook. However, Diane describes that photos can often lead to bouts of jealousy and social comparison and even give rise to misleading impressions. Students can end up feeling that other students live more luxurious, interesting, or simply "better" lives. They may receive the impression that others live more happily because students only post content and pictures of themselves smiling or having a good a time. Even if another student does not in fact live a "better" life, the student becomes reinforced with the idea that her life does not match up to those of others she sees. Certainly, jealousy has always existed on the high school scene: with looks, boyfriends and girlfriends, popularity,

nice clothes, cars, and clothes, and each others' "better" lives. These feelings are not new.

However, while this social comparison may not be new, the potential for constant exposure to these comparisons may magnify discontent among certain students. Diane further articulates the element of constant exposure to potential comparison:

> I guess, just like, I think people are more affected by social networking than they realize it because just like whole stress thing of what's happening in other people's lives compared to yours, and kind of having that comparison always be there. Like, always refreshing and seeing what are all these other people doing, but then look at me and what I'm doing, and it kind of – Even if your life is really great and you're doing really well, if you look at other people's stuff – I don't know – it just tends to make you feel less of yourself. Like you're not as great, even though you are.

Diane raises how this comparison can "always be there." Even if a student experiences a nice life that she should be happy about, if a student constantly spends her time looking at the happy, adventurous activities of other students, there will always remain plenty of opportunity for additional comparison. Normally teens would be exposed to these comparisons for a finite period of the day. When they went home, they could still think about their lives and the lives of others, but little would visually expose them to these comparisons. In other words, this away time may have naturally led teenagers to decompress from confronting these problems head on. They could rest their minds, which may lead to better re-bearing when one later confronts these dilemmas. However, today we risk having teens supplant this time with persistent over-exposure to these comparisons.

Other students also express this problem of feeling worse, especially as a result of seeing the lively activities of others when alone at home. An outgoing

senior, Adrianna has an active social life with sports and school activities. Yet, despite knowing she has a very good life, she speaks of the problem of feeling bad about herself if she is alone on a Friday night and goes on Facebook:

> The problem is, you'll feel bad about your own life seeing all these other things. I mean, I don't go on Facebook all the time, but when I do, I'll go on for hours. So if it's a Friday night and I'm alone and I'm scrolling through all these pictures, it'll get kind of depressing because I'll see all these people doing all these things and it's like, "Ah, I have no life." But it's kind of pointless because it's an inaccurate opinion of myself or others because people only post the good stuff, the really positive and interesting things, you know.

Adrianna illustrates one of the features of Facebook use that may magnify students feeling bad about themselves. Students often go on Facebook when they are alone at home, sometimes bored with nothing else to do. During these times these teens will be especially prone to think that other students are living much better lives than them. They may think, "Other students are about doing interesting things and I am home alone." Interestingly, Adrianna recognizes clearly this thinking likely misleads. Other students do not over all experience more interesting lives. She merely sees the positively-selected photos of students who at other times may experience the same dilemma as her. However, even having this insight does not necessarily shield Adrianna from feeling partly "depressed."

Another student also felt that comparing himself to all the events others go to leads to a kind of peer pressure to want to attend more events. Michael, a senior, expressed this concern as one of the main drawbacks of Facebook:

> I think one of the major drawbacks – like I don't think it's one in particular – but maybe I'm just the kind of person that doesn't go out a lot, but a lot of my friends – ah, it feels awkward mentioning, like, "friends" – but whatever – like, so there's always something going on. There's always some event, and it's broadcasted on Facebook or Tumblr or something like that. And I feel nowadays, a lot of people are under the impression that if they don't go to all of these things, then they're not involved enough. And like, there's literally something going on everyday. Like,

> when I talk to people, I'll be like, "Wait, so how many times are you hanging out this weekend, like how many places?" "Four or three or whatever." And I'll be, "That seems a bit excessive," and they'll be like, "No, all these other people are doing it." So it creates a kind of bandwagon that people go on. And I dunno, I guess people have to do more things that are unnecessary.

Different students likely want to attend different numbers of social activities. In my interview, Michael seemed like a very open and socially insightful student who had a good deal of closer friends he also talked about. Yet, he describes himself as probably not wanting to go out as much as other students. For these students who do not feel as drawn to be highly socially active, Facebook may encourage a kind of peer pressure to do more. Students see all these events and may feel compelled to attend as many as they can, perhaps even three or four a weekend. Otherwise, they may feel they do not compare well to others.

Some boys in high school also express issues of social comparison on Facebook when it comes to being liked by girls and academic performance. Gary, the junior mentioned earlier, expressed potential jealousy from seeing the popularity of other guys among girls: "Yeah, I think if you look at someone else's wall, and they have a bunch of girls posting on their wall, it makes them look more popular. So you're like, 'Oh, shoot I wish I had that.'" Again, high school students have always faced this kind of jealousy, but the presence of this on Facebook can lead to excessive exposure to these comparisons when not at school.

Students also talk about academic comparisons on Facebook and how this can feel demoralizing at times. Alok, the sophomore mentioned earlier, speaks of jealousy that emerges in his academically inclined social circle:

> First of all, especially in Silicon Valley, you know, with [school's name deleted] with me being Indian, like you know how there's a lot of cliques in high school based on

> ethnicity or your race, right? And so, when you have people posting their grades online, it's like "Oh yeah! I got an A on my Chem test! Woooo!" And I know right now in Chem pretty much everyone is failing, 'cause the tests are really hard right now. So, then, they [other students] are like, "Ah, crap, I suck." I mean it kind of gives a negative feeling – it demoralizes you in a sense because you're trying hard and still not getting it.

Interestingly, according to Alok, some students even share their grades on Facebook. This may lead to other students feeling particularly demoralized when they try hard but do not do well. Traditionally, students likely were exposed to knowing the successes of others academically, but Facebook makes this process a lot easier and transparent, which can lead to greater potential for comparison.

Hyper-focus on self-image

The hyper-focus on self-image, appearance, and "like-ability" on Facebook stood out as one of the biggest areas related to social comparison for high school students. One female in a sophomore class discussion expresses the stress of this comparison especially felt by girls: "It's kind of like when other people post things that are cool, you compare yourself to them, and you wanna be like them – it makes you feel not as pretty as them or something and it's just kind of stressful." Naturally, girls in high school will compare themselves to each other. However, online photos that remain always up provide endless room for comparison. Even more so, the permanence of online photos may lead teens to become excessively focused on their appearance because students know these images may stay up for all to see. As a result, these students may feel more pressure and for some even more stress to look good and cool.

For girls, this pressure toward looks and appearance may even drive insecurities that lead them to rely on Photoshop and develop hyper-obsessive control of their photographed appearance. Megan, a senior, describes superficiality as one of her chief concerns with Facebook, especially with girls using Photoshop:

> I think it [Facebook] makes people a lot more superficial. People definitely build themselves up on their profile. And kids are using Photoshop, and I think it's making kids more insecure, and it can add to that, especially with how many likes you can get on a photo. I know some girls who every single profile picture is made up or Photoshopped in some way. And I think that's kind of sad. And girls untag themselves in pictures they think they're ugly in. And they make sure all their pictures look great. And it's kind of like you have to keep building yourself up and making sure that you look cute if you know you're gonna get you're picture taken. So that I think is very superficial.

I asked Megan to describe more how students are using Photoshop. She went on to describe tweaks to appearance and a kind of celebrity mentality that girls take on:

> It's appearance. So they'll take off pimples, play with the lighting, have professional photo-shoots – there's lots of professional photo-shoots all of a sudden. I mean girls will put up photos that they think are hot, and then they'll get more likes, and then they'll put up more pictures that they think are hot. I think girls will take some pretty scandalous pictures too. Just the superficial thing of making yourself look like a celebrity. I just think there's a lot more pressure to look good because of Facebook.

This quote reveals a qualitative difference experienced by teenage girls these days: the almost celebrity status and fined-tuned images that once limited themselves to beauty magazines and celebrities in the media can shift toward images of peers. Certainly teenage girls long before Facebook have struggled with insecurities about their appearance. Images of beauty and certain body-types still abound with celebrities on TV and in beauty magazines. However, for the first time, the "air-brushed," "fine-tuned," and carefully selected images that girls may spend hours looking through are those of their peers. Unlike models in magazines that may represent a standard of beauty not really reachable ("that's why they are models"),

students may experience greater insecurity if they feel they do not compare to the glamorized images of their peers. Spending hours looking through these Photoshopped images of peers as opposed to beauty magazines may worsen feelings of insecurity for certain girls.

Additionally, as Megan alludes to above, the reinforcement of "likes" on Facebook may lead certain girls to exhibit increasingly showing outfits. Tiffany, an outgoing junior active as a leader in the Associate Student Body, raised this same concern of rewarding girls for immodesty:

> Sometimes I just look through pictures of girls who people – I hear people talking about badly all the time because they do certain things. Then you look through their profile pictures and they'll have, like, 150 likes on their profile picture, and it's like them in no clothes. And it's like, Really? Why would you do that? And then all these people like it. And then they'll have like a hundred comments on their picture. And it's like, "Oh my God, you're so beautiful." And then sometimes they're like, "No, I'm so ugly." And it's just so fake. And sometimes it's just interesting to see, you know, how people portray themselves. But then it's like, I really can't respect you for putting something up with you in no clothes, and everybody is like, "My gosh, you're gorgeous." Well, I really don't think we should be encouraging that kind of behavior. Definitely that happens, multiple times. The less clothes a girl is wearing, usually the more likes her picture has.

Again, such kinds of behavior are not new. Prior to Facebook, teenage girls may have likewise received positive reinforcement from certain peers for wearing more revealing clothing. However, transposing such behavior into photos on Facebook seems to worsen this reinforcement. Girls get quantifiable reinforcement with the number of "likes" they get from others, and the comments become a means in which these girls may deal with insecurities by fishing for compliments that reinforce their revealing behavior. Yet even more so, when these behaviors stay up online and gain the most attention, their virtual permanence may lead these girls to feel such qualities represent key, solid aspects of their identity.

Yet even when immodesty is not the issue, for various students, Facebook's "like" and comment system leads to increasing self-consciousness and hyper-focus on their online personas. As a caveat, students often acknowledge a diversity of experience where some people do not really care all that much, but other students focus excessively on their image. Adela, a senior, mentions this spectrum among her friends:

> Honestly, my friend spends so much time with her profile picture. She has like a queue lined up. Yeah, she's like, "I wanna use this one as my next one, but I wanna leave this one up a little bit longer to get more likes." So she's really concerned about how many likes she gets. But some other people – like my other best friend doesn't care as much.

Students like Adela's friend do not simply share the photos they like. They actively engage in monitoring how much attention and praise they garner. This student goes so far as to time the delivery and maintenance of her photos so that they gain the most amount of "likes" from her peers. Such close monitoring of the garnered attention of one's image may contribute to growing self-focus and even narcissism in youth.

This self-focus and pressure to garner attention and positive feedback from friends can extend beyond photos and into the statuses students post. Tiffany, the junior mentioned above, describes how some students will spend excessive time trying to craft the most interesting statuses:

> I definitely know people who stress about what they put up on Facebook. And I mean definitely to the point where they're trying to keep an image that they don't really have, or they aren't truly deep down inside. I mean, there are people who I know they'll spend like 20 minutes trying to formulate the funniest thing to post as their status and it's like, Why does that really matter, you know? I mean, sure, if you wanna be seen as a funny person. But it shouldn't – the only reason you post things on Facebook is for other people to see. And really you're not doing it for yourself. Because if you were doing it for yourself, you'd be writing in a journal or having

> private thoughts in your head. But because you're posting it out there, you want people to see it and think things about you.

There are likely many students who do not agonize over crafting a particular status. Many students may feel a genuine interest in what they share and feel they do not post to maintain a particular image. However, as Tiffany suggests, for other students this may not be the case. The structure of a status that can gain "likes" pushes students in a direction where their modes of communication increasingly shift toward "like-ability" that proves increasingly quantifiable. Students may end up crafting statuses in directions that embody less of what they truly think or care about; they may increasingly frame them based on how others may like them. How much teenagers feel others "like" them becomes a valued aspect of their identity, even if they do not feel genuine about it.

Facebook introduces a kind of "quantification" and "like" structure to social identity, which may act as a driving force behind this increase in students' self-consciousness. Gary, the junior mentioned earlier, suggests that Facebook does not allow for much understanding of the quality of relationships, but rather the "quantity:"

> I don't think you can really judge quality from Facebook. So it's much easier to judge quantity, so most people just try to go with quantity over quality. So people go for more friends, more comments, and "likes."

Gary described that he actually liked this element of Facebook, where students competed to market themselves with numbers of "likes" and comments. While Gary does enjoy this aspect of Facebook, he represents a potential trend among youth to approach relationships less for derived quality, but at times the "like-ability" and "popularity" measures they may gain on Facebook. Facebook may increasingly

monetize social relations, but in doing so, youth may especially measure "success" in the social world through the quantifiable terms of Facebook and less from the quality of relationships.

For many students, however, this quantification can lead to discontent and negative feelings if they do not garner enough "likes" or comments. Gary described this potential for disappointment, especially with photos:

> People need to market themselves, so they work harder online. Like, they try taking better pictures of themselves, or they try to come up with clever statuses. And a lot of people get really sad if they don't get a certain amount of "likes" on their picture. I hear about that a lot. They'll put up a picture, and it doesn't get enough likes and so they'll take it down.

And similarly, Diane, the senior we heard from earlier, describes a negative self-consciousness when one fails in getting "likes:"

> I think for most people, it's become like a popularity contest. Like, if you post something, like for example, a status update and it doesn't get any "likes," a lot of people – well for me – for most people if it doesn't get any "likes," you feel really self-conscious about it. Like, "Oh, no one likes my status update," or "No one likes my photo – maybe I should take it down" or something. But if something keeps getting liked or if it's really popular and everyone's commenting on it, you feel like – just popular in a way, but also well liked – like figuratively and literally.

These quotes suggest that students are not merely *self*-selecting what they put up on Facebook. Rather, the selectivity of what they choose to leave up depends on the valuation by their peers. In effect, these teens become increasingly sensitive to the judgments and reinforcements of others. This increased sensitivity especially hurts when students put up something that others do not respond to well.

Interestingly, some students desire more "likes" so strongly that they may even personally ask others to "like" a particular post. Michael, the senior mentioned earlier, describes the initial weirdness when someone asked him to "like" a photo:

> I know girls will post pictures of themselves and guys probably do it too. And they'll be like, "Oh, can you 'like' my picture?" And it's like, at first I thought that was really weird. But when I see it happen, I don't really see the point of that. But I guess it's a way that people use to make themselves feel more confident.

Kate, a junior, also describes being asked by others and finding it initially strange: "People ask you to 'like' their profile, which is kind of weird. Like, they'll asked me in person to 'like' their profile or a photo." Students may feel so concerned about their number of "likes" that they will ask other friends in person to "like" their photo. As Michael attests, the number of "likes" can be a strong source of confidence or insecurity.

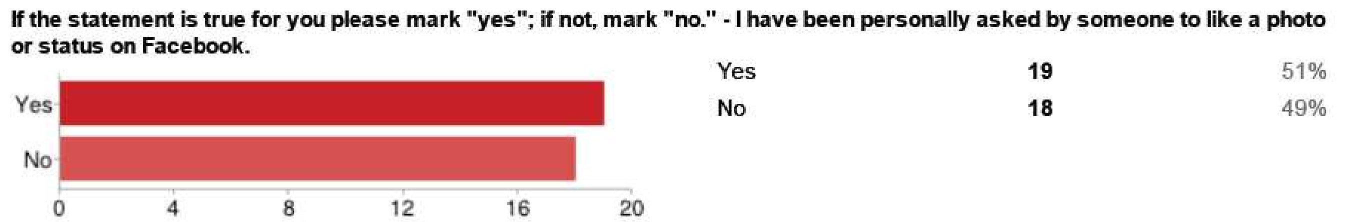
Other students who may not explicitly ask someone to like a photo may still opt for slightly more subtle means. Tina and Avantika, two seniors, describe how both of them have received private Facebook messages by others who were trying to get more "likes" on a photo. Tina says:

> I've had friends who private message me and they'll be like, "Oh, look at my picture," which basically means, "'Like' my picture." So, basically if you don't, they'll be offended. Especially since Newsfeed now shows five or six people at once who've changed their profile picture, so it won't just be you, so people can miss it.

Tina suggests that students keep a close eye on how Facebook notifies other users of recent changes like profile pictures. If they feel enough people do not see their profile picture or "like" it, they take extra measures to cue their friends to do so. Interestingly, Tina told me that this private messaging has happened "four or five times" to her. When I first interviewed students I was very surprised about this behavior and thought it may still be rare. However, when I surveyed students, I found that of the 37 students who said they were on Facebook, 19 (or 51%) agreed to the statement, "I have been personally asked by someone to like a photo or status

on Facebook." As a result, it appears that this desire to be "liked" on Facebook permeates the lives of many high school students. In effect, these youth do not merely post photos to share their experiences or hold onto memories. An integral aspect of this process becomes garnering "likes" to boost your image.

Figure 5. Survey Data on Experience with Being Asked to "Like" a Photo or Status.



While some students may be happy with their use of Facebook, the amount of time students spend on Facebook may extend the kinds of social comparison and hyper-focus on self-image that may harm psychological well-being. As mentioned, prior to Facebook and social media, teenagers dealt with these same issues of comparison and self-consciousness, but the triggers confined themselves to more limited periods of the day. Students would have to worry about their appearance or image while at school or when out with others. However, with Facebook always accessible, students know that their online profiles and images can always be viewed and watched. When they post new pictures or statuses, even when they log-off, they may constantly be thinking about how many students are "liking" and commenting on their posts. Such a habit with an "always-on" generation may lead to an "always-me" generation, where students focus excessively on their own image.

And when they do visit Facebook, they may constantly compare this self-image to the happy, positive, and even Photoshopped images of their peers. Again, youth have always dealt with issues of comparison and self-image. But the "always-on" of social media increases the time these problems occupy student minds. This lifestyle decreases the "off time" that may have been used to rest a teenager's mind from these problems and ultimately begin to resolve these problems and mature.

Cliques and Identity

Finally, the "always on" feature of high school social media may result in some students feeling restricted to their "clique" identity during more of the day, which may leave them feeling unable to explore or express their full personality. Unfortunately, I was not able to explore this topic with many students, as it only came up in the tail end of my interviews with one student, who brought it up as one of her concerns with social media. This student was Michelle, a senior and honors student involved in sports and music. She described that with social media sites like Tumblr she saw high school cliques transposed onto the Internet and students needing to sort themselves into these cliques:

> Like, I know that, even on the Internet there's a bunch of cliques and groups. Like, on this site called Tumblr, there's like the hipsters, and then the Fandoms, and then the bops. It's really weird. It's like high school cafeteria is being transplanted onto the Internet, and people find themselves needing to sort themselves into these groups sometimes, which I don't think necessarily is a good thing.

Michelle describes what we may expect of social media. Social media reflects cliques found in the real world. She goes on though to express her concern, which aptly characterizes the dynamics of cliques:

> It's so weird how people don't become themselves but become other people, because they see things on the Internet sometimes, and then they see, "Oh, other people are approving," and so to gain that approval, they'll filter into the groups to feel like they belong, like there's a commonality.

Michelle speaks of a basic feature of cliques, where a student may take on the implicit characteristics and identity of clique. In order to gain the approval of others, students may let go of who they really are and mold themselves to the expected identity of the clique. Again, this is not new. But students may feel more compartmentalized into these cliques when their 24/7 online identities become cast into the same framework. Students do not just fall into their clique when at school, but they engage in its approving behavior when at home on the computer.

However, Michelle goes further to say that these online cliques seem to accentuate clique features at the expense of a teenager's full self to a greater extent than in the real world. She went on to express this concern:

> Like, on Tumblr, people will leave anonymous messages saying, "Why are you so much like this?" And they'll reply, "This isn't all of me. This is just part of me that I express." But it's like they take that one characteristic and it gets accented so much that it is them, and so they take those clique boundaries – like boundaries that are sort of less, less drawn at school, because we have classes and stuff that force us to intermingle – but then when you're on social media you'll end up accenting those things. But even though they'll say, "Oh, it's something I just said," I personally think that if you keep saying those things and acting like that, that'll become you whether or not you mean for it or not.

According to Michelle, online cliques have an even stronger effect on what students can express about their identities than in the real world. Perhaps this is in part due to the modes of communication, where text fails to communicate ambivalence or range of true emotion and may even enable an ease to fall into more extreme views without inhibition. But clearly for Michelle, students end up accentuating these clique characteristics that they feel take on a hyperbolized identity that does not

enable room for their other real thoughts and diversities. According to her, even when they try to acknowledge there exists more to their personality, she feels the structure of social media in effect withers this diversity of identity. Additionally, we may feel concern that, for many of these students, these "boxed" identities have the potential to become increasingly permanent. High school and adolescence has traditionally been very difficult because of these kinds of peer pressure and struggles with identity. Traditionally though, there remained more room to recreate yourself, especially, say when going off to college. However, with social media ever-more permanent, it becomes harder for these students to break out of the identities they may feel exaggerated and boxed into as a teenagers.

Considerations for Redesign

In sum, this section raises potentially large-scale challenges that may elude easy solutions. The problems of social comparison, self-focus and image, and identity formation stem from the large social media structures that support in an "always on" way of life that exacerbates these problems. As a result, I do not have any easy answers for redesign, but these will remain important challenges for the future. While redesign will be especially important, it seems that for many of these students the negative "always on" features of social media may be mitigated simply be limiting time online. Though it may be difficult, the idea of routine "technology Sabbaths" if they can be encouraged in a non-authoritarian, but supportive way may expose youth to alternatives to an "always on" way of life.

Additionally, "digital bonfires" may represent one way of one addressing the final point of students feeling "boxed" into online identities. Europe is currently considering requiring online companies to provide a "right to be forgotten" function. However, it would be more encouraging for youth especially to engage them in a kind of festive "scrapbook" making. On digital bonfire days, students could go through their online content and delete what they no longer want up online – in effect throw it into a "digital bonfire." But they could also make an effort to just hold on to certain memories that they would want placed in "scrapbooks." While Facebook currently has Timeline, which is like an online "scrapbook," the idea here would be to create scrapbooks that would be moved from an online and public sphere to a private scrapbook. These scrapbooks would retain the important memories that students want to retain, while giving them more freedom to let go of their old selves and to mature. Such days may be especially worthwhile when high school students go off to college or begin new stages in life.

An alternate approach is to periodically allow a new Facebook account for different stages of life: for high school, college, etc. This is not unheard of. My brother, who had well over a 1,500 friends on Facebook after sophomore year of college ended up creating a new Facebook account to limit his friend circle to just his closest friends in college. Such practices may be coming more common. But when students already have more than 1,000 friends in *high school*, many of the students may want to restart with just their closer friends when they start college. Currently, the process of de-friending remains a bit awkward. However, if individuals expected to "shed" their high school Facebook and start a new one for

college, this may enable students more freedom to start afresh and have their identities better mature.

Part III: When the Comfort of Dialing Down Human Contact is Always Available Effects on Social and Interpersonal Skills and Preferences

This final section addresses what seems to be the problem that may be the most challenging to address with redesign in technology: effects on social and interpersonal skills among youth. The media tools of control and comfort that students grow accustomed to when they communicate stands out as one of the important features of the "always on" connectivity. Sociologist of technology, Sherry Turkle, refers to modern media, like text, Facebook, and Twitter, as providing a novel kind of "dials" that allow for controlling intensity of human contact and the presentation of the self. In the appendix, I offer a philosophical essay that compares these technologies in light of phenomenology of Heidegger. However, this section addresses concerns similar to Turkle's in the context of these teenagers. Specifically, students who use these technologies ever more frequently grow comfortable with the "mask" that texting and online chatting provide. Students become more comfortable with communication that provides more time to think before responding, mitigates the fear of saying something wrong, and shields revealing emotions or reactions. These "comfort controls" may increase a kind of social disposition that gravitates toward "shielded perfectionism" and shies from appearing vulnerable. Some of these students may find themselves more reliant on these technologies when discussing more personal and emotional issues or even when trying to articulate their true thoughts to others.

Students and teachers I interviewed felt there has been a decline in social and conversational skills among youth. One teacher who has been teaching for more than 30 years felt a significant change in interpersonal skills. He said the

following when I interviewed a group of teachers and brought up the topic of interpersonal skills:

> And you asked about interpersonal skills – they suck. You know, try to have a conversation with them. Have them try to talk to each other – I mean, I think the level of conversation, the ability to communicate from the heart sense of what they're truly feeling, sustained eye contact – all kinds of things. When I first started teaching 30 years ago, I used to ask a question in class and 20 hands would go up and all wanted to participate. Now it's five kids all semester. The other kids will sit there and not say anything.

This teacher clearly feels a decline in social skills that manifests in the classroom. Students appear less pro-active and have less of an ability to communicate skillfully and articulate their true thoughts. Tiffany, the outgoing junior mentioned earlier, also echoes this same sentiment in observing her peers interacting with adults:

> Well, I think that a lot of people don't know how to communicate face to face as much any more. And especially with adults, I think that's particularly true, because I know that – I mean when we're all the same age, like 15, 16, 17 or whatever, we are part of the same culture where we have smartphones and we have Facebook all of the time. But I find that when I see kids interacting with adults, I see that they're not as respectful. They're not giving eye-contact. And these are just things that you learn, I mean, primarily through interacting with your peers. But because our interactions with our peers has changed, we don't really use those same skills that we would have learned, you know, interacting with our friends with, you know, with people in authority. And I dunno, I think that's a problem particularly, because, I mean, I'm sometimes appalled by how students treat teachers. And I'll see them talking back and it's like – I think that this whole technology "revolution," for lack of a better word, has changed all that. Because, you know, we don't interact as much face-to-face. And when we do, it's after hours of texting and hours of like Facebook chatting or posting on each other's wall, and then you might come to meeting someone, or interacting with someone face-to-face. And at that point, you've already established this – I mean it's not always gonna be a fake relationship. I mean have good conversations with people texting. I mean that's not a bad thing. But I think there are just some of those basic conversation skills that we're losing.

Tiffany acknowledges that she enjoys a good deal of her texting and social media interactions. However, she feels its excess contributes to a bypassing of the social skills that would have far more naturally been acquired with traditional modes of

communication. Because teens can live more and more in a "tech" facilitated bubble, they may lose practice with basic conversational skills.

Many students described that behind the concern with social skills lies comfort with a "mask," which shields them from vulnerabilities. Megan, an outgoing senior, says she loves to talk, especially since she was raised in a very large, conversational family. But she still feels her biggest concern with social media remains the loss of "social skills" among her age group. She described the "mask" behind which students can filter communication. Adrianna, another senior, referred to this as the "shield," and Jackie, a junior, referred to this as "hiding behind the screen." Diane, the senior who had a particular skill in summarizing what came up in many interviews described the important features that this mask provides in online chat:

> I know people from my old school who whenever we hang out, they're kind of quiet, and kind of awkward and anti-social, but on the Internet they'll just go all out and talk to you freely. I dunno, it's really weird how people act differently online and in real life. I think because in real life if you do something you can't really change it, or take it back, or you don't have time to think about what to say or what to do. But on the Internet, you can like sit there and think about what you wanna type. Or like, if you're typing something and it doesn't sound right, you can delete your mistakes or something. And also, on the Internet, people can't really see what you're doing or what you look like, so it's just personally different. But, I dunno, there's a lot of leeway for – I don't really know how to describe it, but it's a lot easier to take back what you wanna take back, rather than in real life, where it's already out there once it is.

Diane addresses the different features of online chat that enable individuals to circumvent more awkward real life interactions. This ability stems from the controlling and editing power of online communication. Individuals have (1) more time to think and edit what they will say; (2) they can avoid their fear of saying something wrong and correcting potential "mistakes"; (3) and they do not have to

reveal how they look or emotionally react during the communication. Behind all these lies a kind of "protected perfectionism" to say just the right thing. That remains the difficulty of "real life." In real life, you cannot take the time to get it just right.

Students repeatedly echoed that texting and chatting appeal to them more because they provide more time to think, which may detract from abilities to engage in conversation more spontaneously. One student in a class discussion with sophomores expresses particular concern about the impact on social skills:

> I think that all this cyber content is taking away our generation's ability to communicate in person better. Like, instead of talking with people face to face, we'd rather send them a text message or an email because you have more time to think about it. So we're like losing the ability to come up with things more quickly when talking with someone, so you'll see a group of people all together and instead of interacting with each other, they'll be on their phones texting someone else or texting constantly, which is kind of ridiculous 'cause it's getting to a point where it's getting to affect how we communicate.

Another female in this same class discussion also expresses the comfort of texting, which leads her to avoid phone calls:

> I feel whenever someone is – or like I get a call on the phone I won't answer it 'cause I don't wanna to talk to them because I feel it's way easier to text people because I have time to think about it. Like, I don't know, I think conversation is deteriorating in a way, because it's so much harder to come up with a response and something like that.

These teenagers feel the comfort that email and text provide with "time to think." Yet at the same time, they also feel conversational skills are deteriorating as result of it. There may be various reasons behind the wish for more time to think. But it seems that online and social media communication, which increasingly embodies wit and brevity, leaves teenagers with the feeling that they ought to get things "just right." Even Diane, who above described the appealing ability to edit what you say,

also told me that there is a kind of additional anxiety after pressing "send" because you may have made a mistake. Students may increasingly become accustomed to feeling they are not saying the right thing, so they gravitate toward what may give them greater control.

Several students cited avoiding this increased fear of saying something wrong as a reason for preferring texting and chat, suggesting a growing kind of self-conscious performance anxiety. Jackie, the junior mentioned earlier, describes that online and through text you can hide behind your device. When I ask her to explain what it is you hide, she speaks of this fear of saying something wrong:

> It's kind of like if you're afraid of someone's answer, and you don't know someone that well or something, or you're trying to ask them to do something for you. Like if I want someone to do a favor for me, I'll ask them like really nicely through text because you can type up whatever you want, and you can like make drafts or whatever of your texts, or you can wait until you have the perfect thing to say, but with talking you can just blurt something out and it might be the wrong thing to say, and I guess people don't like that.

Jackie describes a kind of natural discomfort from a situation where she has to ask a favor from someone she does not know well. Texting, however, provides a simple way out of the discomfort of the uncertainty and more difficult to control delivery of a phone call. Jackie even describes coming up with multiple drafts before she gets it into a "perfect" form. Not only does this provide a way out of discomfort, but, as Jackie suggests, she grows accustomed to presenting things "perfectly." In effect, students do not just avoid difficult interactions, but they "raise the bar" for what they see as a perfect delivery. This may lead to even more aversion toward using more real-time communication like phone or face-to-face where this perfection remains harder to achieve.

Additionally, the ability to edit *and* see the full stream of conversation in online chat becomes a way for some students to fully think through the delivery of their responses. Adrianna, the senior mentioned earlier describes this advantage of online chat:

> And you can always edit it. In real life, there's no editing. Either you say the first thing that comes to your mind, or you don't say it. The best thing I do is I scroll back, and I see what I've said and how it's come across. In real life, you don't get to scroll back and see what you said yesterday or 10 minutes ago and how they reacted to it. So there's a lot more reflecting. It's an edited conversation and there's a lot more control, but it also gets out of hand because you don't see all the reactions. That's gotten me into trouble before.

Adrianna firstly suggests that with online chat she does not simply reflect on the immediate question at hand when providing a response. She may revisit the history of an entire conversation, even to what she said the day before, prior to crafting her response. Behind all this lies a kind of gauging of how the other person has responded in the past. In effect, online chat may provide a great deal to consider, perhaps even too much to consider when communicating. Ironically though, Adrianna suggests that it is often hard to determine the other person's true feelings behind the mask of text. The very advantage to hide her own feelings and craft her response makes it more difficult to read the other person.

Yet, even though students also raise the problems of miscommunication with text, students often describe the comfort of being able to shield their emotions and reactions. Megan emphasizes that she was always a "people" person and would prefer to be with someone face-to-face if they were crying or in distress. But she admits:

> But I do admit though, talking to people, it's comforting to be on Facebook chat because you can just not respond and say, "Oh sorry, I was busy doing something,"

> when in reality, you're like, "Oh, whoa, what am I going to say?" You kind of – you have that power. You don't get that in real life. It's easier to manipulate a conversation.

Megan describes the power online chat provides in hiding our true reactions. When a conversation gets more heated, revealing, or simply catches us off guard, there lies the potential that we may not know quite how to respond. Online chat provides the safety of "time to think" to provide the right response, but also a shield from the initial confusion or revealing emotions. We may come across as more skilled in providing the appropriate response. This may, however, detract from the confidence gained when actually handling these situations in real-time.

Interestingly, this ability to titrate a response also takes shape in blogging, where teenagers reveal personal details, but those on the other end can choose to reveal whether they "know" about an issue. When I asked how students discuss more personal matters, Diane described this process on the site Tumblr:

> Well, between my friends and I, we use Tumblr. Have you heard of Tumblr? [Of course.] Yeah, we use Tumblr, and someone might post something really meaningful or something deep about their lives, like some insightful reflection, and then a lot of people will just like "like" it. And then some people will reply and give a small comment back. And I think that, in my personal experience sometimes when I like something, I sit there and think about, "Oh, is this something too personal, should I – should I look past it because I don't wanna be invading their personal life and letting them know that I know about their personal issues, or should I take the initiative to comfort them about it, or say, 'Hey, I know about this issue, but I'm here if you need me,'" you know. So, I think it's really different in that way because online you can pretend you don't know about it even if you know about, or you can tell them that you know about it. But then in real life, once you're there and they tell you about it, obviously you know, and they know that you know.

With blogging an entirely new dimension in responding to deeply personal matters arises. Individuals can choose whether to even respond or not. Clearly, the person blogging does not expect responses from everyone, so there exists no obligation for someone to respond, especially if she does not know someone well. But blogging

provides the highest "increment" of titrating a response. With online chat, individuals can control their timing of when they respond. But with blogging, they have the comfort that if something appears too difficult to respond to, they do not have to respond. As individuals grow more accustomed to encountering more deeply personal issues through these online media, individuals may grow more dependent on the control they provide in titrating a response.

This growing comfort with these technologies seems to lead several of the teenagers I interviewed to prefer text or online over phone or face-to-face when discussing more personal, deep, or emotional topics. There appeared to be a good deal of variability in the extent that this applied to different students, likely as a result of different personalities. Adrianna, who was fairly sociable, described that online chat and text provided a kind of "ice-breaker" into broaching personal or deeper topics with potential friends, which often later transferred into in person interactions:

> For me, I feel more comfortable with certain subjects and certain people online. I mean, the people who I'm having these deep conversations now, I feel fine talking about it in person. But say the first time that I'm talking to somebody, and they're kind of my friend, but I wouldn't say my close friend – and we start getting into deeper into the "meaning of life", or what you want to do when you grow up, or troubles you're having at home – I would not feel as comfortable talking about it in person the first time.

Here the online medium shields some of the potential discomfort with broaching personal topics for the first time and acts as a kind of emotional "ice-breaker." Adrianna went on to describe that these deeper online conversations led to different results in the "real world" with different people. With some of her friends these "ice-breakers" transferred into having more of these kinds of conversations *in*

person. But with others, she felt she does not end up talking about the online conversations or topics in real life, and it may end up being a little awkward in person. While Adrianna did elsewhere say her ability to carry a conversation felt underdeveloped, it seems these changes do not terribly affect Adrianna. Sure, there remain some friends whose deeper conversations stay confined to the cyber-sphere, but at least a good deal of her online conversations transfer into deeper, in person interactions.

However, students who are less inclined socially may grow more reliant on the comfort these media provide in titrating down the intensity of emotional conversations. Shaun is a freshman who appears more reserved in expressing his thoughts. He describes his preference for online chat (Facebook and Gmail Chat) to broach the more personal topics he does not discuss in person with friends. The conversation had a good deal of pausing and back and forth, so I include my questions:

> You don't talk about the same stuff on Facebook or chat as you do in person. At least that's for me.
> [What are the differences?]
> I don't know, for some reason, you go deeper in text or chat than you do in like actual conversations. But I think that's because we're all used to typing.
> [Can you describe that more?]
> So by text we're referring to text, Facebook and Gmail, right? I don't know, like a lot of my friends, I don't talk to them a lot at school, but I talk to them a lot through Gmail. Why is that? I don't [pauses; loses train of thought]–
> [Well, what are the kinds of things you talk about that you wouldn't in real life?]
> Like, I don't know, like I'm having a horrible time with this teacher, or things like, I have a D, or things that get more personal. Yeah, things that get more personal, or things that you don't want others to know.
> [So if you had a deeper, emotional, or personal issue you wanted to talk about with someone, what means would you use?]
> Oh, I would definitely prefer text. I feel like with that topic specifically, it's harder to talk about in person.

One simple explanation for choosing textual mediums for these deeper conversations may be simply that students do not really talk about these topics at school. At school, students are in groups and many others are around at lunch or after school. Students get more of a one-on-one opportunity with others after school. And because many students are at home, online chat simply becomes the default means of communicating. While this may be so to a certain extent, Shaun describes the greater ease to go deeper in online chat and that he would definitely prefer being behind the computer when broaching these topics. When I ask him further, he explains the comfort of shielding reactions and added time to think, just as other students discussed. While other more outgoing students may not have as much of problem, students like Shaun, who may be shyer, may grow increasingly reliant on these means for handling difficult topics. As a result, they may shy away from future opportunities to practice discussing these emotional topics in more real-time means like face-to-face.

This over-dependence on using these technologies to discuss more difficult topics may lead some students to have increased difficulty in simply expressing their true thoughts in person. Michael, the senior mentioned earlier, describes his interaction with a friend who could not express some concerns to Michael directly, but could do so online:

> It's like, I was having a conversation with someone in real life, and we were talking about things. And the conversation, like – and I know this person pretty well, so I can kind of figure out what's going on and what they're thinking about – and it was clear to me that, like, what they were saying wasn't what they were thinking. And I was just like, Ok, whatever.

But Michael went on to describe later talking to this person online:

> I was just watching the conversation, and the conversation is, like, different – in that, what I thought, what I felt like the person was thinking came out in what they were saying in that online conversation. So, yeah, it was more like, on the spot when I was talking to them, either they didn't want to say it because it was offensive, or they couldn't put it into words, but the words, like, they came out online when they were talking about it.

Michael's description echoes the sentiment of the veteran teacher at the start of this section who felt students had difficulty communicating "from the heart sense of what they're truly feeling." We can almost sense that this student feels so reserved in communicating his or her [I never asked Michael if this was a male or female] true thoughts because of the risk of a misplaced delivery that would offend Michael. Behind this, there appears a kind of wish for a more perfect delivery, or insecurity with stating one's true thoughts to another. It is not that this student does not want communicate his or her true thoughts to Michael, but rather that this student now requires the *proper medium* to feel comfortable enough to do so.

Some students suggest that this preference for online chat leads people to become less open in person, especially with vulnerabilities and negatives, suggesting the perfectionism of social media may further transfer to real life. Michael describes that opening up online feels a lot easier than opening up in person. He suggests similar reasons as others: both of you can pre-plan what you want to say, so as a result:

> The conversation that you can have with them and they can have with you functions as something as more comfortable than in real life. It's like if I have more time to think of something nice to say or something to cheer you up, it's like – then that's what will happen.

Michael echoes this comfort in having more time to say the proper, most comforting response to another. But he went on to say that this comfort ends up detracting from how individuals approach everyday conversations in real life:

> I think this makes people less likely to talk about it in person. It's kind of like the idea of having a best friend from really far away that you can talk to about anything. And then conversations that you have with quote un-quote "regular everyday people" are like less in depth and less personal.

Michael describes the comfort provided by these technologies in terms of distance. Individuals want to open up, but they also want to control the distance between the other. When they appear too close, they fear revealing too much, saying the wrong thing out loud, or becoming overly conscious of their emotions. Real life interactions though do not allow any control over this distance. As such, individuals may grow increasingly uncomfortable in expressing themselves in these settings.

Finally, in similar terms, another student describes that the control and titrating abilities of social media leads to more awkward students, who adopt an offline Facebook mentality that wants to hide negatives and vulnerabilities. Gary, the junior mentioned earlier, describes the growing awkwardness and inhibition he sees:

> You see more awkward people out there now. Especially with their feelings, a lot of people don't know how to express themselves. Or like, they try to hide. So I guess people are trying to make real life like their Facebook profile. So they appear shallow on the outside now. [Can you explain that more?] Like, you know how people watch stuff that's on their profiles? They delete all the bad things. They try to make their real life appearance like that too. So they're less open about their negatives. They'll like be less open to talk about things than they were before. [That's in contrast to when?] I'd say for middle school, for me, people were pretty open. Everyone trusted each other. But online drama usually decreases trust between people.

Gary suggests online Facebook behavior transfers offline. Facebook develops a habitual kind of grooming one's image and self-presentation. Users can better hide the negatives, better control communication, and delete what they do not like about themselves. Because real life does not provide these controls, teenagers may become increasingly reticent to take emotional risks and express their full selves,

including vulnerabilities and negatives. The kind of perfectionism sought after in Facebook may be increasingly unattainable in the real world and may lead to more insecure and awkward individuals.

It should be stressed that these concerns about the potential decline of social skills may be more relevant to teens with certain social dispositions, i.e. most strongly affects a minority, albeit a sizeable one. Other teenagers may be more minimally affected by these changes. In my interviews, some students felt Facebook did not have adverse social affects. They felt did not take away from face-to-face time, but provided additional time to communicate during times when teens normally would not see each other. This perspective of Facebook as a "supplementary-but-not-detracting" social tool came up with a minority of students. Alok, the sophomore mentioned earlier, even felt that Facebook "increases friendships," by letting someone know more about the interests of others and opening the door for better in person interaction. In sum, it appears that the concerns raised in this section may apply to a more minimal or moderate degree for most students, but become most amplified for a certain subset of students.

Along these lines, preliminary self-report survey data I took suggested a potential "bell curve" of some students who become increasingly reliant on technological communication for opening up socially. I posed a series of statements about online and social comfort, including statements like: "Chatting online/texting allows me to talk about things that would be more difficult to talk about in real life," "I feel I can be more open about my true thoughts and feelings when chatting online/texting rather than in person or over the phone," and "I often prefer chatting

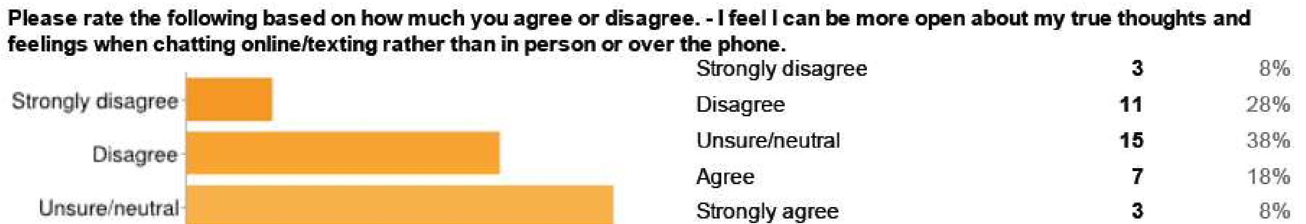
with others online over in person because there is a 'mask' that prevents them from seeing my real reactions and gives me extra time to think before I respond." As can be seen in the figures below, in a series of statements along these lines students were roughly evenly split into expressing agreement or disagreement with these statements. Agreeing, Neutral/unsure, and Disagreeing students fell along spectrums of 20-50%, 20-40%, and 20-50% respectively. While obviously more statistically sound and representative studies are needed, this data supports a preliminary suggestion of a kind of bell curve about how students may be affected adversely by these technological trends. As a whole, the bell curve may shift in an adverse direction over time, but it seems that the sizable minority of students on one end of the curve will be most affected by these changes.

Figures 6. Survey Data on Comfort with in Person and Media-facilitated conversation.

Please rate the following based on how much you agree or disagree. - Chatting online/texting allows me to talk about things that would be more difficult to talk about in real life.

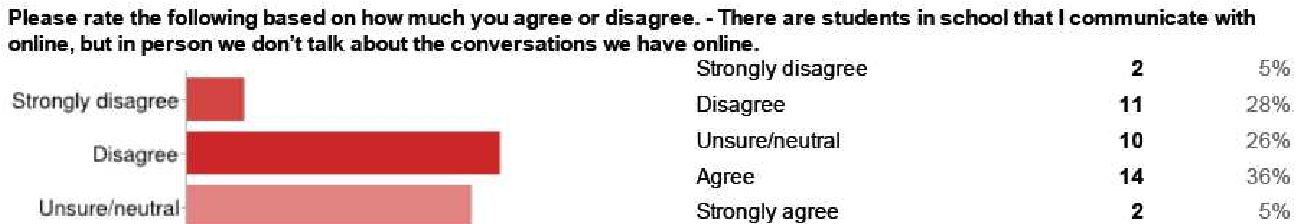
Response	Count	Percent
Strongly disagree	3	8%
Disagree	8	21%
Unsure/neutral	8	21%
Agree	16	41%
Strongly agree	4	10%

Please rate the following based on how much you agree or disagree. - I feel I can be more open about my true thoughts and feelings when chatting online/texting rather than in person or over the phone.



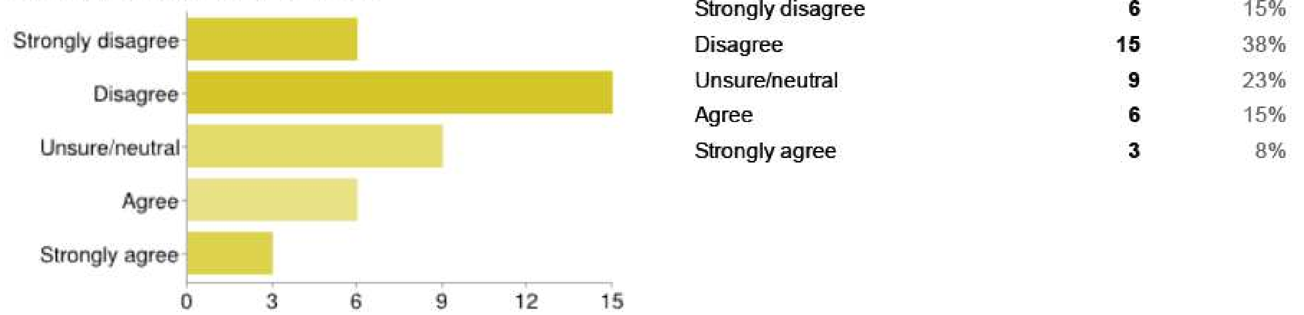
Response	Count	Percent
Strongly disagree	3	8%
Disagree	11	28%
Unsure/neutral	15	38%
Agree	7	18%
Strongly agree	3	8%

Please rate the following based on how much you agree or disagree. - There are students in school that I communicate with online, but in person we don't talk about the conversations we have online.



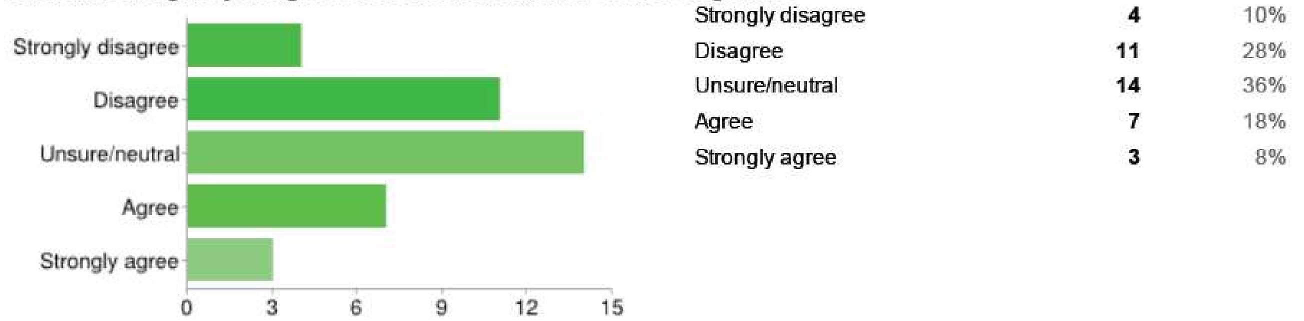
Response	Count	Percent
Strongly disagree	2	5%
Disagree	11	28%
Unsure/neutral	10	26%
Agree	14	36%
Strongly agree	2	5%

Please rate the following based on how much you agree or disagree. - I prefer getting my emotions out/venting online over face-to-face or through a phone call.



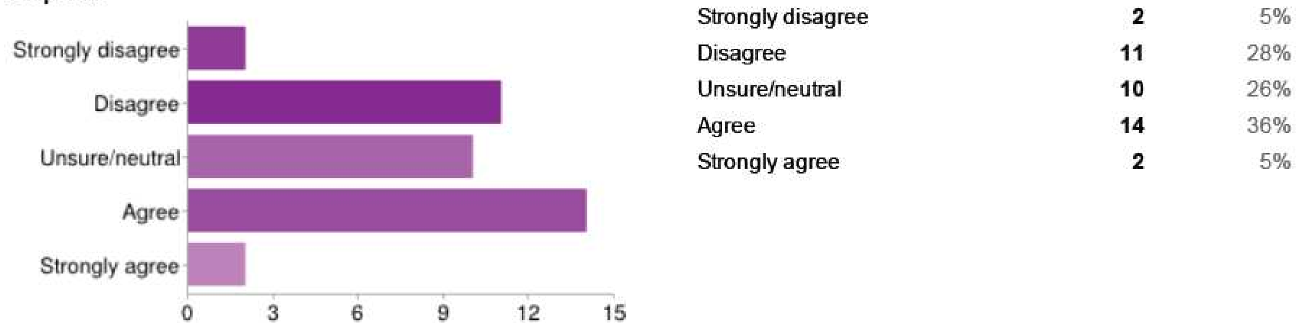
Strongly disagree	**6**	15%
Disagree	**15**	38%
Unsure/neutral	**9**	23%
Agree	**6**	15%
Strongly agree	**3**	8%

Please rate the following based on how much you agree or disagree. - I often have difficulty saying what I truly think in person, but I can better get my thoughts across when I text, online chat, or blog online.



Strongly disagree	**4**	10%
Disagree	**11**	28%
Unsure/neutral	**14**	36%
Agree	**7**	18%
Strongly agree	**3**	8%

Please rate the following based on how much you agree or disagree. - I often prefer chatting with others online over in person, because there is a "mask" that prevents them from seeing my real reactions and gives me extra time to think before I respond.



Strongly disagree	**2**	5%
Disagree	**11**	28%
Unsure/neutral	**10**	26%
Agree	**14**	36%
Strongly agree	**2**	5%

While social media may not negatively affect all students equally, the concerns raised here should heed attention. From the interview data, a recurring theme seemed to be a decline in social skills with students becoming increasingly reliant and comfortable with an online or text-based "mask." This ability to control the intensity of human contact makes students dependent on wanting more time to think, becoming overly self-conscious about mistakes, and shielding their emotional reactions. This becomes most evident in students preferring to broach more emotional and personal matters only in the context of online chat or text. Running behind all this may be a growing desire for "protected perfectionism" that may be inherited from social media use. This kind of "perfectionism" does not mean to imply that this generation expects more of themselves socially than previous generations. It stems from an increased self-consciousness that knows that "If I could say this online, I could say it far better than it may come out in person." When we continually opt for the former, our abilities to articulate ourselves in person may decline. As a result, we sense a widening gap between these two modes of communication. It potentially becomes a cycle. We hence become increasingly drawn toward the comforting, more "perfect" delivery offered through technology.

The concerns raised in this section may be the most important of the "always on" problems that confront students because they lie at the heart of teens' social and emotional development. If students who are "always on" after school become more reliant on technological means to titrate their comfort with the potential turmoil and difficulties of life, these youth may have an increasingly challenging time coping with emotional and social difficulties later in life. The need for redesign to counter

these concerns becomes imperative. Here, I do not have much to offer in terms of concrete solutions. However, as a society it seems that what may be most beneficial would be to bring these concerns and dialogue into the world of technologists. All the various problems discussed in the three parts of this ethnography stem from an "always on" exposure that gets students too tied to using these technologies around the clock. This final problem of social skills may also be mitigated by both self-regulation to limit screen communication and increase face-to-face time. Bringing together experts in social sciences with technologists seems like the first necessary step in starting to design solutions.

Conclusion

This ethnography suggests that many of these students live in a new "always on" mode of life that may come with an array of psychosocial risks. These risks span cognitive, social, and emotional domains that may have important long-term consequences for these students. We found in Part I that many of these students have developed habits of multitasking that may lead to added fatigue and stress. Given studies on the cognitive effects of multitasking, we may be raising a generation that has increasing difficulty with attention and productivity. More so, these habits may lead to increasingly tired individuals who still desire to feed the media thirst contributing to their fatigue.

In Part II we saw a sketch of these students who feel increasingly self-conscious and insecure about their lives in comparison to others. For certain females, this may aggravate struggles with eating disorders or simply compound feelings of insecurity. The self-grooming and "liking" of Facebook may develop a generation characterized by increasing self-focus and narcissism. Such trends may make it increasingly difficult to combat a decades long decline in other-focused civic engagement (Putnam, 2000). Furthermore, if these students find it increasingly difficult to change the "immortalized" virtual identities, adding a layer of self-focus on top of this may compound into greater long-term insecurities.

Finally, in Part III we looked at a perceived decline by students in interpersonal skills. Some of these students increasingly want the comfort of the screen to dial down the intensity of conversation and emotional discussion. Such behavior may be okay in moderation, but increasing dependence in lieu of real face-

to-face interaction may prove difficult for these students later in life. They will grow into partners, parents, and grown-citizens. Without a solid means of handling the emotional and social challenges of grown life, students may find themselves in greater emotional and social stress.

Findings in Light of Existing Literature

Taken as a whole, this ethnography extends and compliments the pre-existing literature in important ways. Part I offers a qualitative understanding of quantitative multitasking results of Ophir, Nass, & Wagner (2009). Here we see that many students do not simply happily prefer a habit of multitasking, but students very often struggle against it. They often try to tone down their use of Facebook and social media while doing homework, but very often they fail to do so despite their efforts. Such descriptions may suggest that future research may want to also investigate symptoms of Internet addiction in youth in junction with the preliminary studies in adults, such as Aboujaoude et al. (2006). Equally important, this ethnography provides insight to some of the novel challenges that may exacerbate multitasking habits already studied. Specifically, the use of Facebook Groups for schoolwork seems to be a very new trend that should heed concern, as this current framework only appears to increase avenues for distraction and multitasking when doing work.

In addition, this ethnography provides a qualitative understanding of the findings of Pea et al. (2012) in regards to high media use being correlated with decreased sleep. This ethnography suggests that not only may there be a loss in

sleep time, but the quality of sleep may be impacted negatively for a certain subset of students who have sleep disturbed by phone and social media distractions into the night. This effect on quality of sleep seems to be an unstudied area that should gain more attention in future research.

Further expanding on the existing literature, this ethnography provides more qualitative insight into the experiences that may be linked to diminished social well-being in youth who spend more time on media (Pea et al., 2012). As mentioned, Pea et al. (2012) found that girls between the ages of 8 and 12 who measured higher on media use and multitasking reported feeling less social success and not feeling normal compared to their peers. Part II of this ethnography outlines in detail a great deal of the experiences that contribute to these feelings. The ample room for constant self-comparison to the fine-tuned, happy, and self-selected photos and contents of one's peers on Facebook may likely contribute to feelings of inadequacy. The more time students spend on Facebook and social media, the more they may get the sense that they do not compare to the always "better" lives of their peers.

Finally, Part III on technology and social skills can provide better insight into the findings of Pea et al. (2012) in regards to social well-being and screen time versus face-to-face time. Similar to the descriptions Turkle provided with technology's ability to "dial down" and control the intensity of human contact, my ethnography confirmed this with the comfort of the "mask" provided by text and chat. Some of these students may grow increasingly comfortable with this technological mask and uncomfortable with having to speak in the more uncontrollable, and error-prone means of face-to-face or phone. This unfortunately

may lead to a self-perpetuating cycle where youth opt for the screen in lieu of face-to-face, thereby robbing them of the social and emotional benefits of face-to-face time. As a result, the needed inoculant of face-to-face time that Pea et al. (2012) cite may become increasingly difficult to attain as these students become more comfortable with screen.

Concluding Remarks

The main thesis of this ethnography suggests that the potency of these various psychosocial risks lies in the "always on" nature of today's tech culture. In some sense, these teenagers experience many of the same risks that any maturing adolescent may have faced. However, the chief danger today may be that media overexposes teens to these problems. Worse, this overexposure happens during the times of day that teens may have used to rest their minds from these problems. Such time alone may provide not only respite, but also the space and solitude to confront these challenges constructively. In another sense though, the structures of social media also pose new risks and habits that other generations did not face. Whether some of these risks are new or not, overexposure to these problems and risks may negatively impact teenagers during a particularly sensitive period of psychosocial maturation.

Importantly, these risks do not affect all students equally. As mentioned, students likely fall into a "bell curve" of those who may use media in more healthy moderation and those with problematic usage. Nonetheless, the risks outlined in this ethnography likely lead to a general maladaptive shift across these students,

while highly negatively affecting a more vulnerable subset of students. Future research should focus on what kinds of factors contribute to more healthy use of media. Additionally, future research should focus on what kinds of students gravitate toward heightened risk and how we can buffer against problematic usage.

The need for better habits of self-regulation emerges as paramount for users of technology. As mentioned with the educational benefits, new social technology opens the doors for greater powers of learning and collaboration. Students who can make the best use of these new horizons will be those who can self-regulate their use of technology wisely. Our efforts for the next decade should move toward supporting users of social media, especially youth, in this direction. Technologies should be rethought and redesigned to support better self-regulators rather than "addicted" consumers of social media. Additionally, for students who may have greater difficulties, an "intervention" course may be an important avenue to offer individuals. Eight-week courses on mindfulness and meditation based stress reduction presently exist with growing popularity. Individuals and researchers may likewise highly benefit from a several weeks long course or "intervention" aimed at changing tech-related habits.

Above all though, the greatest step we may take as a society would be to build public discussion between technologists and those who study these concerns closely. Forums and conferences would be especially valuable in this domain where those in the social sciences, like Turkle and others, could speak in two-way dialogue with technologists. Such dialogue will be especially valuable in beginning to address these concerns as designers and as a society.

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Acknowledgments

I would like to thank my adviser Tanya Luhrmann for the guidance and direction she has provided me over the years. I thank her for her mentorship as an undergraduate and graduate and for her guidance in undertaking my first ethnography. I am very happy to have found her as a mentor while at Stanford. I also want to thank my secondary reader Terry Winograd, whose stimulating course in phenomenology and computer science provided my first chance to grapple more closely with the work of Turkle and which ultimately provided the impetus for my thesis. I also express my gratitude to Sherry Turkle for her email correspondence and helping me with questions along the way. I furthermore extend my gratitude to the administrators, librarians, and teachers at the high school where I conducted my ethnography. Without their generous help, this ethnography simply would not have been possible. I especially thank the religion teacher who gave me the opportunity to interview two of his classes. I likewise especially wanted to thank the physics teacher who helped me recruit students and use his room. I am not going to mention any names to maintain anonymity, but I sincerely thank him under his code name, Mr. Chewbacca. Finally, I wanted to thank Joshua Fouse, Trent Walker, and Manny Fassihi for their friendship and stimulating discussions on technology and life over the years.

Appendix

The following essay analyzing Sherry Turkle's work through the lens of Heidegger is included here as a reference. It was submitted for a phenomenology and computer science course I took with Terry Winograd.

Technologies of Social Enframing and the Impact on the Psychosocial Landscape:
A Comparative Analysis of Turkle and Heidegger

Neekaan Oshidary
CS 378: Phenomenological Foundations of Cognition, Language, and Computation
Professor Terry Winograd
TA: Dean Eckles

December 12, 2011

In his essay *The Question Concerning Technology*, Heidegger contrasts the original essence of technology, which lies in *poeisis*, with the orientation of modern technology which "enframes." Enframing, as used by Heidegger, represents a kind of "boxing" or instrumental control via measuring, categorizing, or other scientific or mathematical means. In today's era, mobile, media, and Internet technologies[5] provide tools for new kinds of control in social spheres and the emergence of a kind of "social enframing." I use the term "social enframing" to refer to the phenomenon that sociologist of technology, Sherry Turkle, describes as the novel kind of "dials" new technology allows for controlling both the intensity of human contact and the presentation of the self. This essay aims to extend this line of thought through a comparative analysis of Heidegger and *The Question Concerning Technology* with Turkle's present day ethnographic work, *Alone Together.* The novel controls of social enframing can significantly reshape our "psychosocial landscape," especially for youth (but also adults). These controls may titrate certain risks, but may introduce a new kind of socialization that takes on greater dangers. These include the loss of acquiring social skills involving vulnerability, the stifling of the natural psychosocial development and identity maturation of youth, the loss of communal spaces and multifaceted modes of sharing presence with others, and ultimately the acquisition of narcissistic treatment of humans as objects. In analyzing Turkle through Heidegger, we can see the potential pervasiveness of a new way of being that ultimately reshapes human development, identity, and social relations, while connecting the dangers that Turkle and Heidegger address in their own eras.

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[5] Rather than keep repeating this long phrase, I use "new technology" in its stead.

To an extent never seen before, the varied media for messaging and online presentation provide novel tools for an emerging kind of "social enframing." These tools enable us to greatly control two essential features of social interactions: first, we can titrate the intensity and demands of contact with others, and, second, we can fine-tune the presentation of ourselves, in messaging and in the appearance of our online identities. With social enframing, we do not reduce humans to numbers and mechanics as enframing typically implies. However, social enframing lies in tools that for the first time enable us to strongly manipulate the typical commitments and demands of relationships and to closely control our social personas.

Firstly, today's technologies give us the powers of control in titrating human contact. As Turkle succinctly puts it, "New technologies allow us to 'dial down' human contact, to titrate its nature and extent" (Turkle, p. 15). Traditional face-to-face interactions and telephone represent the greatest degrees of engagement in social interactions. These mediums often bring greater transparency and as a result may heighten emotional commitment and make risk harder to control. But these days, texting, Facebook, and Twitter provide alternative means of communication and "staying in-the-loop" with others. Turkle suggests that these technologies can turn us into modern Goldilockses. Youth gravitate toward texting over phone because texting allows them to be "not too close, not too far, but just the right distance" (ibid., 15). Adults in the workforce and in academics, likewise, have grown fond of texting or email over face-to-face or making a phone call. We can bring people close enough as we need for social communication while simultaneously keeping them at a safe enough distance that avoids real-time commitment and

emotional risk. We can strike what feels like just the right balance with new tools for control.

Just as we can titrate the distance toward others, we can titrate the self by controlling how we present ourselves to others. In line with a mode of social enframing, Turkle once again draws the comparison to measurements and the tools of robotic craft to describe the novel phenomenon at work. "Just as we can program a made-to-measure robot, we can reinvent ourselves as comely avatars. We can write the Facebook profile that pleases us. We can edit out messages until they project the self we want to be. And we can keep things short and sweet" (ibid., 12). This new set of working tools provides greater control over presenting ourselves. Youth and even adults now fear the phone because it "reveals too much" (ibid., 11). We feel safer in the modes of texting and typing because we can edit our thoughts and communication outside the bounds of "real-time." According to Turkle, with our Facebook profiles, we now have the ability to groom and fine-tune the precise image we want our identities to fit. These tools enable us to better "box" ourselves into the categories of our ideal self. We have, again, a novel kind of social enframing at work.[6]

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[6] I do not have the space to consider the debate surrounding this issue; the purpose here is to use Turkle's work as the point of discourse. However, there is counter-evidence, see Back et al. (2009), which suggests that Facebook profiles reflect actual personality, not self-idealization. However, there are suggestions that Facebook may lead to only posting happier contents among everyone leading to an overestimation of other people's happiness (see Slate's "The Anti-Social Network: By helping others look happy Facebook is making us sad" or Jordan et al. (2011)'s "Misery Has More Company Than People Think: Underestimating the Prevalence of Others' Negative Emotions."

Through these different kinds of social enframing, individuals learn and become accustomed to a novel set of social practices; these practices allow for control of comfort and short-term risk, but may give rise to greater risk in the loss of skills that buffer against loneliness and social disconnect. For some, one of the most salient side-effects of this control can be an underdeveloped comfort and skill with social risk and vulnerability. Hubert Dreyfus (2009) has emphasized the importance of risk and vulnerability in education, which he argues should not be supplanted by "telepresence" technologies that may remove risk and vulnerability. The point can generalize well to social learning. Learning to be comfortable with one's vulnerabilities requires practice. However, an individual who constantly opts out of phone calls and face-to-face interaction risks not acquiring certain skills because the practice is short-circuited. Turkle describes a high school student who typifies this danger: "A phone call, she explains, requires the skill to end a conversation 'when you have no real reason to leave… It's not like there is a reason. You just want to. I don't know how to do that. *I don't want to learn*'" (ibid., 191; emphasis in original). We may risk becoming so overly attached to the control provided by Facebook, messaging, and texting that we no longer wish to engage with less controllable, real-life social dynamics. Phone calls and face-to-face require greater risk. However, by forgoing this more short-term risk, we take on greater long-term cumulative risk. We may lose the ability to acquire the basic social skills that bring us closer to others.

The psychological appeal of these newer technologies lies in the ease in which we can mask what we do not want to be seen, which can have a further array

of undesirable effects. As Turkle describes, new technologies attract us more than predecessor mediums like phone and the human voice because "in text, messaging, and e-mail, you hide as much as you show. You can present yourself as you wish to be 'seen'" (ibid., 206). Ironically, this ability to now be seen in the best light can lead to greater anxiety. This may be particularly so for the youth. Teenagers may spend up to 10 minutes trying to get a text to be just right before they send it, all the while thinking that they are the only ones who spend this much time painstakingly perfecting their response (ibid., 200). On their profiles, teens worry about balancing what they actually believe vs. what they think peers deem cool vs. what college admissions might think if they had access to their profiles. Consequence-free exploration has been considered an integral part of adolescent development, providing what developmental and social psychologist Erik Erikson called a necessary "moratorium" for maturing youth. But high school now allows for far less of this when photos go up online and when conversations are archived "forever." For young (and old as well), the online life can add to the anxiety that it will be increasingly difficult to start things afresh. Finally, in addition to these anxieties, by masking our vulnerabilities we may become less comfortable and trusting of ourselves in our "real-world" lives.

According to Turkle, this final relationship with the development of our identities becomes most strongly challenged as individuals experiment with online identities. Youth can now struggle to establish a core belief-system and a solidifying identity, which often interferes with simultaneously crafting one's persona online (273). But ironically, youth and adults, who have grown increasingly accustomed to

living virtually via their Facebook or MySpace "avatars" or Second Life avatars, attest that they feel that they are more in touch with their "truer self" with these online personas. Turkle explains that the individuals who make these claims have developed not a whole, solidified self, but a protean one. In speaking of youth who experiment with various online personas, she explains: "People feel 'whole' not because they are one but because the relationships among aspects of self are fluid and undefensive. We feel 'ourselves' if we can move easily among our many aspects of self" (ibid., 194). Likewise, Turkle describes a father who has a disappointing family life, but says he prefers his Second Life relationship, as it "is where I can feel most myself."

I speculate here that the reason for this shift in what feels like our true self is a direct consequence of learning different social practices; mastery or control over these novel practices is different than mastery of social practices in Erikson's model. Traditionally, after one struggled with issues of identity through development and age, individuals exert a sense of *control* over the resolution of their prior identity crises. However, with the shift from this traditional Eriksonian model of self to the online protean self, individuals do not settle into a solidified, autonomous self. Instead, the impulse for control becomes displaced toward control that happens with the dynamics of the protean self. When this sense of control emerges in the context of fluidly moving between protean identities, it displaces the sense of mastery that once came from resolving one's identity crises and settling into one's newfound whole, autonomous and "true" self. In short, the "true self" is tied to the gaining of control. Therefore, when we speak of social enframing and tools that

enable novel means of control, the effects of this control can be far reaching. They can affect our vulnerabilities, loneliness, skills, anxieties, and who we think we truly are. These tools can powerfully shape the psychosocial social landscape of our development and constitutions.

The impact of social enframing and tools for control on the once more naturally unfolding psychosocial development can be placed in Heideggerian terms. Heidegger contrasts the orientation or essence of modern technology – which is enframing – with what Heidegger saw as the original essence of technology, which lies in *poeisis*. *Poeisis* means a "bringing-forth," and Heidegger differentiates two kinds of bringing forth. The first is creative or producing, such as in the creative nature of both the craftsman and the poet who bring-forth something into our presence. But the second kind of *poeisis* is *physis*, which involves a bringing forth of something out of itself. We can see *physis* unfolding in nature, where we see "the bursting open belonging to bring-forth, e.g., the bursting of a blossom into bloom, in itself" (Heidegger, 1977; p. 10). Some other entity does not create the blooming of the blossom, but the unfolding of the blossom's own nature brings this forth.

Similarly, one may suggest that just as a blossom unfolds according to a certain nature, human psychosocial development traditionally unfolds in a way that can bring forth potential maturing of well-being and identity. For Turkle, this natural unfolding involves the stages of maturity and identity formation outlined by psychologists like Erik Erikson. Youth and adolescents need to go through the natural struggles of confronting solitude, finding independence, experimenting with ideas and people in a consequence free environment or "moratorium," until one's

psychosocial identity can unfold into a stable, whole self. One might say that such a process entails the psychological *physis* of maturing as a person. But Heidegger suggested that modern technology and its emphasis on our tools for enframing can conceal this nature of *poeisis* and bringing forth. If our tools are too overbearing and seductive, they can conceal and block this bringing forth. Turkle makes a similar argument. Youth may lose the *physis* of natural psychosocial development that once provided practice and learning of social skills surrounding vulnerability and the eventual mastery and solidification of an autonomous identity. And the thesis of Turkle's book suggests that with the ability for constant connectivity, we may conceal from youth a natural lesson: "If you don't teach your children how to be alone, they'll only know how to be lonely" (NPR, 2011; TEDx, 2011). Through these changes, the natural landscape of psychosocial development of youth may be severely challenged in each of the ways that contribute to the maturation of one's identity.

Learning of new social practices does not take place in a vacuum; there exists good reason to think that technology's radical changes to our physical environments may strongly reinforce a new kind of socialization that redefines what it means to be present with other people. Turkle argues that not only have our new technologies reshaped psychological development and social connection, but they have also significantly redrawn the geography of our social spheres, most notably our once communal places. Public spaces like parks, cafes, or airports were once places where people could share a communal presence, even though they may have not intentionally approached these places for socializing. Now, they have become places

where people come together only to work individually on their screens and devices redirecting them to people and places that exist elsewhere (Turkle, p. 155). While many may dismiss this as something to be inevitably accepted as the way things progress, it is important to reflect on the nuances and phenomenology of these social dynamics that are changed with these developments. As we will see, in a later comparison to Heidegger, these factors may significantly reshape the spheres of socialization and culture that pervade how youth (and adults) situate themselves in the world.

Turkle's analysis of communal places can be recast to describe the phenomenon I'll call "tele-absence," a term for the simple "checking out" of a physical space and entering another via a screen or devise. Tele-absence can work by an individual signaling his absence from a communal sphere, ignoring the presence of others, or connecting to a virtual environment and rendering the absence of the present environment. Perhaps most familiar to us, individuals can mark themselves as absent from a communal space. "Sometimes people signal their departure by putting a phone to their ear, but it often happens in more subtle ways--there may be a glance down at a mobile device during dinner or a meeting" (ibid., 156). Being in the same place with someone no longer means you have easy access to their attention. Furthermore, while a shared space may have once provided a background of a sustained social sphere that could be bridged, we now wonder if we are intruding or if someone is too busy to "disrupt." We may now may find it strange to "bother" someone in a café for directions or local recommendations if we know we can just get it via our phones on Google Maps or Yelp!.

Just as individuals can mark themselves as absent, we can also grow more accustomed to ignoring those in our environment. Turkle describes an autobiographical incident while riding a train beside a man who was talking on the phone with his girlfriend. He was talking about deeply personal and private matters, including troubles with alcohol, family, and money, all out loud as if those around him were not there. Turkle writes, "There was some comfort in the fact that he was not complaining to me, but I did wish I could disappear. Perhaps there was no need. I was already being treated as though I were not there" (ibid., 155). Ironically, communal spaces can become spaces where individuals can discuss very personal and private matters. But this happens not because of a sense of trust between people, but because individuals treat others in their environment as if they were not present.

Finally, mobile technologies potentially risk rendering absent the environment as a whole. Turkle describes how collegiate study-abroad directors have lamented that American students no longer experience another country's culture because they bring their home environments with them via Facebook (ibid., 156). While in Paris, Turkle describes how her daughter was chatting online and arranging future visits with friends who did not even know she was out of the country (ibid., 156). Of course, most instances of tele-absence blend these three factors in less clear-cut ways. "Parents check e-mail as they push strollers. Children and parents text during family dinners" (ibid., 157). The tools of mobile technology therefore have significantly shaped our psychosocial landscape. They not only change our means of communication through their tools, but they also reshape how

we experience our physical spaces and social surroundings. We live an altered social terrain and culture.

By framing this discussion in Heideggerian terms we may be able to see the pervasive and far reaching consequences of this new terrain. We in many ways become beings that are acculturated into a new world, with alternate kinds of being as we interact in this world. Heidegger emphasized that humans are born and raised into a mode of being human, or *Dasein*, which is intimately tied to *being-in-the-world*. Heidegger replaces the typical subject-object distinctions of philosophy and suggests that humans are enculturated into a way of life, through language, culture, and their environment that shapes their way of being. This mode of *being-in-the-world* provides a kind of background, an inexhaustible repertoire of assumptions and nuance that shape our ways of being; it enables us to intuitively grasp, handle, and interact with the countless situations we confront in life.

In explaining Heidegger on this point, Hubert Dreyfus points out that we are all products of the cultures we are born into, not through a means of explicit instruction or knowledge of rules of conduct, but by simply being enculturated into them. In more concrete terms, for instance, different cultures socialize individuals into different distance-standing practices. North Africans naturally stand closely to each other in discourse and may make more bodily contact in comparison to Scandinavians (Dreyfus, 1992; p. 18). Similarly, a Japanese mother may without knowing it socialize her infant to react to the world in a more passive, quiet, and contented manner than an American who socializes her infant to take a more active,

vocal, and exploratory disposition (ibid., p. 17).[7] Based on one's culture one will embody a different understanding of being. But Dreyfus emphasizes that like these infants and like the learning of distance-standing, we acquire this understanding of being, or ontology, without necessarily knowing we have learned it. Similarly, with modern tech culture, like the Japanese and American babies, youth are enculturated into a novel psychosocial landscape; and likewise, older generations also become acculturated like an immigrant entering a new culture in the way one who becomes accustomed to the novel distance-standing practices of new land. We can pick up these modes of being without explicitly knowing how we are being shaped, whether as a digital native or immigrant.

While Turkle's analysis sheds light on the many rules, habits, and background assumptions youth (and adults) may pick up without any explicit instruction, Heidegger underscores the potential pervasiveness of this socialization. Dreyfus draws on the French anthropologist Pierre Bourdieu, who writes of the pervasive bodily and psychosocial nuance and spectrum of socialization involved:

> In all societies, children are particularly attentive to the gestures and postures which, in their eyes, express everything that goes to make an accomplished adult—a way of walking, a tilt of the head, facial expressions, ways of sitting and of using implements, always associated with a tone of voice, a style of speech, and (how could it be otherwise?) a certain subjective experience.
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> (ibid., p. 17)

Dreyfus explains this further. "Bourdieu sees that our practices embody pervasive responses, discriminations, motor skills, etc., which add up to an interpretation of what it is to be a person, an object, an institution, etc." (ibid., p. 17).

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[7] Dreyfus admits while this example may be inaccurate in fact, it better serves to make a point as a hypothetical.

Similarly, what may be emerging with our new technologies may be a novel psychosocial landscape that can pervade into the structures and nuances of our culture and socialization. Children may pick up very different nuances and habits of interacting when the default mode of our public spaces shifts away from communal presence to risk of interrupting isolated work and personal "bubbles." And we may have similar analogs to the distance-standing practices with new messaging communications. We learn what kinds of intrusions or intensities of contact fit certain circumstances. This socialization may include the many implicit rules, mannerisms, and habits we see in digital natives and immigrants, but as stressed above, the pervasiveness may extend beyond all that we analyze. Of course, one may suggest that none of this is new. Cultures change with the tides of history, very often shifting as a result of technological innovation that seeps into the fabric of people's lives. This may be so, but there are reasons to think that the degree of impact of these technologies may be qualitatively different.

If Turkle's analysis is accurate and representative[8], new technologies may represent a kind of novelty: they give us powerful tools of psychological and social control, which if not used wisely, can strongly play into our psychological vulnerabilities. There will remain many unpredictable consequences and unseen long-term risks of how these changes will affect inhabitants of our new culture. How will newborns, who have known no other kind of parenting, be affected by parents who raise them while glued to their BlackBerries? How will the "protean" adolescents of today eventually mature against social forces that may inhibit natural

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[8] An open question that I cannot take up fully in this paper because of space.

identity resolutions? There are many questions we cannot answer. Indeed, Heidegger would suggest we can never explicate all the effects of a background that seep into socialization. Nonetheless, Heidegger astutely observed and articulated what he saw as some of the pivotal changes in culture with the emergence of the technology of his age. Turkle in many ways does the same for our age. This brings us to a final danger, drawing another potential parallel between Heidegger's analysis of technology and Turkle's.

In *The Question Concerning Technology*, Heidegger describes a danger in our society that has come to manipulate the world via technology into "standing-reserve." This means that we can come to convert everything in the world into resources, to be efficiently tapped and discarded once they are used. Dreyfus gives the emblematic example of the styrofoam cup. "When we want a hot or cold drink it does its job, and when we are through with it, we simply throw it away" (ibid., p. 18). We no longer see things in the world as objects of value in and of themselves, but they only acquire *instrumental* value: they are good *for* something. An airplane, for instance, is nothing in and of itself, but becomes an object *for* transportation. The power of technology lies in being able to extract and store this instrumentality for our on-demand usage. Heidegger provides the imagery of damning up a river and storing hydroelectric power. But Heidegger goes a step further. He suggests that the even greater danger lies in coming to treat humans as standing-reserve.

Turkle similarly suggests that, with new technologies, we risk treating others as objects or resources to be tapped for our own individualized needs. She writes, "Networked, we are together, but so lessened are our expectations of each other that

we can feel utterly alone. And there is the risk that we come to see others as objects to be accessed—and only for the parts we find useful, comforting, or amusing" (Turkle, 154). Our tools for access give us the control to only extract the bits and pieces of an individual we may want at a given time. In other words, our instruments of social enframing may bring us to treat others instrumentally. But not only do we have these tools, our technologies enable us to store and conglomerate this on-demand social instrumentality. This becomes apparent with Facebook and Twitter when a network of "friends" and followers can guarantee response on any trivial thought or need that can be broadcast. Turkle describes, "When we Tweet or write to hundreds or thousands of Facebook friends as a group, we treat individuals as a unit. Friends become fans" (ibid., p. 168). We have in some sense a large reservoir, a conglomerate unit that lays waiting for our on-demand use. This may not be a bad thing in and of itself. However, Turkle stresses we gamble with great psychological dangers.

The risk with this resource becomes the development of narcissism; here a narcissist entails one who in the psychoanalytic sense seeks constant support for a fragile self by selectively using people for his own needs, giving rise to what can be dubbed a "narcissist's standing-reserve." Turkle describes this kind of narcissism and how it thrives on utilizing "made-to-measure representations:"

> I have said that in the psychoanalytic tradition, one speaks about narcissism not to indicate people who love themselves, but a personality so fragile that it needs constant support. It cannot tolerate the complex demands of other people but tries to relate to them by distorting who they are and splitting off what it needs, what it can use. So, the narcissistic self gets on with others by dealing only with their made-to-measure representations. These representations (some analytic traditions refer to them as "part objects," others as "self-objects") are all that the fragile self can handle. (ibid., 177)

Technology of today provides the narcissist with the ideal tools for dealing with others in made-to-measure representations. Today's tools of social enframing can provide these individuals easy means to split off the pieces of information they seek, all the while titrating away the demands of dealing with people as whole individuals.

Turkle goes on though to describe that not only are the tools for social enframing available, but there also lies a virtually endless, on-demand resource for feeding this narcissism. She continues:

> A fragile person can also be supported by selected and limited contact with people (say, the people on a cell phone "favorites" list). In a life of texting and messaging, those on that contact list can be made to appear almost on demand. You can take what you need and move on. And, if not gratified, you can try someone else." (ibid., 177)

And the Facebook and Twitter networks provide the same potential reservoir. Such seems like a description of a modern day, psychological spin on Heidegger, providing us with a "narcissistic standing-reserve." The imagery of this standing-reserve may not be the typical dystopian imagery of "human resources" and exploitation of workers that Heidegger had in mind. But it catches in psychosocial terms a great danger that is at hand with today's technology.

Yet, Heidegger was not an anti-technologist, for he concluded: *But where danger is, grows the saving power also* (Heidegger, 34). But before he concludes so, Heidegger stresses the importance of revealing and unconcealing the layers that hinder a proper view of technology. One may fittingly re-interrupt this aim of unconcealing and revealing truth as first requiring modern discourse to adopt a ground for honesty on different sides of the technological debate. Tech enthusiasts may be quick to shun arguments like Turkle's, just as Turkle may shy away from

complexities that run counter to her claims.[9] But if such unconcealing could take place, we could begin to ask how we can re-design given what we know can produce a more vibrant and healthy psychosocial landscape.

But once we have done the unconcealing, Heidegger saw the saving power of technology as ultimately pointing back toward *poeisis*, the original essence of technology. Heidegger drew on the power of art and poetry to compliment the modern orientation of technology. And perhaps art can play a new role in crafting novel design and solutions. Indeed, even more fun-oriented examples like "flashmobs" conducted by synchronized Ipod instructions show artistic expressions that reshape social boundaries and craft novel communal spaces. Ultimately, Heidegger expresses hope in continuing the conversation and questioning. For, *The Closer we come to the danger, the more brightly do the ways into the saving power begin to shine and the questioning we come. For questioning is the piety of thought* (ibid., 35). As Turkle says, "Reclaiming conversation. That's the next frontier."

[9] I did not have space to discuss this in full here. Two things to note in particular: Firstly, Turkle may over-stress the role of today's technology in creating loneliness. Putnam (2000) has argued that social capital has been on the decline and loneliness and isolation on the rise since the 1970s. Among a host of contributing factors, his descriptions of the influence of TV's parallel and foreshadow Turkle's claims with new technology (though, to Turkle's credit, claims like narcissism appear new). But he makes explicitly clear: the cyber-revolution was certainly not the cause of increases in loneliness, as social capital was already plummeting while Bill Gates was in grade school; technology may more likely be an aggravator, but certainly not the origin of loneliness. Secondly, there has been existing research tying greater use of Facebook to increased social capital, increased psychological well-being especially with those with low self-esteem (though more recent studies may challenge this), and blogging can lead to building social support and eventual building of intimate, real life relationships. As a review of Turkle's book put it, "One recurring theme to emerge from much of this research is that most people, at least so far, are primarily using the online world to enhance their offline relationships, not supplant them" (Lehrer, 2011).

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