Enhancing Psychology Research Through Advanced Communications Technology

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1.0. Revised Objectives

The objectives of IPRO 306 that were established in the team project plan are as follows:

"The purpose of the research done in the IPRO 306 Mood Research Lab is to contribute to the body of knowledge regarding the patterns and accuracy of retrospective recall of affect in persons with Major Depressive Disorder. This will be accomplished by using Personal Digital Assistants (PDAs) equipped with a standardized mood inventory to measure the recall accuracy in volunteers from the non-hospitalized, clinically depressed population and comparing it to that of volunteers from the healthy population.

This project began in fall of 2006 and by the beginning of the spring 2007 term, the team had already collected nearly one-quarter of the total data for the study. The specific objective of IPRO 306, then, is to continue to gather data until a total of twenty-six depressed volunteers and twenty-six healthy volunteers have provided a week's worth of mood reports accompanied by a single retrospective mood report each. The team expects to reach this milestone by the end of the term, and have made it their goal to accomplish this task as quickly as possible while still maintaining their high standards of quality and efficiency.

Once all the data has been collected, the other objective of the team is to carefully organize and enter the data into the analysis software program Statistical Package for the Social Sciences (SPSS). From there, the team will begin to analyze the results with the goal of arriving at a meaningful conclusion about the accuracy of retrospective recall of affect in the clinically depressed."

As of March 20, 2007, each of these objectives has been met. However, several IPRO objectives still remain to be completed later in the term, and the team is still focused on completing these to the best of their abilities. The early arrival of results has caused the team to identify a new objective: to ensure that the conclusions from the research will be visually displayed on IPRO Day in as informative, attractive and comprehensible manner possible.

The extra time no longer spent working in the Mood Research Lab may now be utilized to further enrich and expand their IPRO research experience. The students may now ask new research questions that do not specifically pertain to retrospective recall and conduct their own research and analysis on the data that was collected in the study. These individual research efforts, with the help of the faculty advisors, may be published and presented at regional psychology conventions. Rarely does an undergraduate student experience such an opportunity, and each team member is focused on determining the best way to reap the benefits of their hard work.

2.0. Results to Date

The results to date are listed below:

1. All team members had their lab skills assessed and approved by February 2nd.
2. The recruitment phase set to end on Jan 27th was extended in order to obtain more participants at a faster rate. It was completed on February 27th.
3. The lab improvements were technically fully implemented by February 2nd, when the last team member was evaluated, but, as an ongoing process, were complete on March 13th, when the last participant returned their PDA.
4. On Jan 16th, the data collection phase began and was completed on March 13th, nearly a month sooner than the team's initial expectations.
5. Data organization and entry set to be completed by April 4th was completed on March 9th.
6. As such, the preliminary data analysis that was projected to begin April 4th has already begun, and the extensive results of the study will soon be available.
7. All IPRO office expectations up to this date have been completed on time.

It is important to note that the large disparity between the expected deadlines for team objectives and the actual date of completion was not a result of overly cautious planning or uninspired goal setting. Rather, the team simply was unable to foresee the tremendous positive impact that the heavy recruitment, shift system, lab improvement, and team member evaluations would have on the pace of the study.

Team Member Evaluations
By the expected date of February 2nd, Kevin and Alice had evaluated all team members on their knowledge and execution of lab procedures. All members were found to meet requirements.

Recruitment
The team observed that the new lab procedures allowed them to handle far more participants per week than before, so it was the main goal to get as many participants to call into the lab as possible. The initial recruitment phase set to be completed on January 27th was executed exactly according to plan. The results of this phase were slower than expected, and yielded far more healthy volunteers than depressed. As a result, the recruitment phase was extended, with an added focus on obtaining depressed volunteers. This extended phase worked very well and was completed by February 27th.

Lab improvements
Stephanie, the lab manager, had all new laboratory documents developed and submitted to the team by January 23. The implementation of these lab improvements were technically complete by February 2nd, when the final phase, the team member evaluations, were completed on February 2nd. However, she was in charge of continually observing the progress of the lab work and ensuring that it did not fall behind during the

entire research phase, so it was an ongoing process that ended when the final participant was completed on March 13th.

Data Collection
This phase was originally given a then very ambitious estimated date of completion of April 3rd. However, the final participant began the study on March 6th, which means the final data set was collected a week later on March 13th, thus completing the data collection phase much earlier than expected. The reasons for this discrepancy are many. The successful recruitment efforts provided a greater number of participant calls to be answered and returned. The shift system then created a larger and more organized amount of time where team members could get work done. Next, the lab improvements established the most organized and professional way of conducting the phone screening and scheduling process. Finally, the team member training and evaluations ensured that every member was equally capable of screening and scheduling. These improvements made the data collection much quicker and more efficient than the system initially used by the team during the first semester of the project.

Data Management:
This new sub team lead by Tarek was required to spring into action on March 1st, in response to the unexpectedly quick rate in which data was gathered. The final participant began the study on March 6th; the data entry phase began March 7th and was completed by March 9th. Stephanie and Tina collaborated to enter the first half of the data, and Alice and Tarek collaborated to finish entering the rest and to double check the progress made by Stephanie and Tina. Both of these groups were instructed to double and triple check their work as they went along. Kevin was then in charge of reviewing the data entered by the entire team for any errors. When he was done, he submitted it to Dror Ben-Ze'ev for the final error check.

The reason the team was so vigilant in discovering and eliminating any possible errors is because an outlier due to a mistake in data entry has the potential to cause an effect in the data analysis when there actually is none, or, conversely, it could negate an effect that does indeed exist in the data set.

Data Analysis:
As of this midterm report, the data analysis is currently in progress. While many of the results from the preliminary analysis have been shared amongst the group and do indicate some of the final conclusions that can be drawn from the data, the analysis is still being conducted and is not yet ready for presentation.

IPRO Deliverables:
Each of the IPRO deliverables that the team was responsible for to this date have been completed and the timeline for all future IPRO deliverables remains unchanged.

3.0. Revised Task / Event Schedule
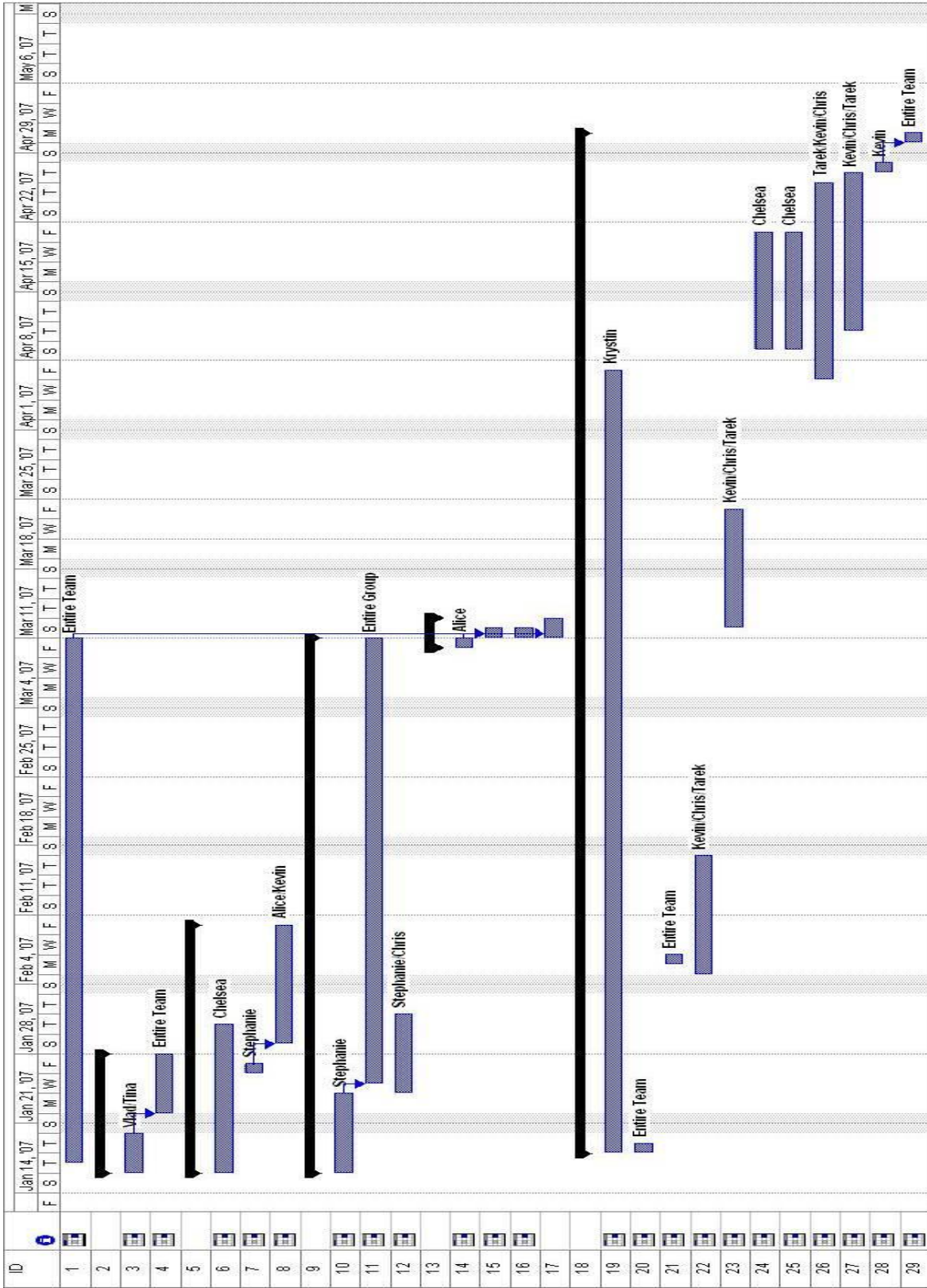
Task	Start	Finish	Resources	Hours
Note: Items in red are those that have changed since the project plan				
Data Collection - Complete	Jan 16	Mar 13	Entire Team	**312**
Recruitment - Complete	Jan 16	Feb 27	Entire Team	**68**
Compile second tier list	Jan 16	Jan 19	Vlad/Tina	8
Posting ads	Jan 22	Feb 27	Entire Team	60
Team member skill evaluations – Complete	Jan 16	Feb 2	Alice, Kevin	**34**
Train new member	Jan 16	Jan 30	Chelsea	10
Checklist complete	Jan 26	Jan 26	Stephanie	4
All members evaluated	Jan 29	Feb 2	Alice, Kevin	20
Laboratory Improvement – Complete	Jan 16	Mar 13	Entire Group	**302**
Assess problems/Develop Improvement Plan	Jan 16	Jan 23	Stephanie	20
Implementation of Improvement plan	Jan 24	Mar 13	Entire Group	264
Equipment upgrades	Jan 16	Jan 31	Stephanie, Chris	18
Data Management – Complete	Mar 7	Mar 9	Tarek	**19**
Create data analysis sub-team	Mar 7	Mar 7	Tarek	1
Develop data analysis procedures and manual	Mar 7	Mar 7	Tarek	1
Train sub-team	Mar 7	Mar 7	Tarek	1
Data organization and entry	Mar 7	Mar 9	Tarek, Stephanie, Tina, Alice, Kevin	16
IPRO Deliverables	Jan 16	Apr 6	Entire Team	**311**
Meeting Minutes (ongoing process; due Apr 6)	Jan 16	Apr 6	Krystin	35
Learning Objectives Pre-Test– Complete	Jan 18	Jan 18	Entire Team	2
Learning Objectives Post-Test– Complete	Feb 6	Feb 6	Entire Team	2
Project Plan– Complete	Feb 5	Feb 16	Kevin, Chris, Tarek, Alice	40
Midterm Report – Complete	Mar 12	Mar 23	Kevin, Chris, Tarek, Alice	35
Exhibit/Poster	Apr 9	Apr 20	Chelsea	30
Abstract/Brochure	Apr 9	Apr 20	Chelsea	15
Presentation	Apr 6	Apr 25	Tarek, Kevin, Chris, Tina	112
Final Report with Table of Contents	Apr 11	Apr 26	Kevin, Chris, Tarek, Alice	30
IPRO Deliverable CD	Apr 26	Apr 26	Kevin	2
IPRO Day	Apr 27	Apr 27	Entire Team	8

4.0.1 Updated Task Assignments

The task assignments and designation of roles has remained largely unchanged since the development of the project plan at the beginning of the term.

Data Management Sub-Team Update:
The only significant change in the sub-teams to this date has been the creation and organization of the Data Entry sub-team. At the time of the project plan, little was established about the actual team members, tasks, or approach this team would take because it was not expected to come into play until much later in the semester. However, when data collection was completed much earlier than expected, Tarek was very quick to set the team into motion and had all data organized, entered, and quadruple-checked within two days.

Project Manager: Alice Jacob
Alice is responsible for managing all the individual sub-teams and ensuring that they remained on schedule by communicating regularly with all sub-team leaders and receiving periodic updates on the progress of each task. She is in charge of compiling an agenda for each meeting and leading the two weekly IPRO meetings. Alice is the team's IPRO office liaison as well as the contact person for any outside organizations the IPRO becomes involved with. As with all other team members, she was responsible for lab work and also worked with Stephanie, the lab manager, to ensure the efficient operation of the laboratory.

Recruitment Sub-team:

Team Leader	Tina Chiu, Vlad Vilenchik
Team members	Entire Team
Description: This sub-team was responsible for advertising to recruit volunteers. During the first semester of the project, the Recruitment sub-team compiled a master list of all locations to advertise, which were then grouped into three different tiers according to distance from campus. The first tier was covered during the first semester, and Vlad and Tina made sure that the second tier was covered by the team from January 22nd-27th. The actual advertising was performed by all members of the IPRO team and not just the sub-team. The recruitment was extended in early February to satisfy the team's goal of collecting data as quickly and efficiently as possible. The extended recruitment period ended on February 27th.	

Technical Support Sub-team:

Team Leader	Chris Jones
Team members	Entire Team
Description: This sub-team was responsible for maintaining the best performance of PDAs and other lab equipment. The entire team made sure participants did not have troubles with PDAs and, if any were encountered, the participant was immediately contacted and the problems were solved.	

Data Management Sub-team:

Team Leader	Tarek Abou-Nemeh
Team members	Tina Chiu, Alice Jacob, Stephanie Walter, Kevin Franke
Description: This newly developed sub-team was responsible for the collection, organization, formatting, and entry of all data collected throughout project. The product of this team's labor was a complete, error-free set of all the data collected in the research study, ready for analysis.	

Project Plan/Midterm Report/Final Report Sub-team:

Team Leader	Kevin Franke
Team members	Tarek Abou-Nemeh, Chris Jones, Alice Jacob
Description: This sub-team was responsible for creating and submitting the IPRO deliverables listed above on time. This team will work together to have a rough draft of each document available for the rest of the team at least a week prior to the due date to allow time to receive feedback for possible improvements.	

Exhibit/Poster/Abstract/Brochure Sub-team:

Team Leader	Chelsea Miller, Krystin Hernandez
Team members	Entire Team
Description: This sub-team is responsible for creating and submitting the IPRO deliverables listed above. This team will work together to have rough drafts of each project available for the rest of the team at least a week prior to the due date to allow time to receive feedback for possible improvements.	

Presentation Sub-team

Team Leader	Tarek Abou-Nemeh
Team members	Tina Chiu, Kevin Franke, Chris Jones
Description: This sub-team is responsible for preparing and performing the team's presentation on IPRO Day. This team will work together to have a first draft of the presentation prepared well before IPRO Day to allow time to receive feedback for possible improvements. Tarek is also responsible for organizing times for the team to practice the presentation sufficiently before IPRO Day.	

4.0.2 Designation of Roles

There have been no new designations of roles except for that of Pizza Party Coordinator.

Lab Manager	Stephanie Walter
Stephanie managed all aspects of the IPRO lab. She was responsible for developing an R.A. schedule for the lab, in which each member was assigned three one-hour shifts per week where they were the research assistant on duty. She was also given the task of developing a comprehensive procedural manual for all activities to be completed in the lab during each member's shift. She oversaw the organization and efficiency of all lab work and assumed the responsibility of managing any errors made in the lab by an R.A. In such instances, it was her responsibility to correct these errors and take the appropriate measures to prevent such errors from being repeated.	

New Member Trainer	Chelsea Miller
Chelsea was appointed the responsibility of training Krystin Hernandez, who was not a member during the first semester's work. Chelsea's specific duties included: providing the new member with all background material about the research study, providing her with the link to the IRB training website to become certified to participate in a research study involving human participants, walking her through the procedures to follow as a research assistant in the lab, and supervising her while she performed these tasks for the first few times.	

Lab Skills Evaluations	Alice Jacob and Kevin Franke
Sensing the importance of having every member of the team equally capable of performing each task in the lab, the faculty advisor appointed Alice and Kevin the duty of evaluating each team member's knowledge of the correct lab procedures. Stephanie, the lab coordinator, provided them with a comprehensive checklist of all steps and skills that are included in the normal scope of duties of a research assistant in the mood lab. Kevin and Alice collaborated to evaluate each team member using this checklist. When an R.A. was seen as lacking in a certain skill, Alice and Kevin were responsible for demonstrating the proper way to perform the tasks and testing them again until they illustrated a satisfactory ability to perform their job.	

Minute taker	Krystin Hernandez
Krystin is responsible for recording minutes during all IPRO meetings and uploading them to iGroups promptly after each meeting. At the end of the semester, she will compile all minutes as outlined in IPRO office guidelines and upload them to iKnow by the due date on Friday, April 6th.	

iGroups account manager	Chris Jones
Chris is responsible for the organization of the files posted to the group's iGroups account.	

Agenda/Weekly Task List	Alice Jacob

One of Alice's important tasks as Project Manager is to prepare an agenda for every meeting and a weekly task list for the team to accomplish. She will preside over the biweekly team meetings and ensure that these objectives are met.

Weekly Time Sheets	Stephanie Walter

Stephanie was responsible for collecting the weekly class, job, and extra curricular activity schedule from each of the team members and compiling them into a master schedule. After this was accomplished, she was able to set up a weekly schedule with one-hour shifts in the lab for each of the members. Each member was assigned three one-hour shifts per week, and was expected to remain in the lab for the necessary time beyond these shifts in order to complete the tasks they were responsible for each day.

Pizza Party Coordinator	Chris Jones and Krystin Hernandez

On March 20, IPRO 306 celebrated the completion of their study by enjoying pizza, pop, and cookies during a meeting. Chris was in charge of arranging for the pizza delivery and the beverages, while Krystin brought in home-made chocolate cookies for everyone. This meeting was also very special because the team viewed some of the preliminary results from the statistical analyses of the data.

5.0. Barriers and Obstacles

Introduction
Communication is an integral part of teamwork and has been essential in overcoming any difficulties that have arisen during the course of this project. Communication was thus regarded as a top priority in moving the project along smoothly and efficiently across all its team members. Because this project is a continuing effort with only one new member, the team has been able to employ the experience gained last term to guide the decisions and challenges encountered this term. The major accomplishments of last semester's IPRO were as follows: establishing the Mood Research Lab, acquiring PDA units, acquiring and programming PDAs with the correct software, and beginning the data collection phase. Lessons learned from this experience, coupled with excellent communication, teamwork, and motivation, have helped the team overcome barriers and obstacles and reach successful solutions.

Enhancing Laboratory Efficiency
When the IPRO team began the new semester with the research study already underway, the focus was placed squarely on improving the speed, efficiency, and quality of the data collection. This need was answered by a very strong recruitment effort, which immediately led to a very high volume of participants calling the laboratory interested in participating in the study. Suddenly, immediate pressure was placed on the team not only to work many extra hours, but to work with far less room for errors.

The team quickly acknowledged this issue and addressed it on two fronts.

1.) A schedule of equal shifts for every team member was compiled which not only fit into each individual's academic and personal obligations, but satisfied the time requirements for the work that needed to be done in the lab. This "shift system" was designed so that the Mood Lab would run every weekday from 9AM-3PM. One assigned team member would complete a one or two-hour shift, and, as they left, the next team member would come in for their shift and continue the day's tasks. Each team member was assigned three shifts over the course of the week and was responsible for handling all the necessary business for that day.

2.) Whereas in the first semester, only around two members knew how to do certain tasks each and no member was knowledgeable in every skill, the shift system required every member to be competent in every laboratory task. Thus, the task of training, evaluating, and approving every member's performance of Mood Lab duties was assigned to Kevin, the previous term's Project Manager, and Alice, the current term's Project Manager.

The change from having a few individuals with separate abilities and duties to a full unit of synchronized individuals equally proficient in all the necessary skills provided for seamless transitions as well as extremely high efficiency in the operation of the Mood Laboratory. After establishing these very important changes, the team was able to operate at the pace and competency needed to accomplish the goals they had set.

PDA Malfunctions
The team encountered its first major PDA problem when a number of participants informed our laboratory that their units had stopped beeping for several hours at a time. This malfunction, if unaddressed for too long, posed the threat of completely invalidating a participant's entire data set. The Troubleshooting sub-team discovered that the problem occurred when the PDA was charged during the period of 9:00PM to 10:00PM when ESP was set to alert the user with questionaires. Each participant from then on was instructed to only charge the PDA after 10:00PM, and only if completely necessary.

Another PDA problem encountered by the team was due to incorrect time settings on the PDA. The device would work as expected, but if the time settings were incorrect (e.g. time was set as 9:00PM instead of 9:00AM), it would beep during incorrect portions of the day, thus invalidating the data. Once recognized, the Troubleshooting sub-team would contact the participant immediately and walk them through the process of correcting the time settings on the PDA over the phone.

In response to these PDA malfunctions, a mutual decision was made by the IPRO team members to add to the individual responsibilities of each R.A. during their shift. First, every R.A. was required to double-check the time setting on a PDA before giving it to a participant for their trial. Also, members were expected to perform a phone call to each participant 48 hours after they began their trial in order to ensure that the unit was functioning correctly. This solution was a very important factor in assuring the validity of the data collected.

Unforeseen Obstacles
At one point, the Mood Research Lab's participant screening room was no longer available for the team to use. This obstacle first arose with no prior notification on a day with many participants scheduled to come in. Suddenly, the team members on duty were faced with a situation where three participants had all arrived at the same time and had no place to be screened. This potential crisis was handled by utilizing an empty classroom for one participant and firmly requesting any two vacant rooms from the Psychology office. The professional manner in which the team member conducted herself granted the Mood Research Lab the use of both the personal and research offices of a Psychology professor not even affiliated with the IPRO. The use of two additional rooms not only prevented the loss of the team's original room from hindering the progress of the team, but it allowed the research team to handle twice as many participants in one day.

In another instance, one particular participant required assistance due to a disability. The quick response and coordination between team members allowed this individual to still participate. This was achieved by dispatching a team member to meet with the participant at their location and accompany them to the lab for screening. This sort of creative problem solving under pressure were common throughout the study and significantly contributed to the prevention of delays and frustration for participants which could cause a significant change in their affect, thus invalidating the team's results.

Another factor the team did not expect to encounter as a potential barrier was the impact that extreme weather conditions would have on the research study. The progress of the study was significantly hindered for a few days when a severe snow storm prevented participants who were already scheduled for appointments from traveling to the Mood Research Lab. In this instance, there is no direct solution to eliminate severe weather, so the best way to deal with the issue was to contact all participants before their appointment and find out if they were still capable of traveling to IIT to begin the study. This way, the team could be prepared for those who were still able to make it, while those that could not were rescheduled to a later date.

Conclusion
The fact that the major objectives of IPRO 306 have been accomplished significantly before expected is a clear indicator of the proficiency with which the team was able to identify and overcome obstacles and barriers during the course of the project.