CSE 440 Fall 2013
Paper Prototype, Testing, and Refinement

Group manager: Bobby Simon
Designer: Xiaobo Wang
Tester: Kevin Hsueh
Writer: Colin Barrett

Problem and Solution Overview

Teaching a new class or student is often daunting and difficult. Oftentimes teaching styles and learning methods do not sync and for many students this becomes a major barrier in the learning process. In any type of learning environment whether it be in sports, academia or extracurricular there are disconnects between teachers and students. Recognizing that every student is different and learns through different means creates difficulty in designing lesson plans that engage, challenge and develop every type of student. Teachers are faced with the challenge of presenting and applying content to a class that most likely does not learn through one single methodology; this presents teachers with an overwhelmingly amount of pressure (to teach in a style they are not comfortable in) and a great deal of confusion (how to better reach students who don't learn in a certain way).Instructors often turn to group projects to empower and engage students not only with the content but with each other. This is a tactic used for empowering students and fostering individual learning through the collective effort of different learning styles.
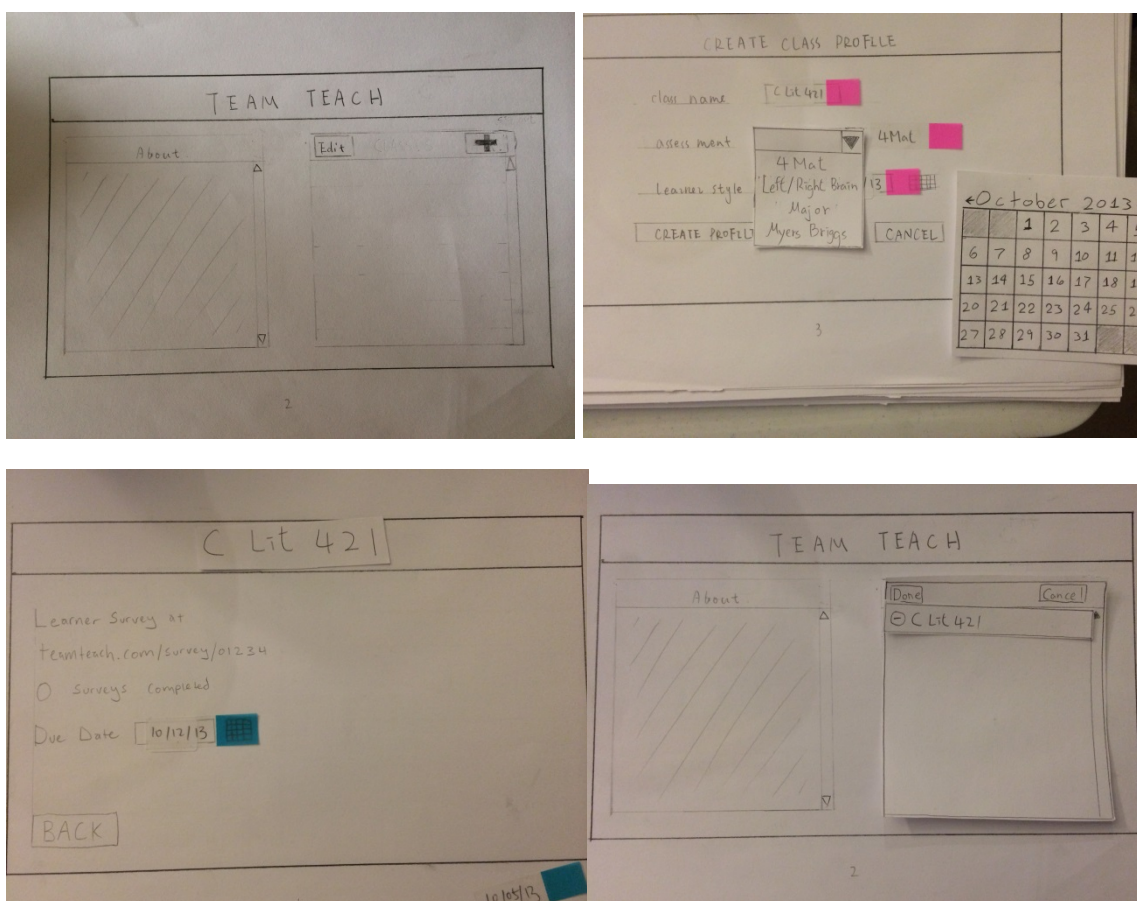
To help resolve the confusion and alleviate stress for teachers trying to reach their students in new ways, TeamTeach specifically focuses on learning through groups and designing a tool that will help instructors analyze their students learning styles (individually and as whole) and optimize groups depending upon various means. By incorporating different assessments such as the 4MAT learning style, left brain or right brain, and field of studies into our application, TeamTeach will provide a valuable framework for data feedback and ultimately act as a stepping stone for our application's true purpose; dividing classes into optimal groups for learning.

Paper Prototype Description

TeamTeach serves ultimately one purpose: to help the educators to divide the students into optimized learning groups. First we decided to make TeamTeach a desktop application because most educators (such as professors, lecturers, or managers) use desktop platform to contact their students. So by making TeamTeach a desktop application, we can open up the future possibility of integrating TeamTeach with other applications such as myUW or Catalyst. To achieve TeamTeach's ultimate purpose, users only need to follow two easy steps: 1) create a new class profile, and 2) create a group list for that class.
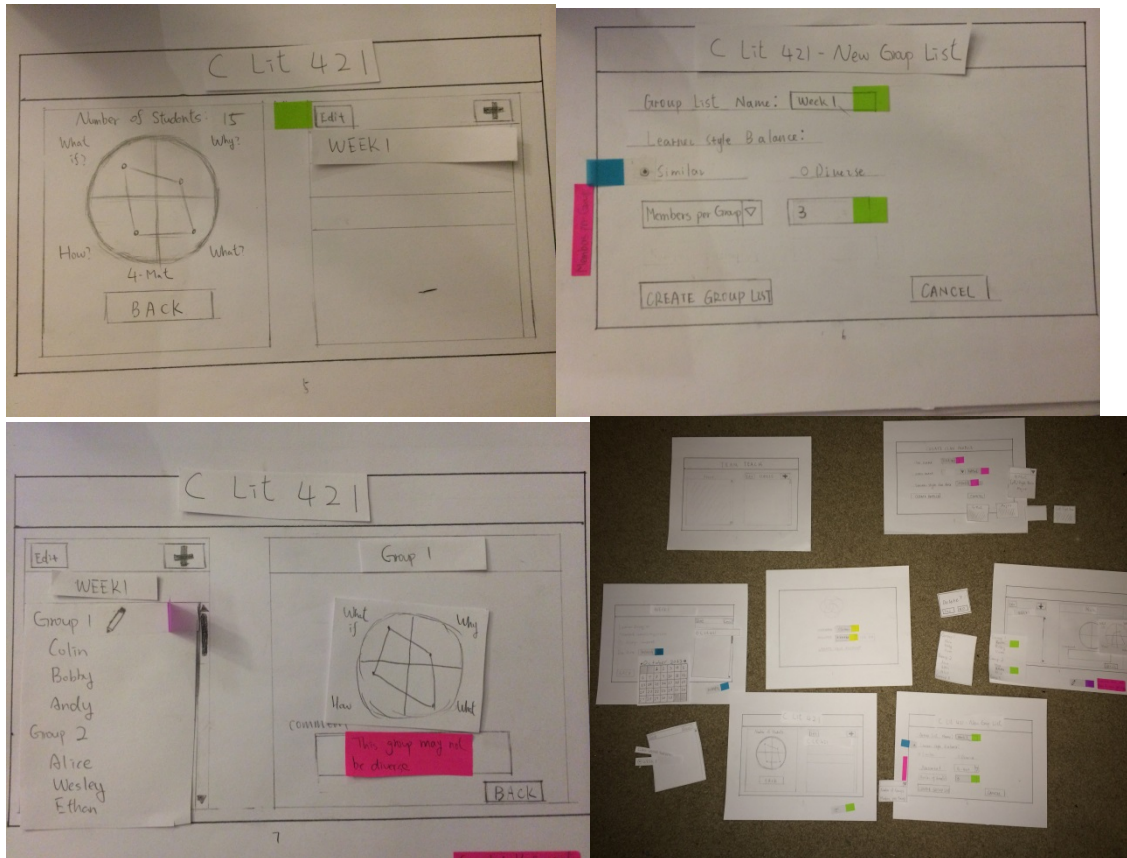
- Creating a new class profile: After logging in, the users can see the information about TeamTeach and a list of existing classes. Users can

delete or change the order of classes by clicking the edit button, and they can create new class profiles by clicking the + button. After clicking the + button, users only need to enter the class name, the assessment type and the survey due date to complete the class profile. Then a link to the survey will be generated and the users can modify the survey due date. Classes before the due date will show up under "Classes under survey" on the main page.

- Creating a new group list: After a class's survey ends, the class would show up above the "Classes under survey" on the main page. Clicking on the class would guide the users to the class profile. In class profile, on the left it shows the number of students in the class, the assessment type and a graphical display of the class's learner type distribution. On the right it shows a list of existing group lists, users can delete or change the order of the group lists by clicking the edit button, or create a new list by clicking the + button. Then users only need to input the name of the group list, whether they want the groups to be diverse or similar, and the number of groups or members per group to create a new group list. A new group list is thus created automatically based on the users' preference.

After a group list has been created, users can click on an individual person or a group to see the data for that particular unit. Users can also make comments on the unit and a little pencil icon would show up next to the unit indicating this unit has been commented. Additionally, users can manually modify it by clicking the edit button. After clicking the edit button, the user is in edit mode. Users can change the group members by simply dragging and dropping the desired change. Users can choose to save the changes (by clicking done) or cancel the changes after editing.

Testing Method

Participants and Environment setup:

The participants are chosen based on their backgrounds. We first introduced ourselves and what we were testing, and then we told them that their names are completely confidential and this is voluntarily based. All participants are some kind of educators, the first participant is an undergraduate CSE TA, the second participant is a graduate bio-chemistry TA and the third is a math lecturer. All three of them had experience of having trouble with dividing students into groups. The testing is done in CSE Atrium where there is normal volume of noise.

The setup is that we have 1 note taker, and 2 people representing the computer (to make the computer run faster).

Procedure and Tasks:

We started the testing by giving them information about what TeamTeach does, and that they are to perform three related tasks on the application. We asked them to think aloud everything that went through their minds instead of having to summarize of what to do. Then we had them perform the three tasks one by one. The three tasks are as following:

Task 1 – Create a new class profile

You are a comparative literature professor who is excited to use TeamTeach for your new class. You have just created an account and now you want to create a new class profile. The class name is C Lit 421, and you choose to use the 4Mat assessment to group this class. The survey should have a deadline of 10/12/13. You would want to go back to main page and check if the class profile has been successfully created. You then realize that the due date was too late so you want to modify it so that it's actually due on 10/05/13.

Task 2 – Form a group list from an existing class

It's now 10/06/13 and all they surveys for C Lit 412 have been completed, so now you want to create a group list for it. The name for the group list will be "Week 1", and you students who are similar to be in a group. You want 3 people in one group. After the group list has been created, you decide that it would be best to have groups based on diversity rather than their similar learning styles. So you want to delete this group list and start over.

Task 3 –Manually change the group members and make a comment.

After the new group list comes out, you find that Kevin and Bobby are in the same group. You know that Kevin and Bobby don't get along well in a group so you are going to separate them. You will switch Kevin and Allen from group 2. Then you want to leave a comment for Kevin saying "Separated Kevin and Bobby, they don't get along", and a comment on group 1 saying "This group may not be diverse."

Testing Results

After the user testing, we have found several places for improvements, some of them are minor while some of them have huge impacts on our application in terms of user-friendliness and overall

application quality. Some of important ones include: lack of information given, missing essential functions, and unclear functionality.

We found that we did not provide sufficient information on many of the pages, causing in users have no idea what to do at their current state or performing the wrong task. For example on the main page, the box on the right hand side has a list of all the classes, but we did not specify what that box does. So when a new user enters the main page he would be confused about what the purpose of that box is and how to create a new class profile. Similarly, when a user enters a class profile, the right box should show the group lists; but again, it's not specified on the page of what that box should have. So without any content in that box, users hesitate on what to do. We rate the above problem a severity 3 because although this problem showed up a decent amount of times, not fixing it would not cause the application to break down. Besides this, there are minor places where we should have given more information, like we did not tell the days of a week in our calendar interaction. This is a severity 1 because it is just a cosmetic problem.

We would probably never find out that we did not provide a "sign out" if we did not do user testing. This is such a fundamental function that it became a blind spot while we were designing our user interfaces. This is absolutely a severity 4 problem if users cannot sign out from the app. Another function we find important to have is the ability to delete something within that thing; right now the app allows the users to delete a class or a group list only from the outside. For example in task 2, some participants were looking for a delete button while they are in the group list page (right after it has been created), but what they actually had to do is to click on back before deleting it. We consider this a severity 2 problem the application still runs fine without a fix, just that users need an extra step to complete some certain tasks.

Another place where almost all users experienced difficulty is that after they created a group list and they want to modify its settings (such as diverse/similar or number of groups), they try to go back to the group list set up page to modify the settings. However our application does not allow users to do so. The only way to change the group list setting is to delete the current group list and create another

one. We rate this severity 3 problem because this has wasted a lot of times on our participants so we feel that it's a major issue that needs to be modified.
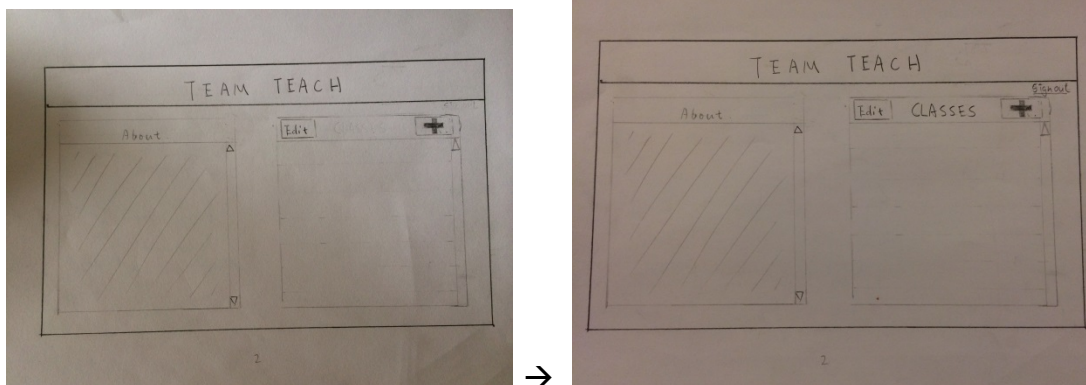
One last common problem is that all users have trouble with making a comment in some way. One user did not know if the comments are being saved or not, one did not know what the pencil icon do and one tried to leave comments from "edit" button. We feel that the whole comment system should either be redesigned or we should create a walkthrough.
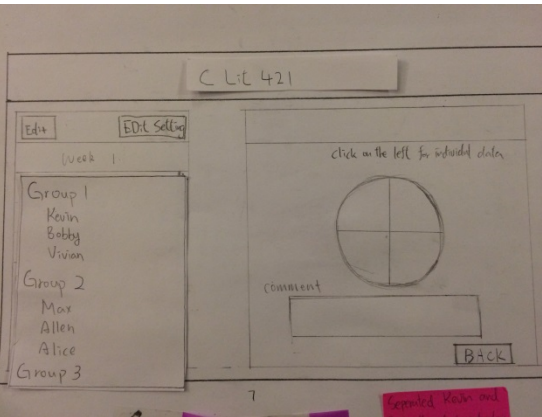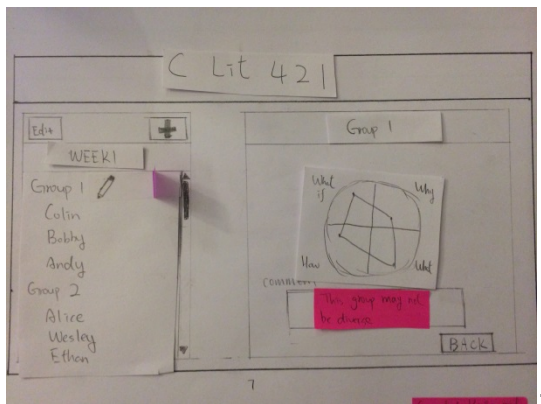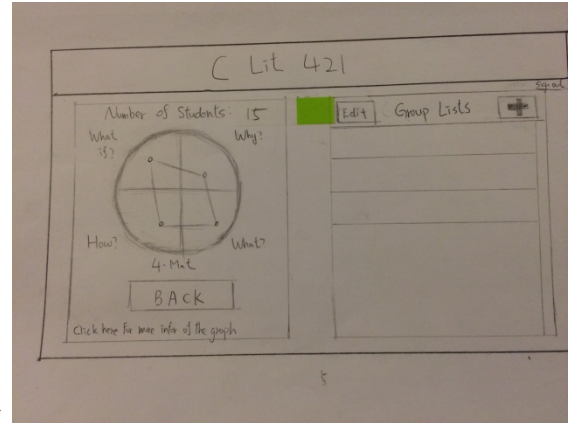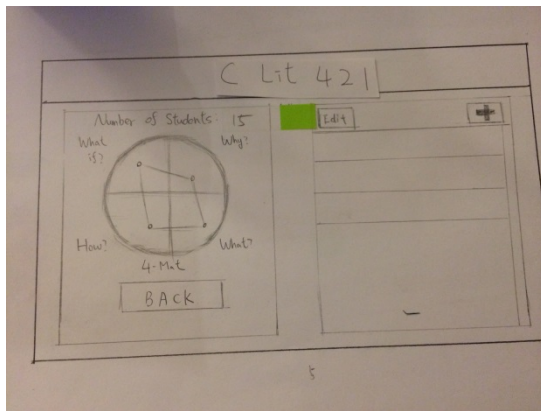
Interface Revision

We decided to revise our interface directly corresponding to the problems we observed in the testing results, and keeping the features where all the users seemed to be satisfied with.

For lack of information, we simply added several words to solve the problem. We added "CLASSES" on the right box of the main page and "GROUP LISTS" on top of the right box of the class profiles. We believe that by just providing the functionality of these two sections, users can have a much better user-experience while using the app. The flow would be much more smooth and efficient. And on other places where participants seemed to be stuck on for a few seconds, we would try to add some more information about how a particular task should be done.

As in functionality, we first would add a sign out button on every single page. Also a delete button will be created on inside each class profile and group list. Moreover, inside a group list, we would create an "edit setting" button to allow the users to modify settings like group list name or the number of groups.

Discussion

We learned the more we prepared, the easier the process is. It is because we didn't think through the process very carefully. So we didn't provide some important options and information in the prototype. As we went through the test, we found users feel confusing about some steps and hesitate about what to do next. Although, those are what we are trying to find, it is embarrassing to leave a bad impression to users. We can avoid those obvious problems if we go through the process several times. The thing we really want to find is the hard problems we can't view by our selves, and the feedback about some hard problems we don't know what is best solving way for users. We should be better prepared the next time.

Then we found people have different perspective of viewing things and knowledge background in solving problems. So have different people for testing our design is really important to make the design be usable by others.

The test does lot to help us to realize the problems and refine our designing. First, The tests help us to find some flaws due to the knowledge difference. We design the project by our background of knowledge and aesthetic. But as the designer we have some knowledge that not everyone else has. Some seems obvious to us may confuse others. The tests of other users' experiences help us to find the gap between our knowledge and users in order to help us design interface that is suitable for all people.

Test helps us to find some disadvantages we are trying to protect or unwilling to edit. Because the project is our own designed product, we will intuitively try to protect our designs as property, especially when we spend much time and effort on it. Even it doesn't recognizing by most of others. Having the test can help us to discover those we are unwilling to redesign and give the motivation and reasons for making changes.

Test helps us to find some shortcomings we forgot or even can't find out. Because we only have few people in our design group, it is hard for us to find all the problems. However, when we have different people as users, we can let them view the interface from different perspective and give a more complete feedback of the overall function of our design.

There are definitely some other things that are uncovered right now. Everything has bugs depending on when the bug is detected. As more and more people, test and use the interface, those bugs will appear. Some of the bug even conflict with each other, which means if we solve this one, the other bug will appear. What we can do is when we find something needs to be changed; we will try to find a balance point of change that makes most people satisfied with.

Appendices

This is the document we hand to the participants after they agree on participating and before the tasks:

Please read the following paragraph out loud

You are going to be testing our new app – TeamTeach and we are going to observe the interaction between you and the application. TeamTeach is an application designed for educators, such as professors or teachers, to group their students into optimized groups based on their learning styles. Please note that we are testing the machine, not you. So we are not going to provide any information on how to use the application. Please speak out everything that comes to your mind while using the app, instead of summarizing your thoughts. You are going to perform three related tasks

Tasks Demo Script Walkthrough:

Task 1: Logging page(enter username/password, press log in), Main page(+), create class profile(enter the fields, create), survey page(back), main page(C Lit 421 shows up, press it), survey page(change the due date)

Task 2: Main page(C Lit 421), class profile(+), create new group list(enter the fields, create), group list page(back), class profile(edit, delete button, yes, +), create new group list(enter the fields, create)

Task 3: Class profile(C Lit 421), group list page(edit, drag and drop Kevin to group 2, Allen to group 1, done, Kevin, add comment, Group 1, add comment)

Hong Wang

    Task 1

        When log in

            Not good look of the front page.   1

        On the main page, try to create class profile

            Main page, confusing about how to use   2

            Trying to find 4-mat assessment in wrong place   2

            Confusing not sure, but try with the edit button   2

        When class was created

            Cool with when class list was created.

When modify the date

Unclear of the edit button in the class list, he wants modify the date, but delete the class. 2

Done

Want to log out, from the current page, when he was done. Can't find log out button   3

Task2

After view the analysis of the class profile,

Confusing about the picture. Have no background of 4-mat

Not sure about what the blank box. Should have a tittle for it. 1

After going to the create group page

Lack of background about "learner style balance" 1

After create the group

Feel confusing again about the picture 1

When he want to delete

Try with the edit button.   1

Can't delete in side   2

Should be able to modify directly   2

Done

Want to log out.   3

Task3

In the group list result page

Can't understand the picture   1

Do I need to save comment? Confusing   2

What is the pencil picture mean there? 2

Need a message box to say the comment was saved 2

Done

Want to log out.   3

Overall: need more information.

Li Xiang

Task 1

On front page

He tried to create a new account, not following the instruction.

He goes through the other process well   0

Task 2

When modify leaner balance style

Really confusing about why should create new group list, but not modify it 2

He tried edit and other option, but can't modify it. Finally he deleted it and make a new group list   2

Task3

When want to give comment,

Try with edit button first. 1

Not sure about the right half page was depend on the left half page's choices; he didn't find the comment space at the beginning.   1

Hope the pencil as a notice of where the comment is.   2

Chong Wang

Task 1

When create a class profile:

Very confusing about the blank box, no tittle for that

Try with the plus sign.   2

When modify the date.

Try use the edit button to edit the date of the survey due. 2

Task2

When create group list, not sure about the blank box is for group list.

When delete 2

Try to delete inside the list.   2

Task3

When modify

Try to modify on the group list page.   1

He wants more information about each box's content. The edit button should be able to do all the edit stuff.