

H541 Midterm Design Project - Team Charlie

# FINAL MIDTERM REPORT



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# Prototype and Evaluation Report

The low-fi prototype consists of four main screens:

- Dashboard:** Displays the date (October 2, 2016), a "Today" section with arrows, a "Task" list, and an "Upcoming" section.
- Tracker:** Shows an estimated end time (11:54 AM), two buttons for "Start" and "Stop", a digital clock at 0:00:00, and a "Reading Assignment" section with completion statistics.
- Schedule:** A calendar for October 2016 showing days from 1 to 31.
- Performance:** A bar chart titled "Reading Assignment" comparing two data series.

Each screen has a set of icons at the bottom: a clock, a calendar, a play button, a pie chart, and a gear.

## Low-fi Prototype:

For full prototype, visit:

<https://invis.io/6F91XTBEN>

We have chosen to create our prototypes using Balsamiq because this tool provides fast and simple low-fidelity prototype creation. It also helps that it can export its artboards into PNG's which can then be used in complement with inVision to create working prototypes.

## -- Reflection --

Balsamiq was really helpful in creating fast and sketch-like mock ups for our app. As discussed in class, it is important that the low-fidelity prototypes look like sketch and not like finished work so user testing can be done in a way that shows the product is still in its formative stages. We had, however, some limitations to what we could "draw" in our mock ups because Balsamiq provides a set amount of figures you can add to the artboard.

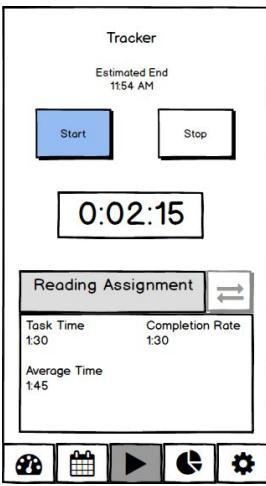
Overall, using Balsamiq and inVision to create our prototype worked well, and we would definitely do it again. The only big downside

that we saw in this method is that since everything is static, elements like sliders don't really work, and the user could also want to interact with features that do not have a prototype implementation.

## Evaluations:

### -- Heuristic Evaluation --

UAR Number: Heuristic Evaluation
Product Name: Uni-Task
Date and Time of Study: October, 2016
Experimenters' Names: Charlie Team
Subject ID: 1
Subject Details: Subject is a student
Heuristic List: Jakob Nielsen's Heuristics <a href="http://www.uxness.in/2015/02/10-heuristic-principles-jakob-nielsens.html">http://www.uxness.in/2015/02/10-heuristic-principles-jakob-nielsens.html</a>

HE01	Good Aspect
<b>Name:</b> Start and Stop Tracker	
<b>Evidence:</b> Heuristic: Consistency	
User Evaluation:	
	

**Explanation:**

Once the start button is pushed, it is highlighted, indicating that its current state is set to “selected”. The “Change Task” Button is also grayed out, indicating that it’s not currently possible to change the task.

**Severity or Benefit:** Benefit

**Rating:** NA

**Justification (Frequency, Impact, Persistence, Weights):**

**Frequency:** Common. The above mentioned feature occurs frequently.

**Impact:** Good Aspect.

**Persistence:** Not a problem.

**How I Weighted the factors:** The heuristic is not a problem.

**Possible solution and/or Trade-offs:**

No Solution.

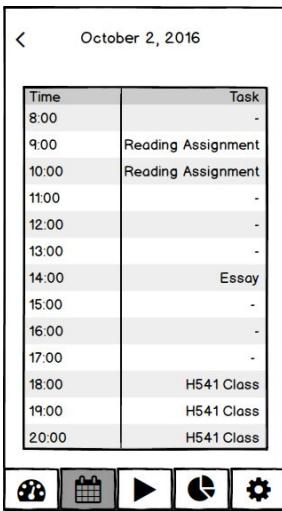
**Relationships:**

N/A

HE02

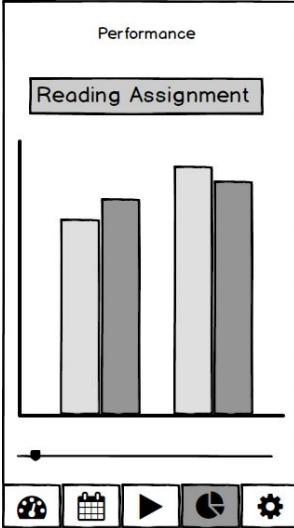
**Problem****Name: Calendar Day – Add Task****Evidence:**

Heuristic: Heuristic 10 - Help

**User Evaluation:****Explanation:**

In the Calendar Day view, it is not clear how the user can add a new task to the calendar. The user needs to tap on a time that has no task to be able to add a new task, however, it is not clear that the location is tappable.

<p><b>Severity or Benefit:</b></p> <p><b>Rating:</b> 3</p> <p><b>Justification (Frequency, Impact, Persistence, Weights):</b></p> <p><b>Frequency:</b> Common. Users who don't know how to add a task might not realize it's possible.</p> <p><b>Impact:</b> Easy once they learn it.</p> <p><b>Persistence:</b> Not persistent once they learn it.</p> <p><b>How I Weighted the factors:</b> There is certainly a barrier for first-time users, but once they figure it out, it's no longer a problem.</p>
<p><b>Possible solution and/or Trade-offs:</b></p> <p>Make the row appear clickable.</p>
<p><b>Relationships:</b></p> <p>N/A</p>

HE03	Problem
	<p><b>Name:</b> Visual Graphics – Change Task</p>
	<p><b>Evidence:</b></p> <p>Heuristic: Heuristic 8 - Aesthetics</p> <p>User Evaluation:</p> 
	<p><b>Explanation:</b></p> <p>In the Performance view, it is not clear to the user how the user can change the task he is looking at.</p>
	<p><b>Severity or Benefit:</b></p> <p><b>Rating:</b> 2</p> <p><b>Justification (Frequency, Impact, Persistence, Weights):</b></p> <p><b>Frequency:</b> Common. Users who don't know how to change a task will struggle to change a task.</p> <p><b>Impact:</b> Easy once they learn it.</p> <p><b>Persistence:</b> Not persistent once they learn it.</p>

**How I weighted the factors:** There is certainly a barrier for first-time users, but once they figure it out, it's no longer a problem.

**Possible solution and/or Trade-offs:**

Give more signing into where to click to change tasks.

**Relationships:**

HE04

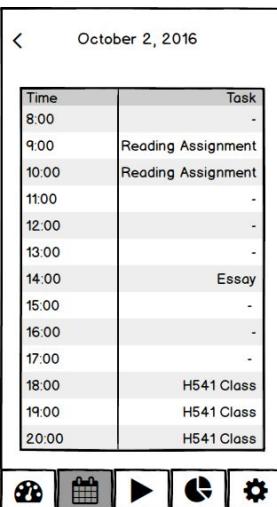
**Problem**

**Name: Calendar Day – Change Task**

**Evidence:**

Heuristic: Heuristic 3 – User Control

**User Evaluation:**



**Explanation:**

In the Calendar Day view, the user cannot change a task that is already written down on the calendar.

**Severity or Benefit:**

**Rating:** 4

**Justification (Frequency, Impact, Persistence, Weights):**

**Frequency:** Common. Users who want to change a task are unable to do so.

**Impact:** Impossible to overcome.

**Persistence:** Persistent through app.

**How I weighted the factors:** The feature to change an already written down task should be implemented.

**Possible solution and/or Trade-offs:**

Give user the power to change a task that's already set.

**Relationships:**

## -- Cognitive Walkthrough --

<b>CWR Number:</b> CWR01
<b>Product Name:</b> UNI-Task
<b>Task Name:</b> Creating/Scheduling a task in the application
<b>Date and Time of Study:</b> 10/21/16 - 14:00 Hours
<b>Experimenters' Names:</b> Charlie Team

### **Task Description:**

I want to schedule one hour's time on a particular date to work on my homework.

### **Task Action Sequence:**

1. User: Opens UNI-Task application on cellphone  
System: Application opens; showing the dashboard
2. User: Selects the calendar icon  
System: Changes page from dashboard to a calendar showing current month
3. User: Selects date in which homework needs to be done  
System: Changes pages and shows the schedule of the selected day
4. User: Selects on a free time slot  
System: Shows dialog box asking the name of the task to be created
5. User: Creates task with suitable name  
System: Saves and displays the updated schedule with the new task

### **Interface/tool/system description:**

The application works on any standard touch-screen smartphone that runs with either Android(v4.0 and above) or iOS(v8.0 and above) operating system. The application supports the all default functionality of the smartphone such as that of a 'home' and 'back' button. The application does not require internet/wifi/cellular network for it to function and it also provides notification when it is time to work on a particular task.

### Streamlined cognitive walkthrough (Spencer et al, 2000):

1. **User:** Opens UNI-Task application on cellphone

**System:** Application opens; showing the dashboard

CW Question	Issue?	Notes
Will the user know what to do at this step?		
If the user does the right thing, will they know that they did the right thing and that they are making progress towards their goal?		
General Notes:		Opening the application is common knowledge to all smartphone users and they are expected to know this.

2. **User:** Selects the calendar icon

**System:** Changes page from dashboard to a calendar showing current month

CW Question	Issue?	Notes
Will the user know what to do at this step?	X	The user might not realize that he needs to change screen to create a new task. He might try to search the dashboard if there is an option to create a new task.
If the user does the right thing, will they know that they did the right thing and that they are making progress towards their goal?		Showing a calendar makes users understand that it is used to organize their schedules

3. **User:** Selects date in which homework needs to be done

**System:** Changes pages and shows the schedule of the selected day

CW Question	Issue?	Notes
Will the user know what to do at this step?		The user might not know that they can select on a date, but are expected to find out intuitively

If the user does the right thing, will they know that they did the right thing and that they are making progress towards their goal?		Showing schedule of selected day makes people realize that they are close to finishing their task.
--	--	--

4. **User:** Selects on a free time slot

**System:** Shows dialog box asking the name of the task to be created

CW Question	Issue?	Notes
Will the user know what to do at this step?	X	The user might not know that they can select on a time slot, but are expected to find out intuitively.  The users might not know how to schedule more than one hour for a task
If the user does the right thing, will they know that they did the right thing and that they are making progress towards their goal?		Yes

5. **User:** Creates task with suitable name

**System:** Saves and displays the updated schedule with the new task

CW Question	Issue?	Notes
Will the user know what to do at this step?		Yes. Users are not expected to have any problem.
If the user does the right thing, will they know that they did the right thing and that they are making progress towards their goal?		Yes. Users understand that their task is completed in the application.

#### Potential fixes for discovered problems:

The application is simple and fairly straightforward with no major problems detrimental to the usability of the application.

Since the current navigation system is less obvious, ways to improve the design would be to add descriptions below icons; such as 'dashboard', 'task manager', 'scheduler'

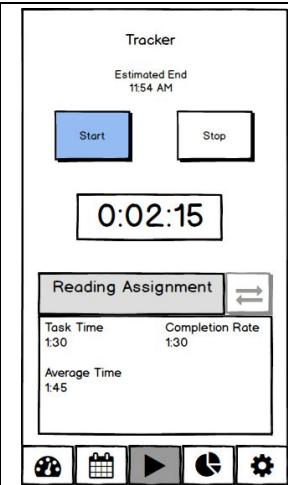
and ‘settings’. This would make things clearer to the user but it would come as a tradeoff to the application’s minimalistic design.

The application does not provide an option to select multiple time slots for one particular task. This problem can be fixed by allowing user’s to ‘long press’ on a scheduling page to select multiple time slots before creating a new task. The functionality needs to be implemented as the user is more commonly expected to perform a ‘long press’ action when trying to accomplish multiple selections, as he would in various other applications.

## -- Think Aloud 1 --

<b>UAR Number:</b> Heuristic Evaluation
<b>Product Name:</b> Uni-Task
<b>Date and Time of Study:</b> October, 2016
<b>Experimenters' Names:</b> Charlie Team
<b>Subject ID:</b> User 02
<b>Subject Details:</b> Subject is a student
<b>Heuristic List:</b> Jakob Nielsen's Heuristics <a href="http://www.uxness.in/2015/02/10-heuristic-principles-jakob-nielsens.html">http://www.uxness.in/2015/02/10-heuristic-principles-jakob-nielsens.html</a>

No. HE 1	Problem/Good Aspect
Name: Misunderstanding in the Dashboard Interface	
Evidence: Heuristic: Match between system and the real world User Evaluation:	



#### **Explanation:**

Since the dashboard shows the upcoming task for the current day, the user mistook this display of information as interactive. When asked to work with a task to input its time, he tapped on the assignment in the upcoming table instead of going into the calendar tab or the tracker tab. After taking some time he decided to press the tasker tab.

#### **Severity or Benefit:**

**Rating:** 2

#### **Justification (Frequency, Impact, Persistence, Weights):**

**Frequency:** Rare. It can maybe be assumed by some users that the display of data in the dashboard can be a shortcut to the other tabs.

**Impact:** Easy to overcome, because after they find that the dashboard is just a display of information, they can figure out how to go into the other tabs to complete a task.

**Persistence:** It is a onetime problem in most cases since the user will understand after his first try the information displayed is not interactive.

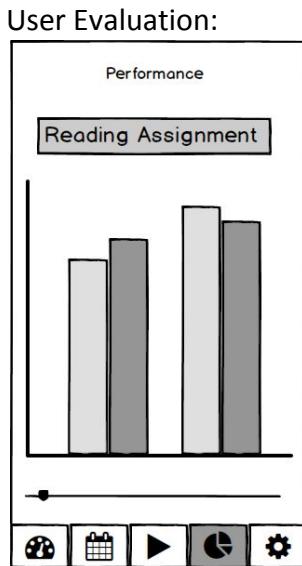
**How I weighted the factors:** This problem only was only executed by this user. The problem also can persist since in the low fidelity all of the words use the same font and color.

#### **Possible solution and/or Trade-offs:**

Change the font used on data and on interactive tabs. Also, emphasize in the design the distinction between buttons and data.

#### **Relationships:**

No. HE 2	Problem/Good Aspect
<b>Name: Does Not Understand the Graph in the Statistics Tab</b>	
<b>Evidence:</b>	
Heuristic: Consistency and standards	



**Explanation:**

The user did not understand what the graph in the statistics tab was supposed to represent. He also did not understand the use of this feature.

**Severity or Benefit:**

**Rating:** 4

**Justification (Frequency, Impact, Persistence, Weights):**

**Frequency:** Common. Most users would not be able to identify what is the graph supposed to represent without any words to describe it.

**Impact:** It will be hard for the user to overcome since he would have to decipher by his own assumptions what is represented in the statistics tab.

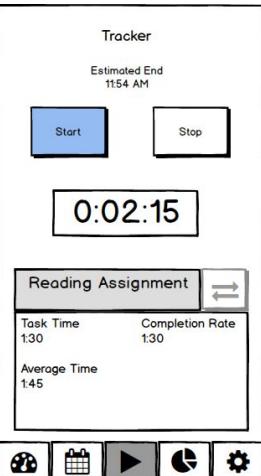
**Persistence:** It can be considered a persistent problem. If there is no exact description that the user can use to identify the data, the problem will be a persistent one.

**How I weighted the factors:**

**Possible solution and/or Trade-offs:**

Define the X and Y axis as time and days. Also instead of having a bar graph use a line graph to better show the weekly change of information. Another useful thing would be to give the user the option to see all the tasks displayed in the graph so he can compare which one is more time consuming.

**Relationships:**

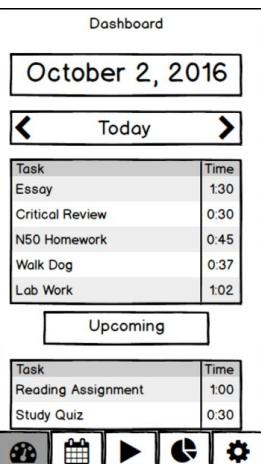
No. HE 3	Problem/Good Aspect
Name: Stopwatch Feature in Tracker Tab	
<b>Evidence:</b> Heuristic: Match between system and the real world User Evaluation:	<p>Estimated End 11:54 AM</p> 
<b>Explanation:</b> The user found that having the running time displayed in the app made him feel more pressure to complete the task. Instead of viewing it as a way to determine the length of the task, he saw it as a way to determine the speed of the task.	
<b>Severity or Benefit:</b> <b>Rating:</b> 2 <b>Justification (Frequency, Impact, Persistence, Weights):</b> <b>Frequency:</b> Rare. Since the clock starts from zero the user will see it as a time recorder instead of a countdown. <b>Impact:</b> It will be easy to overcome since it would be rare for a person to consider a stopwatch a countdown. Most people will not have this same experience. <b>Persistence:</b> Its persistence would be rare since the user would most probably see the time when they "clock in" and when they "clock out." <b>How I weighted the factors:</b> Fixing this should be given low priority since having the time available for the user permits him to see how much time he has spent so far.	
<b>Possible solution and/or Trade-offs:</b> We can design the app so the user only sees when he started the task (this way he can compare how much time he has spent by comparing his starting time with the current time).	

**Relationships:**

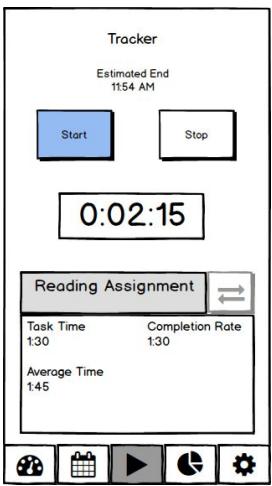
-- Think Aloud 2 --

## Heuristic Evaluation

<b>UAR Number:</b>	Heuristic Evaluation
<b>Product Name:</b>	Uni-Task
<b>Date and Time of Study:</b>	October, 2016
<b>Experimenters' Names:</b>	Charlie Team
<b>Subject ID:</b>	User 01
<b>Subject Details:</b>	Subject is a student
<b>Heuristic List:</b>	Jakob Nielsen's Heuristics <a href="http://www.uxness.in/2015/02/10-heuristic-principles-jakob-nielsens.html">http://www.uxness.in/2015/02/10-heuristic-principles-jakob-nielsens.html</a>

No. HE 1	Problem/Good Aspect												
<b>Name:</b> Dashboard Interface													
<b>Evidence:</b> Heuristic: Visibility of system status User Evaluation:													
 <table border="1"> <thead> <tr> <th>Task</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>Essay</td> <td>1:30</td> </tr> <tr> <td>Critical Review</td> <td>0:30</td> </tr> <tr> <td>N50 Homework</td> <td>0:45</td> </tr> <tr> <td>Walk Dog</td> <td>0:37</td> </tr> <tr> <td>Lab Work</td> <td>1:02</td> </tr> </tbody> </table>	Task	Time	Essay	1:30	Critical Review	0:30	N50 Homework	0:45	Walk Dog	0:37	Lab Work	1:02	
Task	Time												
Essay	1:30												
Critical Review	0:30												
N50 Homework	0:45												
Walk Dog	0:37												
Lab Work	1:02												

<b>Explanation:</b> User expressed that she liked the Dashboard's interface because it was well organized. She mentioned how everything was clear, giving it a "clean look."
<b>Severity or Benefit:</b> <b>Rating:</b> 0 <b>Justification (Frequency, Impact, Persistence, Weights):</b> <b>Frequency:</b> Common. <b>Impact:</b> Good Aspect. <b>Persistence:</b> Not a problem. <b>How I weighted the factors:</b> The heuristic is not a problem.
<b>Possible solution and/or Trade-offs:</b> No Solution.
<b>Relationships:</b>

No. HE 2	Problem/Good Aspect
<b>Name: Misunderstanding of a Term in the Task Description on the Tracker Page</b>	
<b>Evidence:</b> Heuristic: Consistency and standards User Evaluation:	
	
<b>Explanation:</b>	

The user was confused with the term “average time.” The user did not know if the average time presented was her average time or if it was an average time for the task calculated by the app.

**Severity or Benefit:**

**Rating:** 3

**Justification (Frequency, Impact, Persistence, Weights):**

**Frequency:** Common. It would be very common for users to misinterpret the term since the tab is focused on the currently selected assignment. Also, there is no word to determine who's average time is the one presented.

**Impact:** Hard for the user to overcome because we do not provide a term to specify whose average is being presented.

**Persistence:** It can be considered a persistent problem. If the user does not notice that the average time changes every moment he inputs a new time, he can hold this misconception for a long period of time.

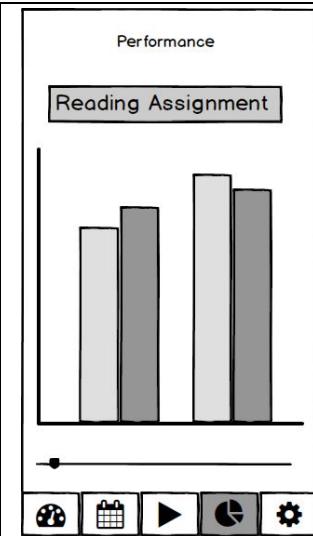
**How I weighted the factors:** It is a minor usability problem since it is easily fixed and it is just a problem of defining the data.

**Possible solution and/or Trade-offs:**

Define the average time related to the user as “User’s average time” and define the average time provided by the application for the task as “Task’s average time.”

**Relationships:**

No. HE 3	Problem/Good Aspect
Name: Data Representation in the Statistics Tab	
<b>Evidence:</b> Heuristic: Recognition rather than recall User Evaluation:	



#### **Explanation:**

The user liked the idea of having a visual representation of her progress over the week. She explained that this would be a great way to track her progress. She also said that it is a great way to determine which is the task she takes the longest.

#### **Severity or Benefit:**

**Rating:** 0

#### **Justification (Frequency, Impact, Persistence, Weights):**

**Frequency:** Common.

**Impact:** Good Aspect.

**Persistence:** Not a problem.

**How I weighted the factors:** The heuristic is not a problem.

#### **Possible solution and/or Trade-offs:**

No Solution.

#### **Relationships:**

## Next Steps:

The next steps to follow would be to work on some of the key problems identified from the evaluation process. Some of the key usability problems which were discovered were over the 'scheduler' which did not provide the functionality of moving the tasks, nor selecting multiple time slots to allot to a single task. Other problems focused on the 'statistics' page which had not clearly defined the graph to make things understandable. Solutions to these problems would be applied as specified in the UAR's. An additional suggestion we received was to have the functionality to compare the time taken by multiple tasks. This feature seems to come under the scope of what the application is aiming for and hence implementing it would be an added advantage.

The think-aloud technique gave us positive feedback over some of the aesthetically pleasing aspects of the application such as the design of the dashboard and the representation of data. Aspects such as these as well as the overall layout does not require much change and therefore can be maintained as it is. By conducting more think-aloud sessions, we believe we would get more feedback and more substantial information over the usability and design of the application; applying usability improvements would be preferred after this iteration of think-alouds

## Reflection:

The different techniques used for evaluation helped reveal a variety of usability problems underlying the application. While the self-reflective evaluations were easier to understand, organize and detail, the think-aloud evaluation a little more complex as it gave us feedback with a deeper context of what a user experiences when he/she views the application for the first time. With the think-aloud evaluation, details of an issue were more nuanced and it was important to make sure that details were made as explicit as possible before going ahead with next step in the process. Although the issues detailed from the self-reflective evaluation were different only to a certain degree from the think-aloud techniques, the aspects over which each technique touched upon were similar.

Each of the evaluation techniques have its own advantages, we noticed that the self-reflective evaluation techniques were most beneficial for our application as it is fairly straightforward and first time users were unable to identify some of the less obvious problems which could impact the usability of the application. With the self-reflective techniques, we could put ourselves in the shoes of the user and identify problems based on prior knowledge that we had acquired over how the application is supposed to work and what users might want/expect from it.

# Appendix

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## Data Collection and Problem Framing Report:

### -- Executive Summary --

College is a transitive part of a young person's life. It can be a jarring transition for undergraduate students to jump from being dependents to having complete control over their own schedules and responsibilities. They're adjusting to emancipation from their parents, and juggling a combination of social life, self-discovery, and academic workload. Each student's ability to organize their lives, savor their newfound freedom, and meet expectations is put to the test. But how do undergraduate students really perform when it comes to academics?

When it comes to completing schoolwork, students' methods are as diverse as the individuals themselves. There are many, however, who share a common obstacle of procrastination and lack of productivity. We set out to gather information about the different distractions that students face, with the goal of coming up with a solution to better help them avoid procrastination and achieve better productivity when they do get to work.

### -- Findings --

Through our data collection methods, composed of interviews and observations, we have identified two different streams on procrastination: Initially getting to work, and while working.

#### **Initially Getting to Work:**

This is more related to time-management, and having the motivation to start working. We have found that students usually only get to work when the deadline is coming close. An example is one student that marks down all the due dates on the first day of classes, but only starts working on the assignments two to four days before the due date. Some students also are occupied with other jobs. That means they have less time in the week to devote to their academic work.

#### **Observation:**

We observed in an IT computer lab that nearly everyone who came in would first sit at their computers and mess around on their phones for about five minutes before eventually getting to work.

#### **Quote:**

"I make a conscious decision to procrastinate because of apathy and laziness."

## **Current Solutions**

We discovered some ways that students use to get to work. These include to-do lists, using due dates to prioritize what needs to be done, doing small assignments first and big assignments last, and even procrastinating on purpose so the urgency of getting work done kicks in.

### **While Working:**

Once students actually commit to working on an assignment, lots of things can still happen. We found that a lot of distractors get in the way of students doing the work. One of the main distractions is using a smartphone. Other distractors include friends, TV, and just plain apathy towards the work.

#### **Quote:**

Interviewer: "What distracts you?"

Response: "My laptop, my phone, and all the technology, my dog, he bothers me a lot. Just like being at home, the fridge, and everything."

#### **Quote:**

"Sometimes I'll be working on something and, say, someone starts talking to me and I'll end up talking to them and not realize, 'Oh look! An hour just went by and I wasn't working on anything.'"

## **Current Solutions**

To tune out the distractions that get in the way of focus, students reported listening to music, going to an isolated study environment, and putting technologies physically far away.

## **-- Next Steps --**

Given these findings, we believe that areas where design could be explored are:

- Getting students to maintain their focus on work**

From the findings, we figured out that environmental distractions get in the way of student productivity. This is an area with promising potential for a design solution.

- Create urgency for students to get to work**

Several students expressed that upcoming deadlines are what ultimately motivate them to finally overcome procrastination and begin working. Creating artificial deadlines is an abstract and challenging idea, but is worth examining.

- Helping students avoid the habit of procrastinating altogether**

Students often procrastinate, leading to varying degrees of rushed work. We feel it may be worth looking into potential ways to help students build proactive work habits in the first place.

## -- Observations --

### **Kenzo Nawa**

#### Campus Center

5:34pm start

2 subjects

5:36 - subject 2 starts knocking on table

5:38 - subject 1 looks at people passing by

5:40 - subject 2 stretches and turns around looking for someone? and drinks water

5:40:45 - subject 1 picks up cell phone and simultaneously clicks on computer with cellphone in hand.

subject 1 starts packing up

5:44 - subject 1 leaves

#### University Tower

7:50 start

subject 1 is listening to music, and doing homework

subject 2 is on laptop doing homework

couple 1 is studying together in a lying position

7:52 - subject 1 is distracted by people making noise

7:54 - unsure if subject is consulting another resource material or distracted by cellphone.

7:56 - a friend of subject 2 comes and they start talking. Subject 2 packs up and leaves.

7:57 - subject 1 continues with the side consulting

7:58 - female of couple 1 sits up.

8:00 - couple starts talking about topic.

subject 1 is more engaged in the side consulting

8:03 - subject 1 is back to the main paper

8:06 - subject 1 apparently gets ready to pack up and gets on cellphone.

8:07 - subject 1 is highlighting some stuff

subject 1 seems to be back in focus mode.

8:10 subject 1 closes pen and looks through papers.

8:13 subject 1 still reviewing papers.

8:18 - subject 1 has pen out, seems to be transcribing something.

8:20 - a lot of friends from couple came. Study doesn't feel so productive.

8:23 - subject 1 still concentrated

8:28 - couple seems to try to study even though friends are around them eating

subject 1 still going

8:30 subject 1 going, and couple talking with friends.

## **Observation Summary**

Two separate observations were done: one in the quiet room inside Campus Center, and one in the second floor of the University Tower. These locations were chosen because they are a hub where undergraduates usually spend their time, so I could make sure I was observing my target audience.

The one in Campus Center, I observed 2 people. The first one seemed a lot more concentrated than the second. The second one seemed to be bored with whatever work he was doing, and would often times distract himself (as mentioned in the notes). The first one seemed focused, but would occasionally look at this cellphone.

At the University Tower, subject 1 seemed very determined to do whatever task she was doing. When a loud group of friends came up to the second floor, she turned away from them and faced the other direction. Subject 2 was not concentrated. My guess is he was in the last stages of his assignment, and was mostly waiting for a friend. The couple definitely seemed distracted. They were studying (probably for a test), but would lay on each other's laps. The couple's friends would constantly interact with them, so that probably didn't help the studying.

## **Observation Reflection**

This observation felt a little weird because I would pretend to be doing homework on my laptop, but I would secretly be watching other people. Maybe there's a better way to observe people studying? I wasn't able to see the screen on people's computer to see if they were actually getting stuff done, or just procrastinatingly browsing through Facebook. For future reference, I have thought about placing a camera in an advantageous position (maybe behind some place where people usually sit), so I could afterwards see their screen. Overall, this observation felt a little too superficial to be able to contribute well with our data gathering.

### **Alex Colón**

**Student Technology Center | Study Labs**

**September 14, 2016**

**(2:10pm – 3:27pm)**

2:10 PM

There are 3 students on 3 different computers. One is watching one of her presentations, the other is working on a document and the other one seems to be checking her IU email.

2:13

The girl checking her email just briefly checked her phone. Mostly they all seem concentrated on their work. The guy left his computer unattended with his project opened.

2:15

The girl looking at the presentation is now working on her notebook, but she seems as if she is about to go. She uses her phone to text somebody.

2:17

The girl left. The other girl is working on something to be related to biology. She stands up to print something.

2:18

The man (the oldest one compared to the ages of the other students) arrives again and continues to do his work.

2:20 Another student arrives. He has headphones on and sits to start working.

2:23

The new student takes out his laptop and now has two devices on. He gets distracted on trying to find an electrical port for the PC, but even though he finds it he does not plug the laptop. The two other students are still concentrated on their work. There are three other students from my perspective view, but they all seem to be engaged working on their respective PCs. One of them keeps standing up to go away or just to print something.

2:29

One of the students, the one in my left, just reached in his bag to get some headphones. The other students are all focused on their work.

2:31 The old man went into Facebook. He is watching some pictures.

2:36

He is still on Facebook. He seems to be writing to a friend or he is writing a post. The other students are incredibly focused on their work.

2:42

The new student leaves. The old man is still writing on Facebook and keeps watching a picture of what seems to be him and a group. He posted a really long post of the picture. And he is still on Facebook. The girl is still focused on her job.

2:45

The old man left Facebook and again went to his work. The student to my left is now on his cellphone. He spent maybe half a minute watching the cellphone, seemed to be texting someone. While at first his phone was in his pocket, he now leaves the phone in the table.

2:48 Another student arrives. After a minute he reaches his phone to text.

2:52

The girl goes away. (Side note: a man is using one of the group rooms to pray). A minute later another student arrives and sits on the already opened computer of the girl. He goes to his phone.

2:55

The new student leaves his phone and now sits in front of the screen but he doesn't do a thing. The other new student finishes the introduction (name, title, etc) and then stares at his phone for a minute and after a while he goes back to his work.

2:57

He goes into IMDB... ok but it seems to be related to his work somehow. The newer kid takes his phone out of his pocket and watches it. He kind of takes it away just to see it again, but then he finally does.

2:58

Again the old guy is going to Facebook to watch the same picture in someone's profile, or maybe it is his profile. He then goes to his work page and turns off the computer to go print something I believe.

3:01 The guy in the center gets distracted looking around, but goes back to his work.

3:03

The middle guy seems to be again getting distracted by his phone. The other young man is still attentive to his work. After a minute he goes back to his work.

3:10

The student to my left leaves (he looked kind of my age). The Young guy and the other student in the middle are still focused on their work.

3:27

They have not been distracted, I believe. Final observation. (Conclusion)

## Reflection



During the 1-hour observation session, I was able to analyze the behavior of 9 students and pay attention to 5 other students in the room. From their appearance, I could gather that at least 6 of the 9 students were young enough to put them on the undergrad level. The other 3 students and at least 3 of the other 5, based on appearance, I could assume that they were in a master's program or higher.

Even if the lab is made to encourage productivity (by having signs that read "Quiet Zone" and having personnel in the lab), each computer has a Powermat system beside it that is used to charge phones. I hypothesized that the undergrad students would be more distracted by their phones (since they had an encouragement to keep them outside) and by accessing unrelated websites to their work.

However, through my hour observation, this hypothesis was debunked. Most students in the room, especially the undergraduates, appeared to be completely focused on their work. They did not distract themselves besides small burst of occasionally watching their phone. One of the students in particular (the girl with the biology pages on the screen) had her phone charging throughout the entire session but did not glance at it as often as I expected. This is emphasized even more when the biggest perpetrator of procrastination was the oldest gentleman who kept wasting time on Facebook.

One particular observation that I did not expect is that most students when they arrive they quickly take out their phones, and they repeat the same behavior when they are about to leave. Some seem to be texting someone in particular, but the others just seemed to be glancing at it without a purpose.

Another particular observation was that some students, when they established themselves on a workstation, they seemed to distract themselves with minuscule tasks. Example: the student who spent a minute looking for an electrical port, the student looking around the room for no exact reason, the student who quickly took out his phone just to put it again in his pocket and the student who stare at the screen for a while before starting to work.

As a conclusion to my observations, I can say that my hypothesis was wrong. I can also say that undergraduate students seemed to be really focused in this environment. The biggest discovery I made was that students seem to have a slight problem adjusting before they start doing schoolwork. They try to distract themselves with an unrelated and unimportant task at the beginning, but after they start working they are very focused.

### **Arvind Santhanam**

**Observation started at 5:00PM on Monday in the IUPUI Library**

Observing 4 people.

- S1)** Watching videos on YouTube related to videogames with someone occasionally narrating on the screen (probably related to animation) + eating chips + headphones on.
- S2)** Reading something like a ebook with MS word open side-by-side + listening to something
- S3)** Watching videos related to cricket (probably Indian or Sri Lankan or Pakistani)
- S4)** Started reading

5:06

- S1)** Video looks like comedy, but with some technicality involved
- S2)**--- No observation ----
- S3)** Watching videos with kids on it
- S4)** --- No observation ----

5:10

- S1)** Now watching looney tunes videos (Name of YouTube channel = KaptainKristian)  
**S2)** Shutdown and is leaving  
**S3)** watching videos on cricket + with headphones  
**S4)** ---- No observation ----

Started observing new person S5

5:14

- S1)** ---- No observation ----  
**S3)** Searching for some videos  
**S4)** ---- No observation ----  
**S5)** Reading from book with computer open

5:16

- S1)** ---- No observation ----  
**S3)** Shutdown system and is leaving  
**S4)** ---- No observation ----  
**S5)**---- No observation ----

5:18

- S1)** Reading comment section on YouTube  
**S4)** Yawned  
**S5)**---- No observation ----

5:19

- S1)** Left for the washroom  
**S4)**---- No observation ----  
**S5)** Shutdown system and is leaving

5:21

- S1)** Came Back  
**S4)**---- No observation ----

5:24

- S1)** Going through website called 'socialblade'  
**S4)** Opened new tab related to looney tunes

5:26

- S1)** Took pencil out of the bag (probably going to start studying). Went to put something in the dustbin (probably the empty bag of chips)  
**S4)**---- No observation ----

5:27

- S1)** Closed Multiple tabs, just has 2 open now. One is probably background music for studying.  
Took notebook out.  
**S4)**---- No observation ----

5:30

**S1)** Googling something  
**S4)----** No observation ----

5:35

**S1)** Started working out on problems  
**S4)----** No observation ----

5:39

**S1)** Finished drinking water from bottle, doing more writing on notebook than looking at the screen  
**S4)----** No observation ----

5:42

**S1)** Made a mistake solving a problem, erasing notes  
**S4)----** No observation ----

5:47

**S1)** /\* Irritated gesture \*/  
**S4)----** No observation ----

5:52

**S1)** Opened a new tab, started watching something random, minimized the tab, went to fill water bottle  
**S4)----** No observation ----

5:55

**S1)** came back, watching video 'The FINAL, yoga ever'  
**S4) ----** No observation ----

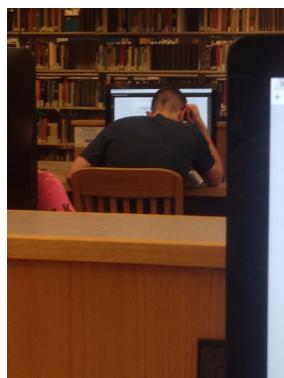
Observations over at 6:00PM

### **Summary**

I visited the library for my observations since it is the environment closest to home where people try to study and took notes over people using computers, since their behaviours are more easily noticeable than those using textbooks to study. My observations started at 5PM on monday over 4 people initially, and I tried to notice the kind of work they were doing with the computer and left it to my discretion to decide whether they were working or just casually spending time. I also tried to notice gestures and body posture along with other things they were doing while interacting with the computer and wrote them down. Few people left during my observation and although my thoughts were to stop my observation and conduct it at a different place, I decided that observing people for a longer period might provide better data. Although one of the observants had no noticeable behaviour throughout my session, I decided to conclude the study after an hour.

## Reflection

My primary reflection is that people who get distracted unconsciously might accidentally start following tangential thoughts while studying. It might start off with something mildly off topic, but the chain would grow to end up taking them to places which are entirely unrelated to where it originally started. The hypothesis seems likely, although further observation is required to substantiate it. Since the option is not available with a textbook, people might get distracted less when studying with them. People with clear objectives on what they need to do tend to get distracted less and eating food, or an improper posture while studying seem to promote distraction.



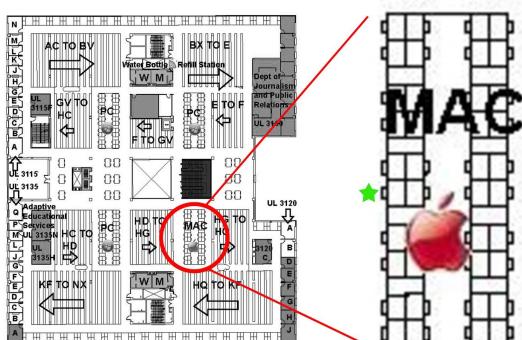
## Natalie Ullrich

Field Observation Notes

IUPUI Campus Library

Monday, 19 September 2016, 3:45-4:45pm

Level 3, Mac computer cluster ("Quiet floor") 3:45 - 4:15



17 students scattered about at different computers

- Some on their own laptops, some on the library desktops
- Varying formality of clothes
  - Some in sweatshirts/sweatpants
  - Some in casual summer clothing
  - Some in business attire

All appear to be within 19-23 age range

Girl wearing red sweatshirt, comfortable pants left at 4:03

- She had been studying with shoes off, a soda can at her desk

Girl wearing bohemian-looking sweatshirt and shorts left at 4:05

- wearing headphones
- She had an empty salad container with her (probably ate lunch while studying)

One pair studying together - otherwise isolated students studying alone

Some stretching, looking around, yawning - seemingly more often than casually-dressed students

Roughly half are wearing earbuds

Guy across from me in tank top, wearing earbuds, whispered, "Are you fucking serious?" at his computer screen. Supporting head in one palm.

There's a constant stream of noises:

- Distant murmur of talking in other areas of the library
- Occasional loud outbursts from passersby
- Restroom and Water fountain 20ish? yards away
- People walking by every minute or so
- Printer noises periodically

Girl in gray yoga pants and blue t-shirt left at 4:11

- Had been wearing earbuds
- Appeared to be focused

Girl wearing black hoodie and jeans left at 4:12

- Had been wearing earbuds

Students appear mostly focused

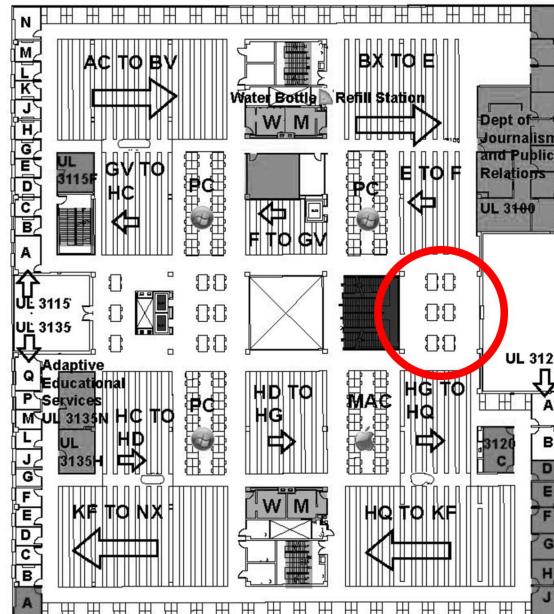
- When a student looks around, it's usually accompanied by a stretch, a yawn, etc.

Most people walking past the computers don't stop and study

- A few heading for the restroom

Level 3, Sitting area near north window

("Quiet floor") 4:15 - 4:45



Three Students:

- Caucasian girl
  - Blonde hair in a braid
  - Wearing a pink tank top
  - shoulder/sleeve tattoos
  - Hunched over computer
  - Eating an apple
- African-American girl
  - Red bob cut
  - Pink shirt
  - Yoga pants
  - Headphones on
  - Laptop in her lap
- Caucasian guy
  - Glasses
  - T-shirt
  - Red gym shorts
  - Tennis shoes

- Hunched over his phone
- Textbook open on table in front of him

Fourth student arrived at 4:22

- Caucasian guy
  - Glasses
  - Black gym shorts
  - T-shirt
  - Laptop in his lap
  - Right foot rested up on table
  - Earbuds

Red shorts guy picked up his book @ 4:26

- Sitting scrunched down in the chair
- Left foot on table
- Right foot over left

Black shorts guy put left foot on table too @ 4:26

Black girl got phone call for about 20 seconds @ 4:27

- Hung up and left

Fewer people walking by this area

- Maybe 3 so far?
- One was black shorts guy who sat down
- Girl passed in front of me going from the stacks on one side to the other

MUCH quieter over here than at the mac computer cluster

- There is a glass wall between this sitting area and the central stairwell
  - Cuts down 70ish% of the noise

Black shorts guy got up and shuffled casually over the windows computer cluster @ 4:30

Red shorts guy seems engrossed in his book now, still sitting hunched back with right leg over left, propped up on table.

Blonde girl checked Apple Watch, then phone @ 4:32

- Looked at phone for about 2 minutes
- Then back hunching over, looking intensely at laptop on table

Red Shorts guy yawned, looked up at stairwell @ 4:34

- Absentmindedly twirling foot around
- Looks glazed-over

New person @ 4:35

- White girl w/ long strawberry blonde hair
  - Fuze iced tea bottle
  - Shorts
  - Long-sleeved black shirt

She looked at phone, looked around, gathered her things, and went over to the mac computer cluster @ 4:37

Blonde girl hunched down in chair with feet propped up on table, laptop in lap, typing @ 4:37

Red shorts guy removed glasses, put them back on, blinking - looking bored, having trouble focusing @ 4:39

Strawberry Blonde hair girl is now gone entirely

- While at computer, looked up Canvas, wrote in notebook

No change from either student @ 4:45

## **Observation Summary**

IUPUI Campus Library

Monday, 19 September 2016, 3:45-4:45pm

Level 3, Mac computer cluster ("Quiet floor") 3:45 - 4:15

Level 3, Sitting area near north window ("Quiet floor") 4:15 - 4:45

## **Findings:**

The people in the library and their behaviors were pretty diverse, and there weren't too many universal observations. The majority of people in the library on a Monday afternoon *did* fit the college student profile visually – middle-class, 18-22 years old. There were some older adult outliers, but they were few.

Some of the trends I noticed applied to roughly half of the people I observed. Many people worked alone. I only saw one or two pairs of people sitting together. Everyone else was isolated. As a result, most of the isolated students had earbuds in, listening to their own music.

I noted that the attire and behaviors of the students ranged from sweat pants and lounge clothes to business attire (though the majority had dressed for comfort.) A few students had brought food with them, apparently working through lunch. The expressions people wore were mostly neutral, or in the case of a few, actively frustrated. One common factor among them all, was that everyone had a cell phone visually with them. Some would look at their phones for minutes at a time, some would check them for a few seconds every now and then, and some of them were successfully ignoring their phones altogether.

## **Observation Reflection**

It was tricky to observe students studying in a public, yet quiet space. I didn't want to draw attention to the fact that I was conducting an observation (and I did successfully blend in) because I didn't want people's behavior to be affected by the knowledge that they were being watched.

If it had been possible to walk around unnoticed to observe the content on people's computer screens, I think I would have had a much clearer idea of the amount of focus/distraction going on. Instead, I had to only observe traits and behaviors visual from an inconspicuous distance.

The two different library locations provided different kinds of data. At the computers, I was able to watch a large group of people and observe their general attitudes. The information I recorded was about individuals, but I was able to make comparisons between some of them, and get an observation of the group as a whole. The sparsely-populated sitting area gave me a chance to carefully watch just a few students more closely. It was helpful that one subject was visibly bored with his work, while the other was intently hunched over her computer most the time I was there.

I didn't really know what it was that I should take notes on, so I just started typing my thoughts in a sort of bulleted stream-of-consciousness list. I think in the end, it was an interesting, detailed list of observations, but it did make it a little tough to draw any overarching conclusions about the data I gathered. In the future, it would be helpful to have a specific set of traits or behaviors to watch for.

## -- Interviews --

### **Collective Interaction Design Interview Questions**

#### **Warm-up**

1. How's your semester going so far?
2. What is your major? What made you choose it? (GT)
3. What are your classes? Tell me about them.
4. Can you describe the kind of work you do for your \_\_\_\_\_ class? (MT)

#### **Main**

1. How busy are you each week.... (with schoolwork, student organizations, a job, etc.?)
2. Can you describe your process for getting assignments done?(GT)
3. Do you usually meet deadlines?
4. Do you procrastinate? (If no: Is there anything that gets in the way of working on assignments?)
5. Do you notice when you start to procrastinate/get distracted?
6. What distracts you from work?
7. Do you work more efficiently around others, or alone?
8. How do you find motivation to start working?

9. Can you give an example of a study hack/method that keeps you focused? (EXM)
10. Describe a time when you didn't meet a deadline. How did it affect you? (EXP)
11. (Optional: scale of 1-10 question related to their answer)

## Concluding

1. Are there any behaviors would you change to become more productive?
2. Is there anything I haven't asked that you think I should know?

## Kenzo Nawa

Interview 1 (University Tower 11:00am)

### **What is your major? What are your classes? Tell me about them.**

I'm a Community Health Major and I'm taking a French class. Cultural competency and. Promotion. Research Methods. Mentoring. Epidemiology. Health Systems Administration.

### **What's the hardest class you have?**

French or epidemiology. Because French. I'm trying to work on my pronunciation. Like my French accent. Takes work. But then like epidemiologist is online so you go on your own pace.

### **The other classes, you handle them well?**

So. Yeah with Canvas helps I really like it's like when the due date. So. I rely on that. And my syllabus.

### **How busy are you each week.... (with schoolwork, student organizations, a job, etc.?)**

2 on campus jobs. Mondays and Wednesdays are pretty leisurely because I. Already know. And then I go. On to. Say. That when my last class. And then like on. Tuesdays. And Thursdays I pretty much go. To 8-8. Because like I go to work. To pass. Then I go back. Daily. I think on Tuesdays. Well. Let's talk about like an hour and a half breaks.

You know when I go to class and then usually there's a I'd like to be in here like I am and meet up with somebody afterwards like I do that. I like. To stay on campus. But then like. On Thursday like I have work. And. Meeting and then I go. To work again. And then afterwards. And then on Friday and meetings so it's. More leisurely because I don't like turn anything and it's just like. Go to the meeting be there be present.

I like to think it's preparing you for real life. So like when I would like. I. Don't know. Normal hours that's going to be like it will be like a session because I don't feel like turning in an assignment. So just be like. Focusing just on my career like helping people.

### **How much time do you dedicate to schoolwork, assignments?**

It's all really one to two hours for each class. There's a lot of reading. If I'm really like focusing on the assignment, an hour to like finished reading, go through the questions if there's not too many.

### **Would you say you procrastinate?**

I totally do. I get home and I'm tired and I'm like this can be done tomorrow.

**Do you notice when you're procrastinating?**

Most things yes. I will say. I'm also catching up hope in this Friday we have a tulcure hour. And like I knew it was like playing I'm presenting this like over the summer and I was like OK like oh I need to do is make this presentation. You know. I just started working on it.

So I now realize that there's a lot more than I wanted to do. So it's kind of like trying to finish that.

**So you know like what kind of things distracts you when you want to do something.**

Facebook.

I will see when I lived on campus. cause our friends are so close, I literally be go to my friends room, thens tay hours and then It'd be like 2:00am, and I'd better go to sleep.

So like living off campus is definitely better. But now I'm like starting to get to know my neighbors.

**Can you describe your process for getting assignments done**

Due dates are the biggest thing that kind of motivates me. So when I see assignments that are due soon, I should do this first.If Is taking too long and I'm like. Distracting then I work on a shorter assignment first.

Like this week out like OK. I worked on something. on Monday that was due Wednesday. cause I wanted to work on this(presentation) at some point. I want to work on that tonight.  
I use a lot of list to keep me on track.

**Do you have a study hack to keep you focused.**

Music without any words. Like really low. Or turn off all the music and close all the tabs that I don't really need and focusing on what I need to focus on.

Waking up early, cause I tend to do things better when I wake up early, cause usually nobody's awake so I cant socialize.

**Do you usually meet your deadlines?**

I always do, but stressed doing it.

**Have you ever not met a deadline?**

I think I have, not recently, but definitely there have been times.

**How did that make you feel?**

I feel upset, but at the same time "it's done". I can't dread over this. do better next time.

**Do you have like any behaviors you would like to change about yourselves to be more productive?**

quit procrastinating, quit picking up so many responsibilities.

I don't know. I really enjoy the things I'm doing right now even though It doesn't really give me too much time to like relax sometimes. But. I know. I'm like this is what weekends are for.

**Do you get work done on the weekends?**

Usually no, I'll be lucky if I read a chapter, but work needs to be done during the week.

**Interview 2 (Campus Center 5:00pm)**

**So let's start with your name.**

My name is xxxx.

**Can you tell me more about yourself.**

I'm a senior. I'm studying biology here. I live in Noblesville Indiana. I was born in Vietnam. I moved to the U.S. since I was five. I have a dog. My favorite color is blue.

**So what made you choose your major.**

So when I was in high school was between business and biology and I just decided to go with biology because I wanted to challenge myself. Challenge yourself to challenge myself academically because I felt like business was easier than biology so I wanted to push it.

**Can you tell me about the classes you're taking this semester.**

This since it's my senior year most of my hard classes are out of the way. Actually I'm taking 21 credit hours this semester. So I'm taking a ecology marketing and then supply chain management and then community health and then biostatistics and a ceramics class and then I also found out recently that I have been enrolled in. An entrepreneurship class online that I have not been attending at all just now.

**What would you say is like the hardest or one of your classes you have this semester?**

I would say Biostatistics.

**Do you have like a lot of homework?**

It's my most. Demanding class because most of the other classes they're just like exams or like jump to class and that's it was this one has like two homeworks or one homework a lab and a quiz due every week. And then we have exams like every month. So. Every week.

**And how busy are you each week with like School work a job you may have or as organizations you do part of?**

Pretty busy. I also work in the Office of International Affairs. And that takes up. 15 hours of my week sometimes 20 depends. So then 21 hours in addition to that takes up like almost all of my time so I'm doing well.

**So like how much how much time do you. Focus on homework and stuff.**

I usually study for my Because in like the classes aren't that difficult. I took a lot of the hard classes. So now I'm just I study one or two days before the exam and I take it and so far it's been good.

**So their classes are not difficult now.**

No not this semester anyway. Like the most difficult would be biased logistics. And we have our exam in two weeks.

**You studying for that?**

I mean by doing the homework I kind of am. So yeah but yeah I need to get on it. Yeah. OK cool.

**Can you describe like the process you have for doing assignments. Like. What goes on in your head**

Oh so the first thing I do is the first day of class when we get our syllabi and stuff. I would put it in my phone and my calendar every single assignment every quiz every exam like everything. So it's in there and whenever something new comes up I just make sure my calendar is like up to date. So every day when I wake up I would just look at my calendar. See what's going on. And then play that way. So it's like even though I study when there are two days before the game I know it's kind of it's not like a surprise.

**But like so say you have two or three deadlines for this week. Like when would you start doing them or what would you urge you to start doing the assignments.**

OK. So this Wednesday I had an exam and two homework assignments and a quiz too. So what I did was I actually did all the assignments and it was like all the small things I got out of the way like a week before. And then I spent that week weekend and studying for the exam. So I just split it up I like prioritize.

Like the biggest thing I leave like to be and I know that sounds bad but like it's good. Yeah that's just how it works.

**And. Then do you meet usually your deadlines for assignments.**

Here I have yet to have. Like a really bad grade on a test or even like I miss deadlines. I'm doing good you.

**Would just say you procrastinate.**

Yeah

**Do you notice it like when your progress and they are getting distracted.**

Oh I know I know exactly. Like I know when I'm progressing like I can control it like usually I like I encourage the procrastination .I know it's there and I choose like.

When to actually get I don't know to explain it like I know Im procrastinating. But I also know like my time line and like I know I can get this done with this amount of time.

**So you allow yourself to procrastinate.?**

To a certain extent like once it reaches a certain time or like if it's a really big assignment it's very important. I don't procrastinate

**What do you usually do when you're procrastinating. You know. What distracts you.**

**What kind of things.**

Well. My laptop, my phone, and all the technology, my dog, he bothers me a lot. Just like being at home, the fridge, and everything. Everything when I'm in the library studying my friends would like I would see them and then they would come and talk and stuff like that. So.

**On the note on the notebook or on the phone. What do you do to procrastinate?**

my phone on snap chat. I also had this really stupid game it's called clash royale. I can't stop playing. I have to check to make sure my chest is OK and stuff like that it's like that small thing like I'll do my homework and then like get distracted for five minutes which is good because I need breaks in the night. Yeah.

**Do you think you work better around others or alone.**

Oh now I could I would get distracted. I like that type of setting myself. But I also like. Helping others like understand that when I was taking. Biochemistry I would like help others understand a topic which would help me learn so very beneficial for that call and.

**Do. How do you like to find motivation to start working.**

I hate failing so I don't like disappointing myself because I like to set high standards. Know what I expect. So that's my motivation is just the fear of failure. OK.

**It's like a study hack to keep you focused study.?**

Yes. I don't study at home all like I don't study anything intensive at home like I'll do homework and so you know the. Because for me the TV audience has to be on so I can if I can do a little TV time like actual studying. I go to the library at night nighttime when no one's there and no one I know will be there and put my headphones in and study. And I usually only happens when I procrastinate. So then like at the end like I can then I can just like I zone out when I know I have to get something done.

like oh do little bits and pieces but it's not very efficient but when it's like a play. Now is the time to do it then like everything's closed out. I get it done.

**Have you ever. Not met a deadline or like you submitted something like. 10 minutes before the deadline**

before the deadline. It happens a lot but I've never missed.

**what do you feel when you. When you when you're like Oh crap I've got 10 minutes to submit this.**

It doesn't feel good but I don't know I was like that's when like my focus is. I always get it and then usually like I'm a perfectionist so even though it's a done sometimes I just like to read it over and over just make sure everything is right before I submit it. So like I know when I turn in and it can be turned in any moment I'm just making sure everything's good until the last minute and then I submit it. And then after that it's like an adrenaline rush and like I said it so that I want to do it again.

**Are there any changes. You like to see yourself to be. To become more productive.**

I actually. Like not being distracted. I wish I could do that more but at the same time I don't know I like the distractions so I think that's the problem. I got to get over that. I mean I like. But yeah that's one thing I would work on is. Getting things done before the deadline. Like not procrastinating. Yeah. And then. I can but then it's just I don't know like it's the same thing if I do it early or late I still get it in. Maybe a little earlier but not too early.

**And you said you like to procrastinate. Could you. Give me more.**

You make it sound terrible. I mean I don't like personation. I understand it's like a problem I have but I'm not worried about it. But what I'd like is like the feeling of getting everything done and then like you still have it I don't know. It just goes I just I don't like the procrastination itself. I just like it. I like how focused I am when I am procrastinating, like, after.

**So have you ever done something big early?**

Yeah. Those would be like big projects that I really really like like making. Like creating a video for a class or something like that. I would start early or I give it a big group project where it's not me because I can you know I don't like other people are involved with it like it gets done because waiting till last minute and relying on others is not. Great.

So I mean it feels good like it does obviously feels good when you have something done. But the problem is there's always going to be something else. So even when I'm free I'm really not free. It's just like oh I have to add something. Something is always there. Like even if let's say it's the final exam and I got it out of the way then I would have to do something over the summer. And then I'd work or something like that. There's something else like it's great. But then I just immediately like start to think what else is there.

So like when you get something. Out of the way you said it's because you like to do the work actually because you obviously like when you're motivated and like something you're motivated so you want to do it right. And then when I actually like for example the video if I find out about the video and how cool it is like everything is up to me or something. I would work on it until like 3:00 or 4:00 in the morning and get it done because it's FUN.

**What if you have something you kind of like, you're kind of interested but it's not like oh this is awesome I want to do this.**

It's OK it's hard to. Because it's like I so I see the list to say for this week I have all these different exams and assignments I would start prioritizing them. You know I need a better grade

in this class. So even though I hate it I'll still put it first before everything else. But then if they're all about equal I would definitely choose the one I like most and do.

**Is there anything I haven't asked you.**

No.

**Can you talk on motivation.**

I think it's motivation for everyone and intrinsic you know intrinsic extra. Yes. So it's kind of like that. Whereas. Yeah grades are important. Awesome. But if it's between something that's. If I have an A in this class we actually took classes like one.

And I hate when obviously I'm not going to care about the one that I hate actually the exam I took today was over Community Health. I could care less about it. I studied two hours before the exam and then I took it. So that type of stuff. And then I still got an A-minus. That's. But that's a really bad example because I did well.

### **Interview Reflection**

I felt that my interview was really short. Maybe I went through the questions, and didn't really explore them much? I had a list of questions defined beforehand, so during the interview I kind of felt the need to ask the next questions, instead of turning the interview into a dialogue(this would have made the interviews a lot longer).

I found it challenging to keep the interviewee engaged, and willing to speak up more about whatever we're talking about. Luckily for me, my second interviewee was more talkative than my first one, so a lot of things just flowed more naturally.

### **Alex Colón**

#### **Interview Summary**

Students Interviewed:

- ONE: Major in Drawing and Illustration | Senior | Acquaintance
- TWO: Major in Accounting | Junior | Acquaintance
- THREE: Major in Graphic & Illustration and M.A.S. | Senior | Stranger

Questions:

#### **WARM UP**

1. How's your semester going so far?

ONE - Pretty good (positive).

TWO - Ok (A little stressful).

THREE - Great (Very relaxed).

2. Major

ONE - Drawing & Illustration.

TWO – Accounting.

THREE - Graphic & Illustration + MAS.

3. How many classes?

4. Describe it.

ONE - 5 classes (Senior) Finds them intense.

TWO - 5 classes (Junior).

THREE - Capstone course and individual study class (Senior I believe), finds it manageable.

## **MAIN**

1. How busy?

2. Process for getting assignments done.

ONE - No work, intensive courses, sometimes hangs out, does not consider the week's work a burden. Has apartment. [Uses a Calendar].

TWO – Works in the weekends, considers the workload manageable. Has apartment. [Does not have a system].

THREE – Has 3 jobs (basically 2 because she counts the individual study as work), lives at home with her parents. [Uses an agenda].

3. Do you meet deadlines?

ONE – Yes.

TWO – Yes.

THREE – Yes.

4. Procrastinate?

ONE - Yes, a lot. Hours on laptop (YouTube & Netflix), on phone playing video games, does not text that much and makes excuses to go outside and walk. *If she works 2 days she takes the next off. If she works 7 hours, she procrastinates 3.*

TWO – Yes. Browses the web (YouTube, Netflix), plays video games, sometimes goes outside for an hour for no reason. He stated that his day is mostly half studying and half procrastinating. Does not own a smartphone.

THREE – She plays video games and uses her phone a lot (Facebook, Instagram, and other social media apps. Does not text that much), looks for hours at artwork. She used to procrastinate a lot, but now with her agenda she doesn't. She also leaves big tasks to the end just because she does not want to deal with it.

5. Do you notice?

ONE – Yes but she still lets it happen to get a clear mind after. Feels in a better state to work. (Said that sometimes she suffers from severe anxiety).

TWO – Yes.

THREE – She doesn't notice, but she tries to be conscious about it.

6. What distracts you?

ONE – Mostly people, sounds of people talking and ambience sounds (cars, ambulances, etc.).

TWO – Talking to other people distracts him. Finds music distracting.

THREE – Talking to friends distract her. (If she listens to music with lyrics it distracts her).

7. Prefer working alone or with others?

ONE – Alone, make her feel more focused. People distract her.

TWO – Prefers with others because it keeps him more focused (because he doesn't want to be the unproductive guy in a group).

THREE – If she really needs to get something done, she prefers to be alone.

8. Find motivation.

ONE – She reads, watches YouTube videos to inspire her and looks for images on Pinterest.

TWO – Fear of failing, knows that the task is going to be over. (Feels unmotivated because even if he likes his classes, he finds some assignments tedious and boring). He also tries to pump himself up with physical gestures.

THREE - Hearing podcasts, hearing talks with people that inspire her, also having the idea on her mind that while she is wasting time, there are people out there getting better.

9. Study method for focusing.

ONE – Hears music to focus (Drowns everything around her). She cleans up the dishes to take her mind of work and concentrate. Also tries to inspire herself with the methods mentioned above.

TWO – Cleaning gets him focused. He also, basically exhausts all the options for entertainment to then start working. Would like something that gives him perspective and shows him the big picture.

THREE – No (but she does use an agenda to maintain herself focused on her to do list. She also mentioned that she puts the phone far away when she works on something important).

10. Time when did not meet deadline. How did you feel?

ONE – Never missed one.

TWO – Never, skipped class at the most.

THREE – Ever yes, recently no (because of the agenda system). Made her feel like a loser.

## **CONCLUDING**

1. Behaviors you would like to change?

ONE – She would like to not beat herself up, it makes her feel less motivated.

TWO – Not a straight answer. Stated that he tried a deadline sheet but it made him feel worst. Would prefer a more spontaneous system.

THREE – Gets rid of her phone. She would like to also be able to jump right into a project. She tends to mess around before starting to work and she convinces herself that this scribbling is productive.

## 2. Anything I missed?

ONE – No

TWO – No. Stated that his behavior is mostly driven by laziness.

THREE – No, but she again leaves as a final comment that she tries to imagine that someone out there is getting better while she wastes time.

## Interview Reflection

In my observations, I found out that most undergraduate students who work in an environment made for productivity are not prone to procrastinate. However, for my interviews, I hypothesized that as we were asking students about their work habits in and out of campus I would get answers which demonstrated how procrastination takes away from the student's productivity.

Again the interview proved me wrong, in a way. All three students admitted that they procrastinate (two of them admitting that this was a habit that they did excessively), however, all three manage to not only get their work done, but also (based on their responses) they were meeting all their deadlines. They all have a busy week with a lot of schoolwork and other responsibilities to think about, but still they manage to spend hours of the day procrastinating.

The other main distraction was the social component, which I also expected to be a heavy influence on the daily life of these students. In these particular cases, most of them did not make this issue stand out, and the three of them admitted to not having much of a social life besides it being focused on a small group of friends they keep in touch with. Still, when asked about distractions they all responded with this component, instead of pointing out the obvious hours wasted on procrastination.

Another observation I want to bring is that since two of the students I interviewed are involved in the field of arts, they both mentioned sites like YouTube, podcasts, Pinterest and reading as motivators. However Joseph, who studies accounting, only mentions them as methods for procrastination. Also, a distinction between the art students and the accounting major was that while the art students (who have a more creative approach to their work) had a schedule that they admitted had bettered their focus and productivity. On the other hand, Joseph, who studies accounting (a more direct concentration), felt that the schedule (a structured system) was not for him. He talked about how he would prefer a more open system instead of the constrictions of deadlines and agendas.

A curious fact that I believe the interviews shows is that even if they all feel good about the semester, they are meeting their responsibilities and they are meeting their deadlines, they still feel that their behavior somehow has to be changed. Most of them did not express intense contempt for their bad habits, they just mentioned them as a part of their life. They did not see procrastination as a burden, but more of a situation in their life they had to manage more effectively.

## Arvind Santhanam

### First Interview

1. Informatics, technology use different problems and areas. Solutions to make things easier. Motorsports

2. No time except hour each day, weekdays busy, weekends off
3. 5 per week and some other stuff
4. First due first work
5. Sit continuously, breaks likely to make you stop working
6. Take break after one and start the next
7. Long work becomes monotonous and Takes breaks
8. Conscious decision to procrastinate. Cus of apathy or laziness.
9. Internet, free time not used by internet.
10. Depends!!! Distracted more cus I start talking to friends
11. I want time for later, so I might as well get it done now.
12. Close everything which is not related to work and turn on focus driven music.
13. Having technology and other electronics in room is not an issue
14. I'm not going to be able to finish this so why waste time. Admit defeat.
15. Tests, ambiguous deliverables so procrastinate a lot. Individually, rank low like 3-4 but aggregate affects you.

### **Findings:**

It feels like the motivation to study and get things done is more intrinsic than anything while being distracted during work is something extrinsic. The student also feels a form of necessity to finish his school work and that coupled with his vision over the recent future to have a day off from his busy schedule seems to provide motivation. Although it is a necessity, he isn't desperate for it since he is okay with admitting defeat when work is too much to finish, this must mean that he that he is conscious of time and doesn't want to waste it, nor is he desperate for grades.

The student doesn't seem like a socialite. Internet to him is more or less a medium for distraction since he does not actively use it when he isn't working. He seems to be pretty smart, I assume that is the reason why he might get distracted when trying to study with his friends. Seems to get less distracted when work is interesting or short. Music seems to help with the study process, however it is unclear if it reduces efficiency(popular study suggests that it does, however since it is focus music, maybe it doesn't). Wants to be proactive.

### **Second Interview**

1. Media arts and science, conc. On video production. No idea... something related to art. Musician or production, ended up liking it. Blessed to pick the right one.
2. Video production skill I'm acquiring, for church. Christian. Entertain with sending message. Meaningful
3. A day off. Busy all other time
4. 6 assignments on average.
5. Unpredictable stuff done first. Everything else which is predictable do it on due date
6. 2 hours' minimum.
7. Meet deadline (y)
8. Starting the project/assignment is the problem.
9. Phone distracts
10. Text messaging. Whatsapp. Stopped using facebook and other work
11. Working with people, cus I work with people when I need help. So we work
12. Deadlines and consequences. But procrastinate less something that's entertaining/interested stuff I start.

13. Phone on silent and listening to music. Different language. Distract yourself from being distracted.
14. Didn't meet a deadline when you didn't need it.
15. Needs to be proactive.

**Findings:**

Similar to the first interview, the motivation to start working seems to be intrinsic while people can procrastinate in different ways due to different reasons. Her reason for studying also has some social connotation attached to it. I am not sure if a person is better motivated when working for selfish reasons or when trying to be a little selfless. I assume that since she is a foreign student, she has more of a compulsion to get grades than someone domestic, but the tendency to procrastinate and get distracted might be innate in everyone. Group interviews seem to be helping her while her main source of distraction seems to be her phone while she studies. Music seems to help too. Being proactive is something people wish they were.

**Natalie Ullrich**

**Interview Summary 1**

Interviewee: 20-something undergrad student studying Informatics  
Interview took place in IT 271 and lasted 26:32

**Findings:**

He attends classes Monday through Thursday, and works a part-time job on the weekends (and sometimes impromptu shifts during the school week) in a lower-management role. He also participates in a pep band ensemble.

He tries to begin work on project immediately, but often ends up procrastinating before starting most assignments. If interrupted while working on homework, he becomes distracted and doesn't notice he's wasting time. Regardless, he typically meets his deadlines.

When studying (with the exception of reading assignments,) he prefers to listen to movie scores in the background to help him focus. He tries to have a general idea of when he plans to work on certain assignments, but more regularly realizes that a deadline is approaching and spontaneously begins working. Deadlines are his primary motivations. If he misses a deadline, he feels guilty and rushes through the late assignment as a top priority.

His top distractions are phone notifications and social networking. He does take intentional breaks periodically, but occasionally loses track of time and ends up distracted. Prefers working alone in an isolated environment. Would like to get in the habit of clearly declining conversations from people when studying. He also feels it would be helpful for him to put his entertainment technology out of reach when he needs to be productive.

**Interview Summary 2**

20-something undergrad student studying Web Development  
Interview took place in IT 271 and lasted 25:15

**Findings:**

She picked her major randomly and had discovered a natural ability for coding. She finds her coursework enjoyable for the most part. Now that she has senior standing, she likes being finished with core class requirements and getting to focus on her area of interest. She works a

part-time job with a predictable schedule of rotating work days. Her schedule is manageable, but she says that she ruins it herself. Her primary distractions are spending time with friends, reading for pleasure, and watching media on YouTube and Netflix.

Her primary strategy for completing assignments is to stay on campus and work on things either in class, or immediately after class lets out. She feels that if she tries to work on things at home, she will sit around and find other things to do. She finds coding to be similar to going for a run: that the first five minutes are unpleasant and hard to get motivated, but that when you eventually get into “that coder’s high” and can’t stop. She feels that if she doesn’t take advantage of that momentum, she won’t get it done later. She used to procrastinate and miss deadlines more in the past, but has had much more success since she began an anxiety medication regimen. She does still procrastinate and get lost in distractions, but has developed the ability to stop and pull herself away.

She’s motivated to get her work done on campus so that she can go home and read for enjoyment – or have free time in general. When she’s working on coding, she prefers to work with helpful or knowledgeable classmates. If she reaches a mental blockage when working on something, she switches to another project and continue brainstorming for the original project while she works on the other. Her ideal study environment is to either listen to music, or have nearby conversations/podcasts that she can tune in and out of. She has switched her mindset from negative motivations (deadlines) to positive motivations (savoring completion, having free time) – and said that she’s far less anxious and stressed by approaching her workload this way.

### **Interview Reflection**

Both my interviews felt successful and yielded useful information. By selecting two students from one of my Graduate Assistant courses, they had enough familiarity with me to be comfortable and candid in their interviews, but were still distant enough to provide me with new information I wouldn’t have gotten from a close friend or family member.

I was a student journalist in high school and had to face my discomfort around interviewing people back then. I’ve had time and experience to fine-tune some methods – it took me years to remember to react nonverbally in an interview so that the recording wasn’t dominated by sound bites from me. I’ve also learned that deviating from a strict list of questions to follow the natural flow of the conversation is helpful, so long as it doesn’t stray too far from the objective.

We all have room for improvement, of course. In hindsight, I would have liked to ask them more questions about their personal lives and relationships. When it came for data analysis – particularly Empathy Mapping – we had to speculate on some of the hypothetical user’s personal and social dynamics. I think that the conclusions we drew are useful, but we had to base them more on generalizations than on information from interviewees. We were so focused on the scope of our objective that we didn’t consider other (seemingly) unrelated data that might be useful.

I would have liked to interview a larger sample of student. Designing solutions to our problem space would be enhanced by getting data from a larger segment of IUPUI’s undergraduate student population. As we move forward with our project, if we encounter an issue from lack of data, I would be inclined to put together a survey of more specific questions to ask of a larger group, now that our interviews have helped us narrow down our scope.

## -- Problem Synthesis --

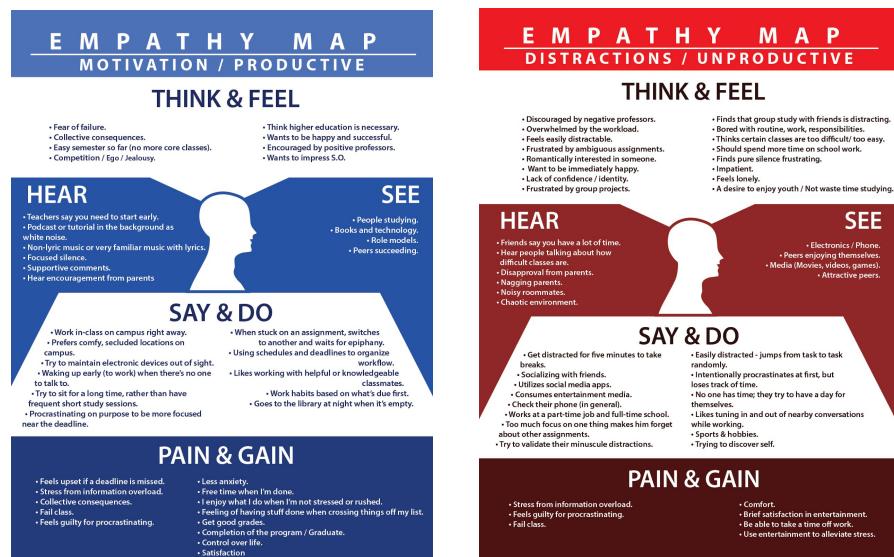
Study habits of undergraduate students are prone to distractions due to a variety of reasons. On average, almost all students admit to procrastinate, and be susceptible to distraction during their study sessions. Several factors can contribute to this. Due to such distractions, the time students spend in their study, or the efficiency with which a student studies is short of what is expected.

If students can better focus on their work, devoid of distraction, they would have better control over their time; Deadlines and deliverables can be met while still allowing time for themselves. Students will then be less stressed, less anxious and more happy, confident and productive.

## Affinity Diagram



## Empathy Maps



## -- Personas --

### Alan Thomas



Age: 20 years old  
Occupation: Student  
Location: Indianapolis, Indiana.

Alan is a 20-year-old sophomore at IUPUI. He is currently majoring in accounting after an internship he took in school sparked an interest in the field. So far the semester is going good for him: he has 5 classes, works in the weekends, he has managed to turn all his assignments on time and is currently seeking a club to be a part of.

Still, even if his responsibilities are in order, he admits that he procrastinates a lot. He watches Netflix, spends hours on the computer and loves to be on the phone browsing Facebook and watching videos on YouTube. He tries to be conscious about it, but sometimes he takes a study break, checks his phone and unconsciously ends up spending more time on the device than he intended.

To try to deal with this, Alan goes to the library when he has an important job to do. He prefers to work alone because he finds that he is easily distracted when friends are around. In the library he sits on a computer, puts on some headphones (with preferably non lyrical music) and then focuses entirely on his job. He also tries to always have his cellphone far away so it doesn't tempt him.

This method works most of the time, still on one occasion he turned in an assignment just before the deadline. Alan tries to use a schedule, but he feels that this system is not perfect for him. He thinks that he has not found the perfect system for his workflow.

### Morgan Walters



Age: 19 years old  
Occupation: Student  
Location: Indianapolis, Indiana.

Morgan is a 19-year-old freshman at IUPUI. She has wanted to become an Occupational Therapist since she job shadowed her neighbor three years ago. Her first semester of college is going pretty well so far: she has 5 classes, babysits for extra cash every now and then, and wants to work her way up in a Student Government organization.

She was a really motivated student in high school and had a great GPA, but she's having a hard time getting used to the college workload. Homework used to be easy and only take her an hour or

two. Now, she's been struggling to finish all of her assignments on time. She wants to be better at time management, but is also really interested in making new friends and going to events on campus. She also keeps a popular blog that takes up a pretty big chunk of her free time. She wants to be better about time management and avoid procrastinating, but all of her classes are entry-level core classes that she doesn't find very interesting, making it hard to get motivated.

Morgan loves group projects and prefers to work with others, but finds that it's hard to focus when her friends are around. She has started going to the library so that she doesn't feel completely alone and doesn't have familiar faces around to distract her. She has started only updating her blog twice a week so that she can pay more attention to her schoolwork.

Morgan is a pretty organized person. She takes detailed notes in class and has a color-coded calendar with all of her responsibilities on it. Her challenges are estimating enough time to do each assignment, and then staying on task when she's working. It's hard for her not to get distracted thinking about the other things on her to-do list while she's trying to do homework.

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## Design Exploration Report:

### -- Executive Summary --

#### Introduction

Our previous research has shown procrastination to be a big part of undergraduate student life. As per our data gathering, students present the following problems:

- Procrastinating on assignments until close to the due date
- Not committing to doing work
- Struggling to maintain focus during work

#### Our Solutions

We have conducted 3 brainstorming sessions, where a handful of diverse ideas were generated. Out of those many ideas, 3 ideas stood out to us as possible solutions: a learning time-management app, a vibrating reminder wristband, and a VR that creates a study environment. The first two ideas attend to the problem of students actually getting to work, while the last idea tackles students' work focus problem. While the 3 ideas are widely different from each other, they all attend to the problem of student procrastination.

#### Our Chosen Solution

After analyzing each proposed solution, we decided that the optimal solution is the learning time-management app. The way this app works is that students start the semester by clocking how long they take on their regular assignments. Students will continually keep clocking their assignments, but as the app learns the student's assignment completion time, it will give

recommended schedules as to when the student should work on assignments based on his/her schedule.

## Why this Design

Our chosen design excels the other 2 solutions by a few factors; the most important factor being feasibility. All solutions are technically feasible, however they differ in social and economic feasibility as per the following:

**VR Study Environment** - We would need to first allocate budget to acquire a VR lab both to develop the technology and to test it. Furthermore, students would need to buy a VR set if they wanted to use it, making this solution economically and socially challenging.

**Vibrating Reminder Wristband** - This solution requires R&D to research biotechnologies that could be used for the wristband, which would be a huge burden on company budget and time. Not only that, students would have to be comfortable wearing this biotechnology, and we would have to conduct research to discover how acceptable a product like this would be.

**Learning Time-Management App** - This app, on the other hand, requires a smaller budget to build, making it more economically feasible than others, and also uses student's current smartphones to be accessible, making it socially feasible.

## Conclusion

Our chosen design concept addresses students' problems while meeting technical, economical, and social feasibility. Thus, our proposal is to pursue this design direction as it is a commercially viable solution to our problem. The design will later be evaluated through usability testing with current undergraduate students.

## -- Brainstorming Summary --

### Brainstorming Session Comparison

**Session 1** - We held brainstorming session 1 in a casual environment. We figured that our ideas might be better and more useful if we were all comfortable. It proved to be a good assumption; the ideas that we immediately put forth were some of our strongest. In fact, all three of our finalists came from this first session - two of them were among the first 10 ideas.

**Session 2** - This brainstorming session was held with 2 classmates who are not on the team. This session was helpful because the two other people brought fresh new ideas to the table (ones beyond our creativity), and we were able to partially incorporate these ideas into our last brainstorming session.

**Session 3** - Brainstorming session 3 proved to be harder to complete. We had already captured several ideas that we considered strong, viable options. But as a group, we have all grown more familiar and comfortable with one another. In our opinion, this helped us release our inhibitions and generate some abstract, even amusing ideas. Had we felt self-conscious with each other, we might have had a hard time pushing the envelope and coming up with enough ideas. While our choices ultimately came from Brainstorming Session 1, it was helpful to complete all three sessions together.

## Three Alternatives

We selected our three alternative ideas by each listing several of our favorite ideas from all of our brainstorming sessions combined. The ideas that had the most duplicate support made the cut. Fortunately, there were three standouts that made the cut, and we didn't have to do any narrowing down. The concept we chose to advance was also the only idea with a blind vote from all four of our group members.

### 1. Vibrating focus reminder wristbands - triggered by EEG readings

-- This idea aims to address students' problem of maintaining focus. It consists of a watch-like wristband and a wirelessly-connected earpiece. The earpiece uses electroencephalography (EEG) technology to detect when the frequency of the student's brainwaves drops below its normal high-functioning level. When the student's readings indicate that he/she is becoming distracted, the wristband lightly vibrates to remind the student to remain on task.

### 2. Customizable VR study environment

-- This concept targets the problems of committing to do work, and then remaining focused and productive. It serves as a controlled, customizable, virtual reality study space. Because it provides a space that's unique and pleasant to each user, students will be more motivated to begin working, and then remain focused and undisturbed while they study.

### 3. Learning time management app

-- This design concept is the one we're planning to develop further. It targets the problem of procrastinating on assignments due to poor time management. It functions as a scheduling app with the added benefit of learning from precedent. The user first informs the app of a new task that he/she is about to do. The app then documents the time the student required to complete the task (including time when the student was distracted.) Once the app has registered the time required for that task and numerous others, it will help the student plan their work time more effectively by accurately estimating how long it will take to do the items on his/her to-do list.

## -- Storyboarding Summary --

### Storyboards



## Design Solution Choice

### Learning Time Management App

After exploring different scenarios on our 3 main solutions, we decided to move forward with our learning time management idea. In our data, we found that every student has a different study/work habit, and in some cases, they don't even apply one to their workflow. We also found that most students are prone to getting Distracted.

This application will provide the student a tool to be more focus. It will be a personalized system that manages the student's time in a way that is adaptable to their lives. The student will be able to input into the application their assignments (due dates, work progress, turn in time) and also input time where they execute other activities of their daily life. The application will be able to learn the ways the student operates and based on its pattern findings, it will provide the student with a personalized schedule and prompt the student with suggestions to get the most effective use of their time.

This solution is the most accessible of the three ideas since:

- It does not need any additional peripheral.
- It will not limit accessibility to users with a learning curve for people unfamiliar with the technology.
- It is accessible to the student at any time by their phone.
- It provides the student with a malleable system that adapts to his singular needs.
- It is a system that can adapt to new inputs.
- It is a noninvasive system.