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# Sophy: A mobile web app designed to enhance student learning through gamification

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## *0. Abstract*

In the following case study, I examine the hypothesis that introducing game elements into my courses would increase student engagement and thus enhance student learning. The mechanism that I used for testing this "gamification" hypothesis was a mobile web app, development of which was supported by the Pepperdine University Grants for Faculty Innovation in Technology and Learning program. Although gamification has been tested and studied in various ways, to my knowledge nobody has done a systematic study of the results of adding a game layer to an already existing traditional college-level course. Thus I view this project as breaking new ground in the study of gamification in higher education. As I explain below, the results were largely positive and strongly support the fruitfulness of further research.


## *1. Introduction*

Foursquare is an increasingly popular mobile app (30 million users as of January 2013; cf. Buchanan 2013) that takes a property we all have—our location—and turns it into a game with social elements. This app uses the GPS feature on a smartphone to determine the location of the person using the app, and then it loads a list of relevant places nearby: restaurants, businesses, amusement parks, sports arenas, and so on. The user is then able to "check in" to the place that corresponds to their location. (A check-in might include a status update and a photo as well.) This check-in produces several outcomes. The first outcome is social: nearby friends who are also on Foursquare are notified that a friend has checked in, which allows them to meet up or communicate if desired. The second outcome is competitive: the user earns a certain number of points for that check-in, which is added to a weekly total that determines the user's spot on a leaderboard. (The leaderboard consists only of friends who are also on Foursquare.) If a user has the most check-ins at a particular place, then he or she is the "mayor" of that place. An additional outcome is financial: some businesses provide discounts for the Foursquare mayor, and some provide discounts merely for checking in the first time. And finally, badges are awarded for accomplishments such as checking into five different outdoor areas or checking into a place that has 100 or more people checked in (among many other possibilities).

Foursquare, then, takes something that we all do (namely, go places) and enriches our experience by adding social elements and game elements. In other words, they have added a game layer to our comings and goings; they have "gamified" location. ("Gamification," according to at least one standard definition [cf. Deterding et al. 2011a], is an umbrella term that covers any attempt to improve user experience and increase user engagement by adding video game elements to other, non-gaming contexts.) One way of describing the aim of this app is *increased engagement*: we might say that the creators of Foursquare were trying to increase our engagement in our location by adding a game layer to our travels. In similar fashion, and in light of similar—but notably different—efforts in both secondary and post-secondary education, I suspected that adding a game layer to my courses would increase student engagement. (See the next section for

some references to relevant literature.) So I proposed to commission the development of a mobile web app (i.e., a website that is fully functional across a wide variety of computers and mobile devices) that would be designed to enrich an experience that all of our students have—namely the experience of enrolling in, attending, and successfully completing the requirements of a course at Pepperdine. The development of this web app was generously supported by the Pepperdine University Grants for Faculty Innovation in Technology and Learning program.

Although the immediate purpose of using social elements and game mechanics was to increase student engagement (and enjoyment), the ultimate purpose was of course to enhance student learning. As I envisioned it, this app would allow me to incentivize course-related behaviors and activities that are not necessarily required, but if completed would increase engagement (and thus learning). These, in other words, are the activities that the best students are already doing; and if I could encourage other students to engage in those same activities, then more students would have the learning experiences that the best students are already enjoying. For example: A student will undoubtedly benefit from being responsible for teaching a portion of the course material to his or her fellow classmates (cf. McKeachie 2006), but I might not want to include this as one of the course requirements. With this app at my disposal, I could assign points for this and other beneficial-but-not essential activities, keep track of everyone's total points on a leaderboard, and then award a prize for the most points at the end of the semester.

The app development took place in the summer of 2013, and after a brief testing period I implemented it in two Fall 2013 courses: PHIL 290 (Logic) and PHIL 420 (Epistemology). I then monitored student engagement and also administered an end-of-semester survey asking the students about their own experiences.

## *2. Background*

Although the term "gamification" was first documented in 2008, the use of game elements to enhance user experiences dates back at least as far as the early 1980s (cf. Deterding et al. 2011a). Nevertheless, the practice of gamification in educational contexts has only recently been studied, and there is still much research to be done (cf. Deterding et al. 2011b). Recent attempts to use gamification have taken place in fields as diverse as astronaut training (Cornelissen et al. 2012) and supply chain education (Wood & Reiners 2012), but its use in higher education has been limited. As a result, there is very little study of what sort of benefits (and pitfalls) might accompany concerted attempts to gamify the classroom.

There have been numerous studies of how computer games *themselves* can be used to enhance learning. For example, there have been studies of how game-development training helps teach software engineering skills (e.g., Cagiltay 2007 and Burguillo 2010), or civil engineering skills (Ebner & Holzinger 2007); or how a game-based learning environment can help teach writing skills (e.g., Dickey 2011). There have also been studies of the use of gaming environments in *secondary* education (e.g., Liu & Chu 2010, Papastergiou 2009, and Sung & Hwang 2013). But Foursquare was not innovative because it used a game to teach skills; it was innovative because it added a game layer to *already-existing* activities. This, at least on my view, is the key difference between game-based learning and gamification. Game-based learning in higher education has been studied quite a bit, but gamification has not.

There is, however, good news on that front, as more educators incorporate game elements into their classrooms and treatments of the overall phenomenon become more systematic (cf. Kapp 2012). Two recent papers come the closest to studying the type of gamification that my project sought to implement. The first, Domínguez et al. (2013), reports the result of studying the

gamification of an e-learning course. The second, de Freitas & de Freitas (2013) is the most similar: it studies the results of structuring an entire course as a game. (And I should note that a similar approach has been taken here at Pepperdine, in Dr. Christopher Heard's Religion 101 course: "World of Biblecraft." See Heard (2013) for a description of the course.) Hopefully as these practices and treatments are more widely disseminated, more instructors will be convinced of the benefits of gamification and motivated to try it in their own courses.

Admittedly, the reaction to gamification has not been entirely positive. For example, Bogost (2011) has described certain attempts at gamification as "exploitationware." Although a full defense of gamification would require a detailed treatment of his criticisms, for now I will simply point out that most of his criticisms have to do with gamification as a "marketing gimmick." In other words, his primary targets are marketing executives who appear to be using game mechanics to manipulate consumers into making additional purchases or being more loyal to a particular brand. And although there is a sense in which gamification in higher education is trying to encourage student behaviors that wouldn't otherwise occur (or at least wouldn't occur to the desired extent), it seems to me that there is a fundamental difference between the type of gamification that Bogost criticizes and the type of gamification that this project is going for. The difference is that students, by virtue of enrolling in a course, have already expressed or implied a desire to learn. Thus, gamifying the course is an attempt to help the students achieve a goal they have already endorsed. The same cannot be said about gamification as a marketing strategy.

This project, then, is designed to contribute to the much-needed and burgeoning research surrounding gamification and its implications for higher education. And my hope is that it will also contribute to the broader ongoing conversation about the use of *technology* in higher education. In fact, one reason for the recent surge of interest in gamification is the increased (and increasing) use of technology in the classroom. Technology has made gamification easier and more accessible than it has ever been before. And of course one of the most important developments in the past five years has been in mobile technology: the increasing availability and capability of smart phones. To my knowledge, nobody (until now) has built a mobile app designed to fully gamify a higher-education classroom. The closest thing I have seen is an app called CreditU, built by two Stanford graduates (and described in Keller 2011), that rewards students for attendance using GPS locations and check-in functionality similar to that of Foursquare. That app incentivizes attendance, but none of the other activities that increase student learning and engagement.

So there are numerous worthwhile questions about how best to use technology in the classroom, and the phenomenon of gamification raises an additional and important subset of such questions. My hope, in what follows, is to take some small steps toward answering some of those questions.

## *3. The competition for the Sophy award*

### *3.1. Implementing the game mechanics*

In preparation for the development of this app, I began testing out the game mechanics in the Spring 2013 semester. I created a competition for the "Sophy" award, which was to be given to the student who accumulated the most Sophy points over the course of the semester. I made it clear that Sophy points were neither equivalent nor transferrable to grade points, but I emphasized that the types of activities worth Sophy points were the types of activities that would be likely to improve their grade in various *indirect* ways. I implemented the competition in three

separate courses: Logic (10 students), Business Ethics (22 students), and Metaphysics (25 students). The list of activities worth Sophy points was as follows:

- "Get acquainted" [i.e., participate in an icebreaker activity on the first day of class] (4 points)
- Attend a full class period (2)
- Make a contribution to class discussion (2)
- Make a 5–10 presentation, on course material, to the class (2)
- Provide a one-page outline of a reading assignment (2)
- Provide detailed feedback on a fellow student's assignment (1)
- Provide an example of Logic/Business Ethics/Metaphysics "in the wild" (1)
- Visit me during office hours (1)
- Incorporate relevant artwork into class discussion (2)
- Incorporate relevant drama or film into class discussion (3)
- Incorporate fiction or poetry into class discussion (3)
- Present reliable and relevant information from a popular-level resource (2)
- Present reliable and relevant information from an unassigned academic resource (4)
- Attend and report on a relevant public or academic lecture (2)
- Attend class dressed up as a famous philosopher (5)

(I should note that I doubt the last activity actually enhances learning; but it was a suggestion from a student so I decided to incorporate it.)

Even though Sophy points do not correspond to grade points, I allowed each student to choose a pseudonym so that they could compete anonymously if they desired to do so. I kept track of Sophy points on a regular basis and entered them into a separate spreadsheet for each class. I then displayed the "leaderboard" at the beginning of every class period. I decided that the award itself should be something tangible, so after the competition was over I gave the winning student in each class a miniature bust of Socrates. The winning point totals were 118 (in Logic), 131 (in Business Ethics), and 136 (in Metaphysics).

This implementation of the Sophy competition seemed to be a success, but I did notice that toward the end of the semester, those who didn't feel that they had a shot at winning tended to give up. So I took steps to keep more students engaged for longer, including adding additional tasks and—perhaps more importantly—displaying the leaderboard on Courses by embedding a chart that updated dynamically with the current standings.

Running the competition via spreadsheet even before the app was built was immensely helpful. Student reaction was almost universally positive, with multiple students engaging in activities that they would not have otherwise. (This was an unintended positive side effect of including the "Dress up as a philosopher" task: compelling evidence of the power of gamification. Even though it was pretty clearly unrelated to philosophy ability or performance, there was at least one student in each class who took advantage of those points. This serves as almost indisputable evidence that gamification, if done right, can encourage students to engage in activities that they otherwise wouldn't engage in.)

### *3.2. Implementing Sophy*

With this experience in mind, I set out to develop the Sophy app. I created a mockup of the screens and interactions using Interface 2 (itself an app for iPhone and iPad) and then generated a pdf that illustrated the organization and flow of the different kinds of user behavior. I used the grant funds to hire two Pepperdine alumni: Jason Parham, a programmer who studied Computer Science; and Ethan Hamilton, a designer who served as the Assistant Design Chair for

Pepperdine's Student Programming Board. Both Jason and Ethan were accomplished practitioners, and had worked together on previous projects.

As Jason, Ethan, and I discussed the development of the app, several guiding principles emerged. I have included a summary of these principles (and their implications for Sophy) below, and I have included annotated screenshots of the app in the Appendix.

*Principle #1: Simplicity*

Given the time constraints and fiscal constraints of this project, we were forced to *simplify* and streamline the app: we had to implement a game layer that included only the most essential functionality, using as few screens as possible. And although this created challenges, it was ultimately a good thing, as it forced us to strive for something—simplicity—that also happens to be one of the characteristics of good design. And this characteristic is closely related to the second guiding principle of the app development.

*Principle #2: Elegance*

Functional simplicity is important, but so is aesthetic simplicity (i.e., *elegance*). Aesthetics are crucially important to app design, as users are very good at recognizing design felicities (and infelicities) even if they might not be able to create those design elements themselves. (And this, I think, is especially true of the digital natives that make up our current student population.) So we knew from the beginning that we wanted a design that was crisp, clean, and elegant. In addition, Jason and Ethan were committed to being cutting edge. In this case, that meant going to great lengths to put together a design that would look good even on iOS 7 (which during the time of development hadn't even been released yet).

*Principle #3: Flexibility*

The third guiding principle was *flexibility*: I wanted this app to be usable in various different contexts, by different faculty members in different disciplines. So we created a framework in which different tasks could be combined and modified in different ways—whether it was for different times in the semester, or for different courses of different sizes in entirely different disciplines. Thus we needed the app to have two different interfaces: one interface for the students who would be completing and submitting tasks, and an administrative interface for professors (or TAs) who would be organizing students into groups, creating tasks, approving submitted tasks, and performing other Sophy-related activities. And here Jason came up with an ingenious idea: Whether or not the regular interface or the admin interface showed up would depend on two things: 1) whether the user had admin access, and 2) how large the browser window was. Thus, an admin using Sophy on a mobile phone would always get the regular interface (whether or not his or her phone was in landscape mode); but an admin using Sophy on a tablet would get the regular interface in portrait mode and the admin interface in landscape mode. (And desktop users with admin access would get the admin interface by default, but could shrink their browser window to force the regular interface.)

*Principle #4: Mobile first*

Since this project was designed as a mobile web app, there were certain native app functionalities (such as push notifications) that simply weren't available. However, our goal in developing the app was to make it the kind of thing that utilized as many mobile device features as possible—to make it something at home on a smartphone or tablet, rather than simply a web site that could fit on a small screen. This meant prioritizing certain user interface features that made Sophy, even though it was only a web app, look and feel like a native app. Two examples should serve to illustrate how this strategy played out. First, in addition to users being able to create their own pseudonym, we wanted users to be able to upload their own avatars. Research (cf. Reeves & Read 2013)) has shown the importance of self-representation with avatars, and it seems clear that the

ability to take pictures is one of the groundbreaking functionalities of the smartphone. Second, Jason was able to implement a "swipe" style of navigation that very closely approximated a native app experience.

## *4. Results*

The completed product was delivered, as promised, at the end of August 2013. However, I decided to wait until Week 5 to unveil the official Sophy app. This would allow a full 10-week competition, but also would give me a month's worth of control data so that I could measure increased engagement within a given semester. I introduced the app to both of my classes—Logic (7 students) and Epistemology (15 students)—and used two primary metrics to measure engagement: participation in discussion forums on Courses and a survey administered at the end of the competition.

### *4.1. Metric #1: Participation in discussion forums on Courses*

One of the tasks worth Sophy points is labeled "Logic [or Epistemology] in the wild." The idea behind this activity is that, ideally, each student will be looking for ways to take what he or she has learned in the classroom and apply it to different contexts. Completing this task required posting something to an "in the wild" Forum that I created on Courses for that purpose. My hypothesis was that students would go online and post something in the Forum more often after they had access to Sophy. The results in this area were mixed, however, with a significant increase in Forum participation on the part of my Logic students, but a slight decrease on the part of my Epistemology students:

| | *Without Sophy (Weeks 1–4)* | | *With Sophy (Weeks 5–14)* | |
|---|---|---|---|---|
| | *Number of posts* | *Posts per week* | *Number of posts* | *Posts per week* |
| *Logic* | 1 | 0.25 | 11 | 1.1 |
| *Epistemology* | 5 | 1.25 | 10 | 1 |

*Table 1. Discussion forum participation*

(However, there is reason to think that the results in Epistemology were somewhat anomalous. For example, one Epistemology student posted nothing before Sophy but then posted six items after the competition began. So there is some anecdotal evidence for a positive engagement effect on some students.)

### *4.2. Metric #2: Post-Sophy survey*

I also administered a survey at the end of the semester to measure student attitudes about the app and its effect on their engagement in the course. The survey consisted of six questions:

1. On a scale of 1 to 5 (with 1 being worst and 5 being best), how would you rate Sophy's look and feel?
2. On a scale of 1 to 5, how would you rate Sophy's usability?
3. On a scale of 1 to 5, how would you rate the overall Sophy experience?

4. On a scale of 1 ("Not at all engaged") to 5 ("Extremely engaged"), how engaged were you in this class?
5. On a scale of 1 ("Made me less engaged") to 5 ("Made me much more engaged"), how did the Sophy app affect your engagement?
6. Do you have any additional comments about Sophy?

The results of the Logic survey are listed in Table 2. The number in each cell corresponds to the number of responses per question for each point on the scale. (So, for example, three students responded with a '4' on Question 1.)

| | *1* | *2* | *3* | *4* | *5* | *Average* |
|---|---|---|---|---|---|---|
| *Question 1* | | | 1 | 3 | 2 | 4.17 |
| *Question 2* | | | 2 | 2 | 2 | 4.00 |
| *Question 3* | | 1 | 1 | 1 | 2 | 3.80 |
| *Question 4* | | | 1 | 2 | 4 | 4.36 |
| *Question 5* | | 1 | 2 | 2 | 1 | 3.50 |

*Table 2. Survey results from my Logic course.*

The results of the Epistemology survey are listed in Table 3:

| | *1* | *2* | *3* | *4* | *5* | *Average* |
|---|---|---|---|---|---|---|
| *Question 1* | | | 1 | 5 | 4 | 4.23 |
| *Question 2* | | | | 5 | 5 | 4.45 |
| *Question 3* | | | 1 | 3 | 6 | 4.45 |
| *Question 4* | | | 2 | 4 | 5 | 4.25 |
| *Question 5* | | | 6 | 3 | 2 | 3.60 |

*Table 3. Survey results from my Epistemology course.*

Combining the results from both surveys produces the following overall averages:

- Question 1 (Sophy's look and feel): 4.20
- Question 2 (Sophy's usability): 4.28
- Question 3 (the overall Sophy experience): 4.23
- Question 4 (Engagement in the course): 4.29
- Question 5 (Sophy's affect on engagement): 3.56

Although these findings aren't dramatic, they do suggest some positive results from implementing the Sophy. For example, three of the seven Logic respondents, and five of the 11 Epistemology respondents, said that Sophy made them more engaged. And out of both sets of respondents, only one student said that Sophy resulted in less engagement. There were also several promising comments provided on the survey. For example, one student (who had participated in a previous version of the competition) said, "I really enjoyed the new Sophy. It

increased my engagement in the class, and made the class as a whole better." Another student reported benefiting from attending a Dean's Lecture and a Convo event, both of which were worth Sophy points. Sophy was also described as providing "nice educational engagement."

Comments on the design of the app itself were highly complimentary. It was described as "crisp," "clean and functional," and "simple and clear." (Although one respondent did think that the design might be a little too uninteresting, with too much white.) There was also praise for how the app looked on a mobile device.

The usability comments were mostly positive, although there were some complaints about how the messages feature was implemented: in particular, the complaint was that there is currently no way to mark all messages as read. There were also some complaints about response time, which I suspect is a result of using something that looks like a native app but behaves like a web site. In terms of overall experience (Question 3), Sophy was described as "fun and competitive" and "highly recommended." One respondent went farther and said that Sophy "really makes [Epistemology] unique and more enjoyable compared to other classes."

As I was compiling the written responses to the engagement questions (Questions 4 and 5), I noticed several comments that were quite encouraging. I will quote each one verbatim, in its entirety (except for corrected grammar and typos):

- Created an extra motivation to become involved in extracurricular activities such as Veritas Forum and Philosophy Club, along with motivating me to continuously search for "Epistemology in the Wild."
- I usually do whatever I can do for the class. So I did not spend too much extra time on Sophy. But Sophy does encourage me to pay more attention to Logic in the wild.
- I think, were circumstances different and I had more time/less migraines, I think Sophy would have affected my engagement a great deal more. Competition does wonders.
- I would say I was engaged about a 4 in metaphysics, but this new Sophy system definitely increased my interest. In past classes, we haven't had as much control over Sophy, but this gives us almost live feedback on scores, and offers all of the possible point opportunities on one screen. Most importantly, the live leader board makes the class more interesting for everyone, because it makes a friendly competition amongst classmates and friends!
- Honestly, the Sophy doesn't effect my engagement in the material, but it does make class fun. I would like to see the Sophy in the future. And perhaps one day I will do some of the extra tasks (this semester, every extra task/event conflicted with either my rugby or work schedule).
- Made me want to do the practice problems.
- I would have been actively engaged even without Sophy; but it made the engagement more fun. It probably also ensured that I never missed class, whereas without Sophy I might have missed 1–2 times.
- Similar to the previous comment. But as the end of the semester [got closer], I engaged more because [I didn't] want to lose at the last minute.

The feedback, however, was not universally positive, as evidenced by the following comments (again, each one is included verbatim and in its entirety). After the list of comments, I will provide a brief discussion of their implications for the overall project.

- Naturally I didn't participate much in Sophy and so don't have a particularly authoritative opinion. However, I do feel I would have participated more if there hadn't been people taking it as seriously as they did.
- I viewed Sophy as just one more thing to do (kind of pointless for me). I wasn't motivated by it.

- The points are skewed. Attendance & practice problems / outside activities should get more points, not participation. ;)
- Didn't do Sophy because I wasn't sure that I would like the prize and I would have to beat everyone else to get it. Also if you're not in it at the beginning, then you're pretty much out of it for the whole semester.
- [My answer to Question 5 was] only below 3 because the time spent on Sophy might have been able to be used in more engaging discussion on course material.
- I still participated in the tasks that were given for points. I just didn't submit it online.

Even in light of those negative comments, the overall trend is encouraging. In fact, I think most of the negative comments are easily addressed. For example, there were complaints about skewed point values, and also about the difficulty of catching up to others who have taken the competition more seriously. Point values can easily be tweaked, and if tasks are worth more toward the end of the semester then that should allow more students to remain in the hunt for the prize. (Both of these changes are ones that I will be implementing in the Spring 2014 semester.) Also, the fact that some students would have participated more if they hadn't been out of the competition presupposes that there are other students who were taking Sophy seriously—which strikes me as a net positive (especially since there are straightforward ways of broadening the competition so that more students are in the running). And of course there are some students for whom Sophy won't provide any increased motivation or engagement—but, as noted above, only one student described the app as having a *negative* effect on engagement.

## *5. Summary and conclusion*

Gamification and mobile technology are two innovations that share several common features. Neither was designed with higher education in mind, but both contain great potential for enhancing and improving what goes on both inside and outside the college classroom. However—despite this potential—they have not been used, much less studied, as much as they need to be. Thus I view this project as taking one small step toward realizing the potential of these technologies as they pertain to higher education. I will conclude with a few general reflections and suggestions for future work.

The first general point is that, based on the feedback, the app seems to have been precisely what it needed to be. It needed to have sufficient functionality to provide a robust game layer, but it also needed to be well designed so that the user interface would facilitate, rather than detract from, the game elements. Thus I think I can be fairly confident that Sophy provided the exact type of experience needed to test the effects of gamification on engagement (and thus on student learning).

Moreover, although the current data set is limited, I think the signs are encouraging enough to warrant further research. And that's precisely what I intend to do: I will use the Sophy app in my Spring 2014 courses, with a few of the minor modifications mentioned above. I will keep track of discussion forum participation and other measures of engagement, and I will again administer the survey at the end of the competition. In addition, I will seek out other faculty members in other disciplines who might be willing to test the app out in their own courses. And if the results continue to be positive, perhaps it will soon be time for Sophy 2.0.

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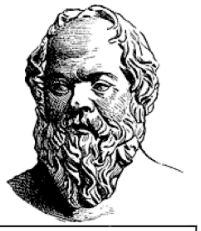
# Appendix: Screenshots

*Pepperdine University* *Spring 2013*

## The Sophy



The "Sophy" is the award given to the student who accumulates the most Sophy points over the course of the semester. (Note that these are not grade points, and will not affect your grade.[5]) Points are awarded for completing achievements from the list below. I will keep track of points on a Leaderboard, which will use pseudonyms, not real names, and which I will update and display on a regular basis.

| **Activity**[6] | **Points**[7] |
|---|---|
| Get acquainted[8] | 4 |
| Attend a (full) class period | 2 |
| Make a contribution to class discussion | 2 |
| Present some of the course material (for 5–10 min) | 2 |
| Provide a one-page outline of an assigned reading | 2 |
| Complete a full set of practice problems in Aplia | 1 |
| Provide an example of Logic "in the wild." | 1 |
| Visit me in my office | 1 |
| Join me for lunch (paid for by Pepperdine!) | 1 |
| Incorporate visual artwork into class discussion | 2 |
| Incorporate drama or film into class discussion | 3 |
| Incorporate fiction or poetry into class discussion | 3 |
| Present reliable and relevant information from popular-level resource (online or offline) | 2 |
| Present reliable and relevant (unassigned) information from a respected academic source | 4 |
| Attend (and report on) a relevant public or academic lecture | 2 |
| Dress up as a famous philosopher for class | 5 |
| Create a philosophically relevant and informative video | 5–10 |

[5] These points are not in any way related to your course grade, but doing the things that earn you points will almost certainly improve your grade *indirectly*.

[6] I'm always open to suggestions for additional activities that will earn Sophy points.

[7] I will arbitrate in case there are disputes about whether an achievement has been "completed."

[8] This will simply involve filling out a short (index card) personal survey on the first day of class.

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*Figure 1. The handout for the "offline" (Spring 2013) version of the competition for the Sophy award.*

*Figure 2. The bookmark icon for iOS.*

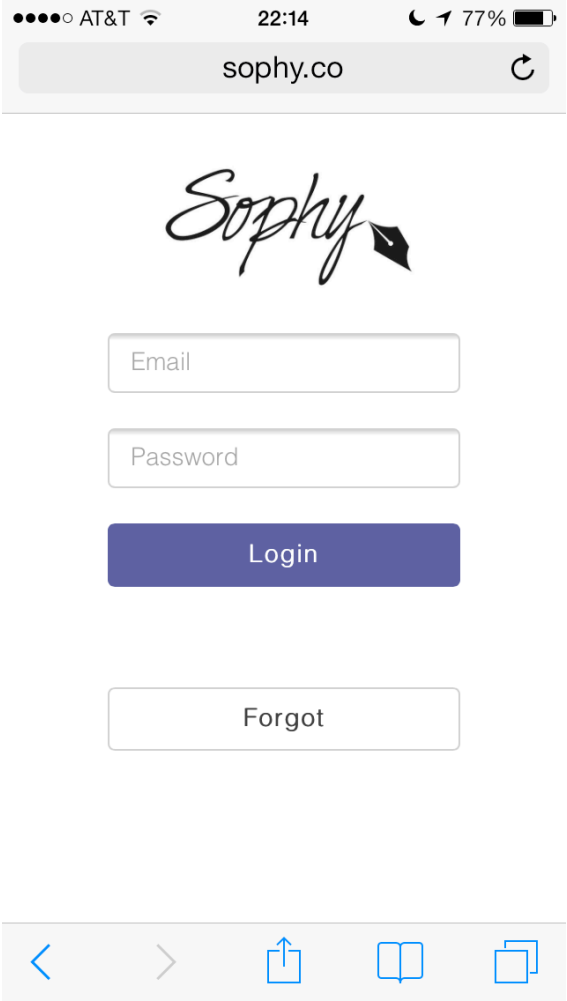


*Figure 3. The login screen.*

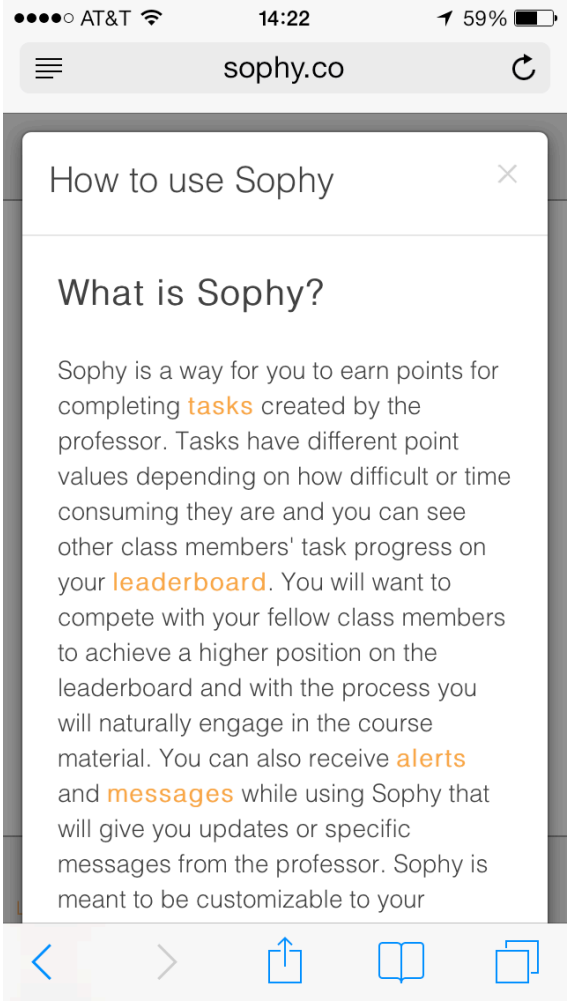


*Figure 4. The tutorial that displays upon first login.*

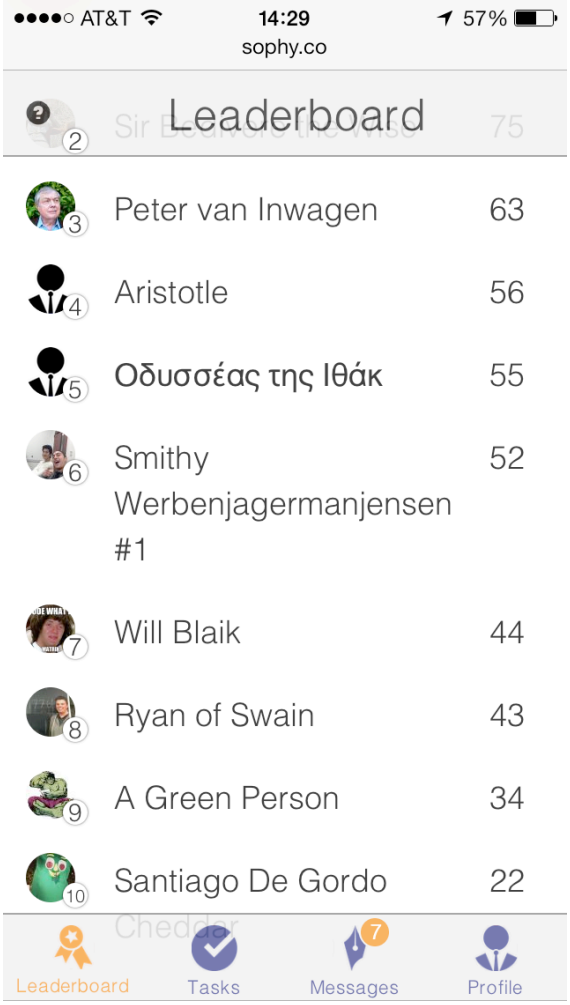


*Figure 5. The leaderboard screen (including both default and user-generated avatars).*

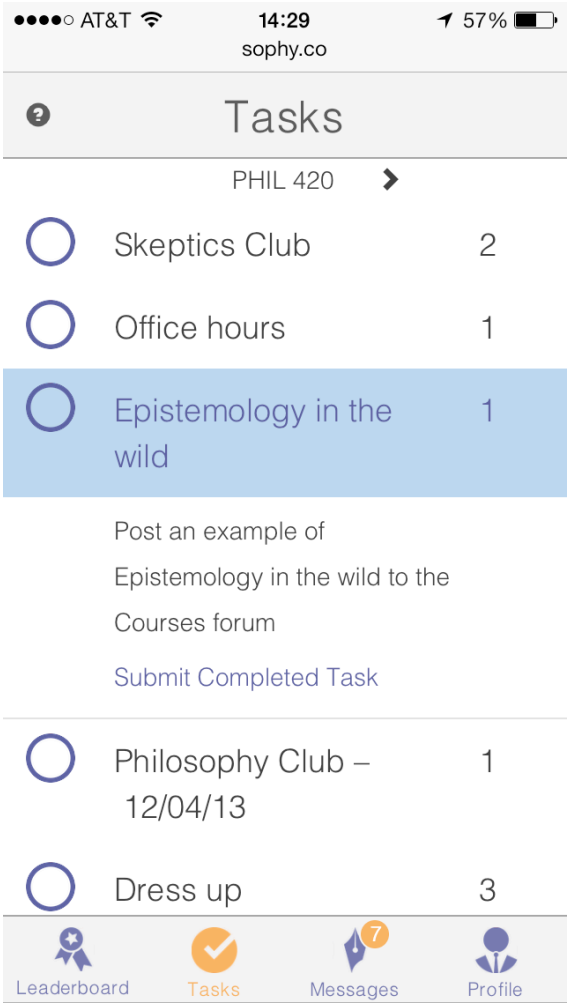


*Figure 6. The tasks screen (including one task that has been expanded with a tap).*

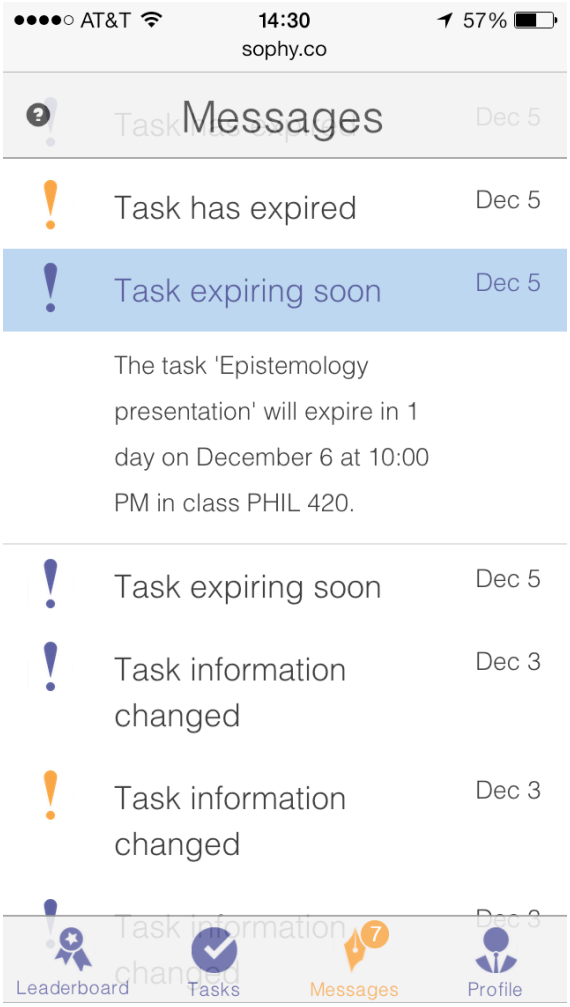


*Figure 7. The messages screen (including one message that has been expanded with a tap). Unread messages have an orange icon; after they're read it changes color.*

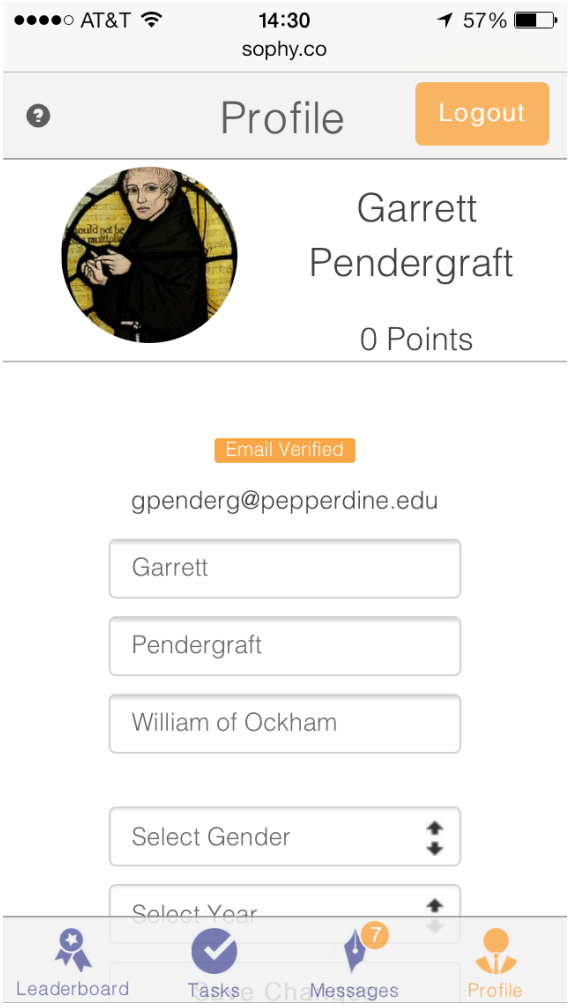


*Figure 8a. First shot of the profile screen.*

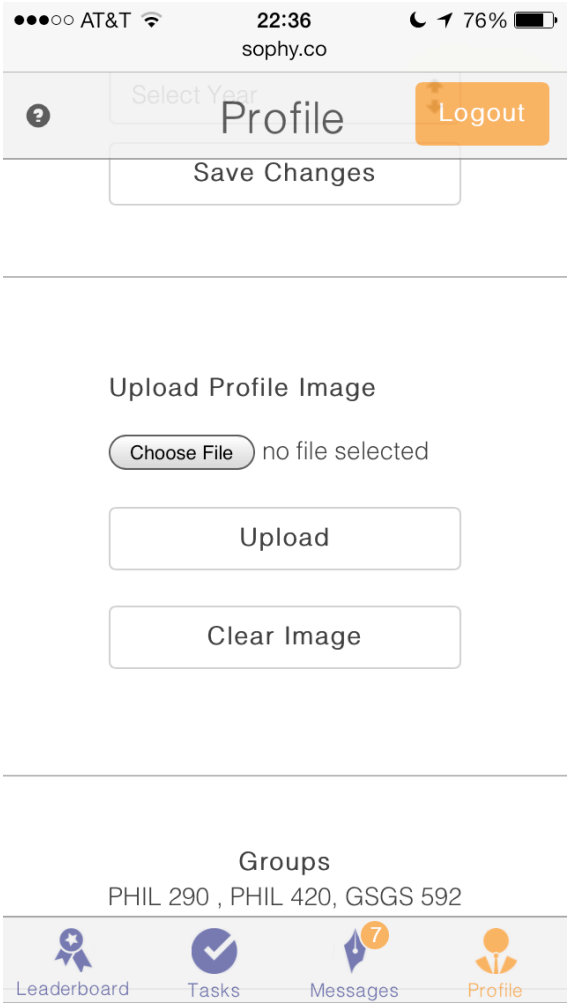


*Figure 8b. Second shot of the profile screen. (Although not pictured, the user can also show the tutorial and change his or her password.)*

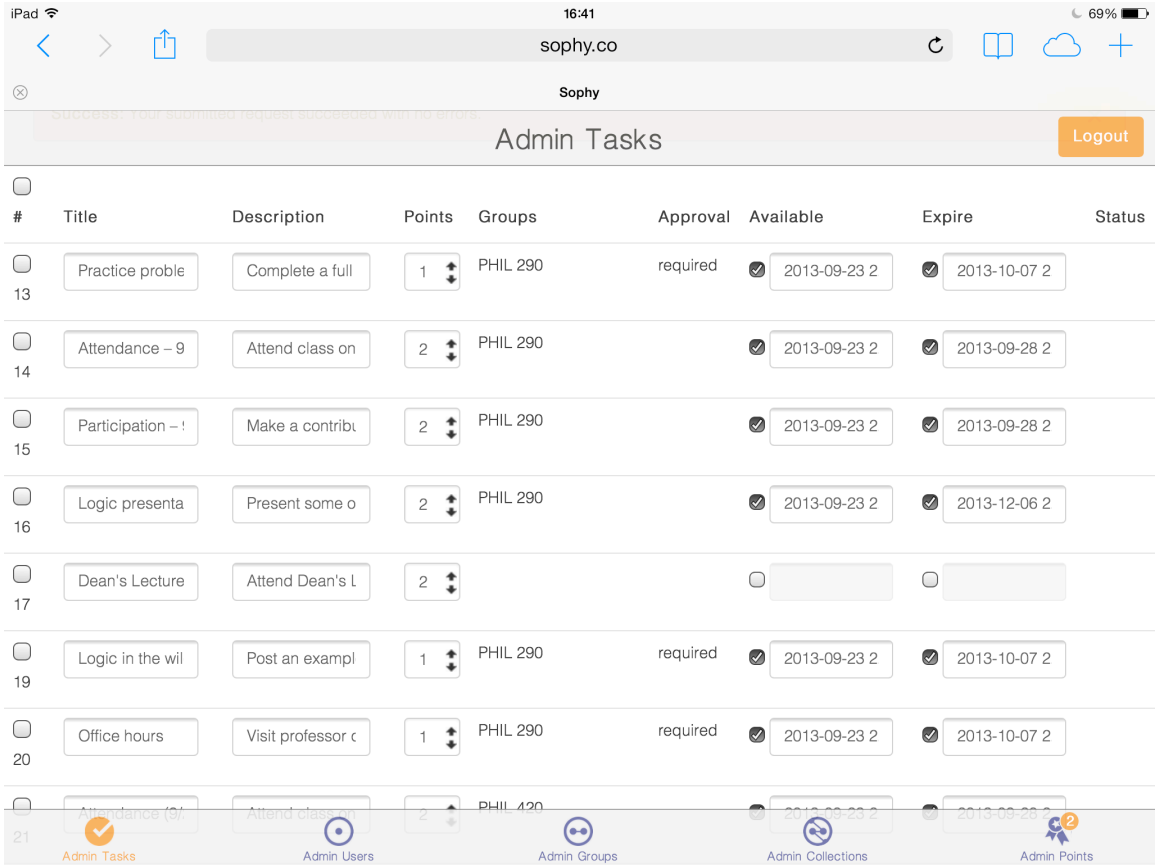


*Figure 9. The "Admin Tasks" screen (captured on an iPad in landscape mode)*

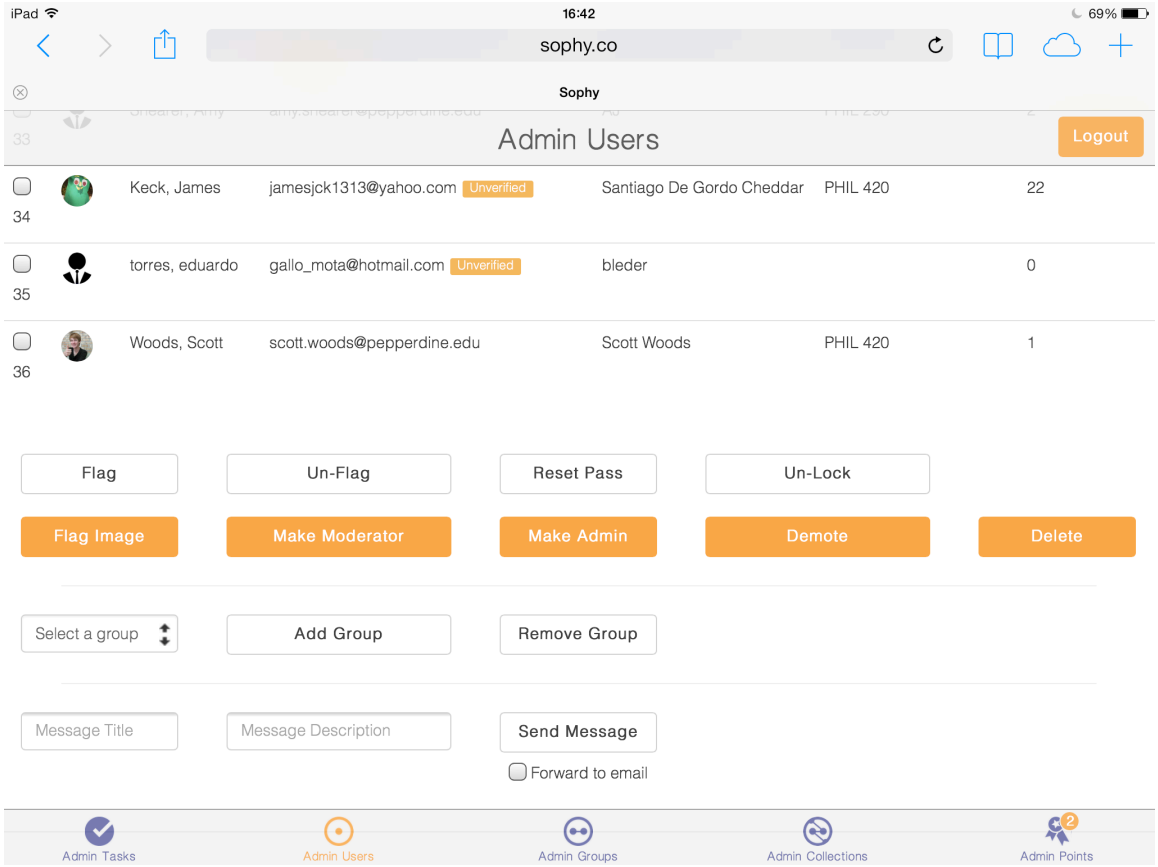


*Figure 10. The admin users screen.*

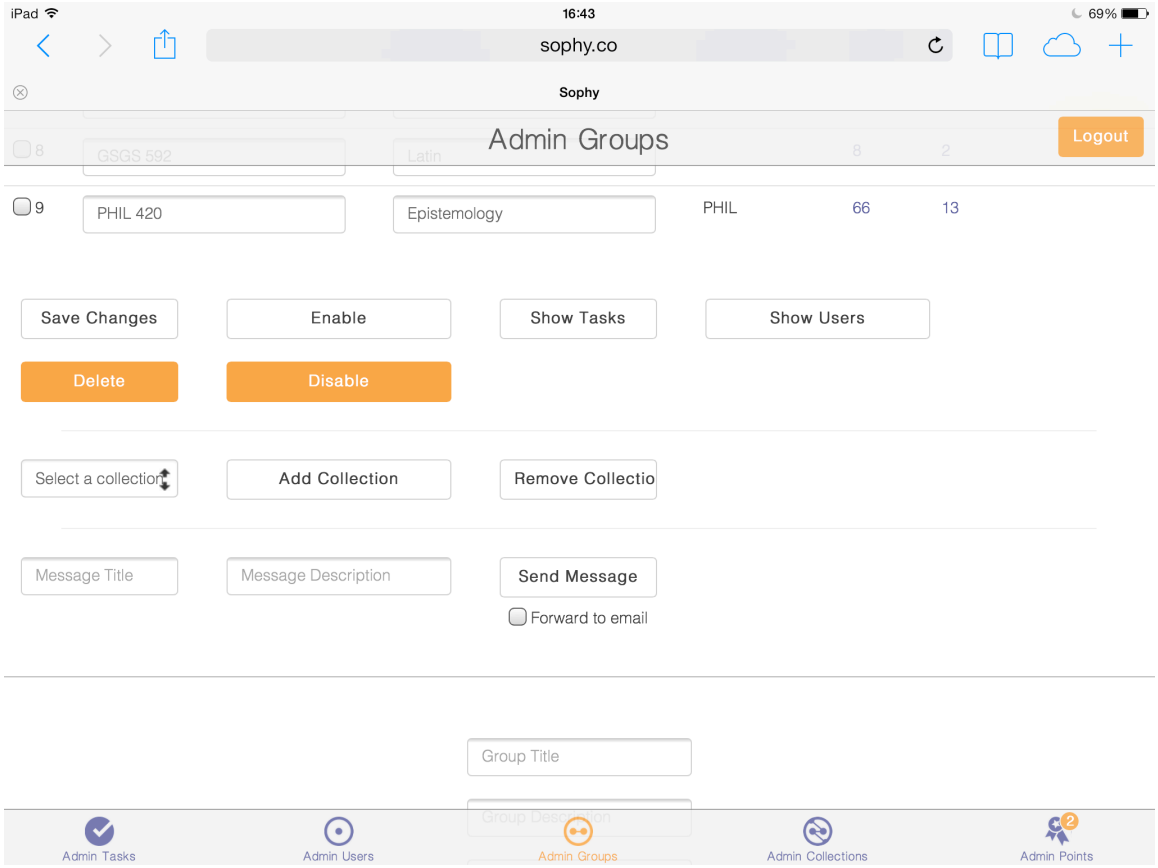


*Figure 11. The admin groups screen. (This is where the admin can add students to groups [or remove them from groups] corresponding to sections, courses, disciplines, etc. The admin* collections *screen [not pictured] is where the admin can organize groups. For example, a professor teaching Great Books course and two Latin courses would create three groups and two collections.)*

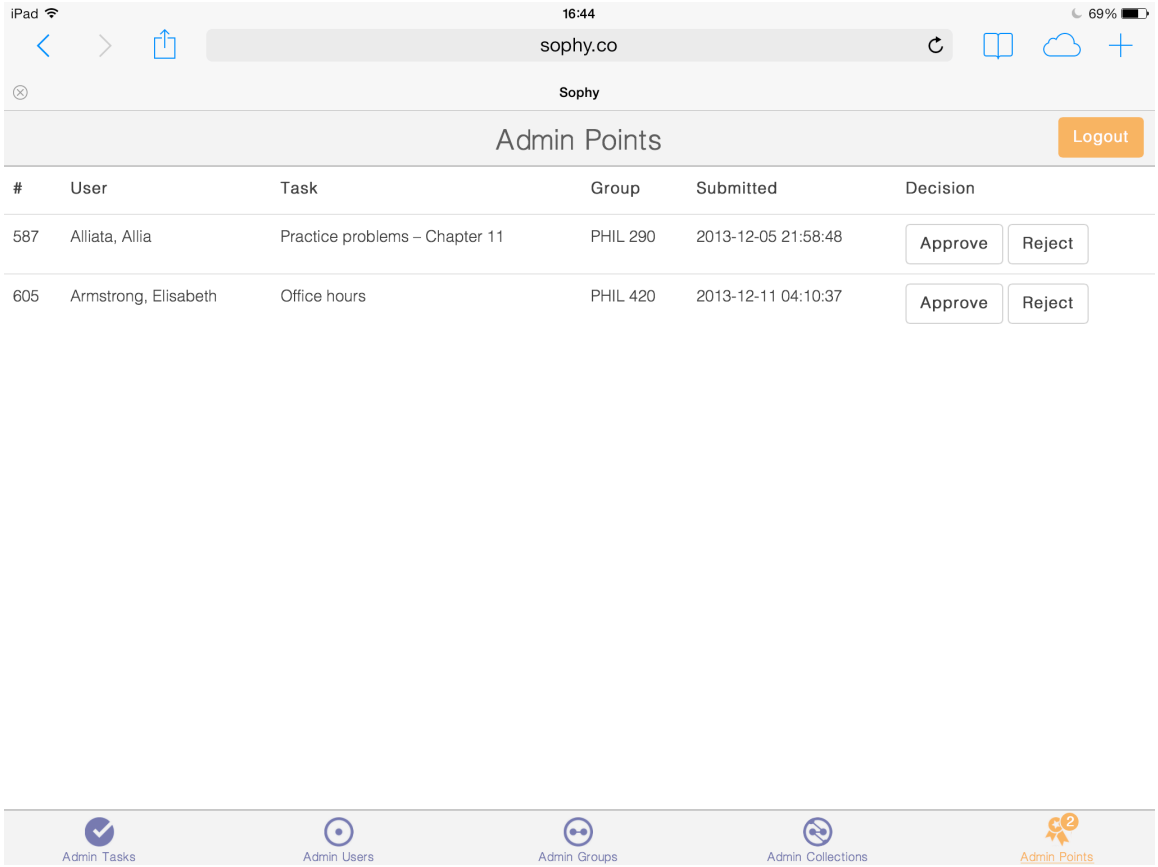


*Figure 12. The admin points screen. This is where the admin can approve or deny points for tasks that require approval.*