ELRC: Sprint 4 Retrospective (4/5 - 4/21)

1. Team Roles

Customer

Dr. Beverly Irby Dr. Matthew Etchells

Product Owner

Jacob Mathes

Scrum Master

Chengyuan Qian

Developers

Yi-Ting Lee Minseo Park

Andres Santiago Jacob Mathes

Brandon Nguyen Chengyuan Qian

1.1. Contributions

Name	Points	Percent Share
Brandon Nguyen	4	20%
Yi-Ting Lee	3	12%
Chengyuan Qian	6(+3)	24%
Andres Santiago	1	4%
Jacob Mathes	6(+3)	24%
Minseo Park	4	16%

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2. Project Summary

This project is the start of a journey to bring the Synergistic Leadership Theory, a modern take of leadership theory, into a practical and interactive web application. The mission is to develop a platform that not only educates on the theory but also allows users to access leadership effectiveness through The Organization and Leadership Effectiveness Inventory (OLEI).

Stakeholders include Drs. Beverly Irby and Matthew Etchells, alongside a team of students committed to transcending traditional, male-dominant leadership paradigms. The platform will feature an animated, interactive tetrahedral model representing the theory's core factors: Leadership Behaviors, Organizational Structure, External Forces, and Attitudes, Values, and Beliefs. This tool will facilitate a deeper understanding of leadership dynamics but also generate personalized leadership style analysis.

3. Sprint Achievements & Backlog

3.1. Goal

This sprint is dedicated to advancing the development of our web page that centers on synergistic leadership theory. With the foundational models and interfaces for surveys and results already established, our primary focus will shift towards the analytical phase. We will concentrate on interpreting the survey data based on frameworks provided by the client and enhancing the visual representation of these analyses.

Key tasks include:

- Analyzing Survey Results: Implement algorithms to compare and compute survey outcomes dynamically, adjusting calculations as the roles of respondents vary. This will improve the accuracy and relevance of the insights derived from the data.
- Visual Enhancements: Develop and integrate diverse tetrahedron models to visually represent analytical findings, facilitating a clearer understanding of complex data.
- Code Refinement: Commit to elevating the quality of our software by debugging, expanding our test suite, boosting test coverage, and minimizing code smells for a more robust and maintainable system.

By the end of this sprint, we aim to have a more interactive and insightful web platform that not only meets but exceeds client expectations in depicting leadership dynamics.

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3.2. Achievements

We successfully met our sprint goals, enhancing the web platform focused on synergistic leadership theory. Our team excelled in refining the analysis of survey results, implementing dynamic algorithms that adjust based on respondent roles, thereby enriching the data's relevance and accuracy. We also advanced the visual presentation by integrating sophisticated tetrahedron models, which now effectively illustrate complex analytical results. Additionally, we made significant strides in code quality—debugging, expanding our testing framework, and improving test coverage have all contributed to a more robust and maintainable system. This sprint has not only fulfilled but also exceeded client expectations, setting a high standard for future development phases.

3.3. Selected User Stories

- Feature 21: Survey Profile Roles: Jacob Mathes
  Point: 1
  [As a] survey respondent,
  [So that] I can answer questions based on my position,
  [I want to] save my position in the user profile.

- Feature 22: Role-Based Questions: Jacob Mathes
  Point: 1
  [As a] survey respondent,
  [So that] I can evaluate the principal from my perspective,
  [I want to] answer questions based on my relative role to the principal.

- Feature 23: Average Supervisee (teachers) survey results: Yi-Ting Lee
  Point: 1
  [As a] principal who has taken the survey,
  [So that] I can compare my result to the overall result from teachers,
  [I want to] calculate an average result of teachers' responses.

- Feature 24: Show Survey Result Comparison: Yi-Ting Lee
  Point: 2
  [As a] principal who has taken the survey,
  [So that] I can see my leadership style matches the environment.
  [I want to] see the comparison of the survey results against my supervisor and supervisees in three columns.

- Feature 25: Bulged Tetrahedron Models: Chengyuan Qian
  Point: 2
  [As a] principal who has taken the survey,

[So that] I can have a clear and intuitive understanding of my leadership style with the synergistic leadership theory,
[I want to] have different bulged tetrahedron models to illustrate the survey results.

- Feature 26: Analyze the survey results: Jacob Mathes Brandon Nguyen
  Point: 3
  [As a] principal who has taken the survey,
  [So that] I evaluate my leadership style according to the synergistic leadership theory.
  [I want to] analyze the matches and mismatches between my survey results and my supervisor and supervisees' results, and visualize them by showing two tetrahedrons and coloring the table cells.

- Feature 27: Accessibility Features: Brandon Nguyen
  Point: 3
  [As a] principal who has taken the survey,
  [So that] I can see the survey results on browsers that do not support JavaScript,
  [I want to] have the tetrahedron visualization to be compatible with browsers that do not support JavaScript.

- Feature 28: Invitation with Login routing Minseo Park
  Point: 3
  [As a] invited survey respondent,
  [So that] I can create my account that is linked to the inviter,
  [I want to] create an account from the invitation link.

- Feature 29: Cannot view result if it is not yours Chengyuan Qian
  Point: 1
  [As a] survey respondent,
  [So that] my privacy is protected,
  [I want] other unrelated survey respondents not to see my survey results.

- Polishing codes: Andres Santiago Chengyuan Qian
  Point: 3
  fixing bugs, adding more tests, improving test coverage, and reducing code smells.

3.4. Backlog

We have no remaining user stories in our backlog.

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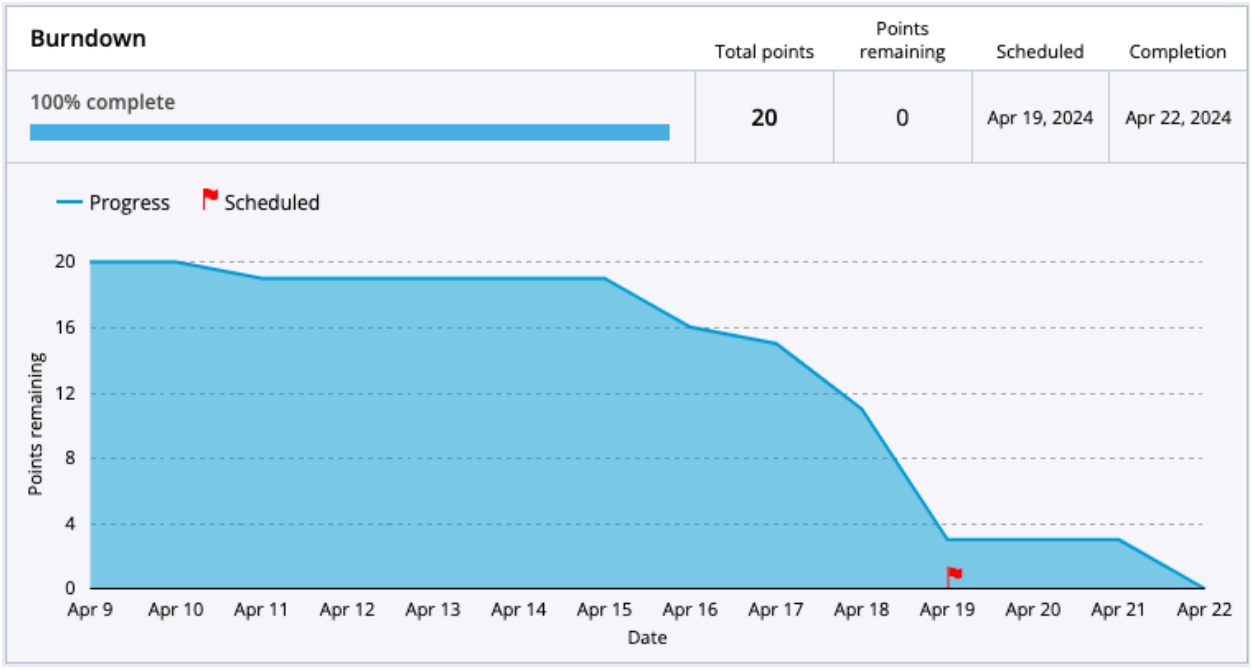
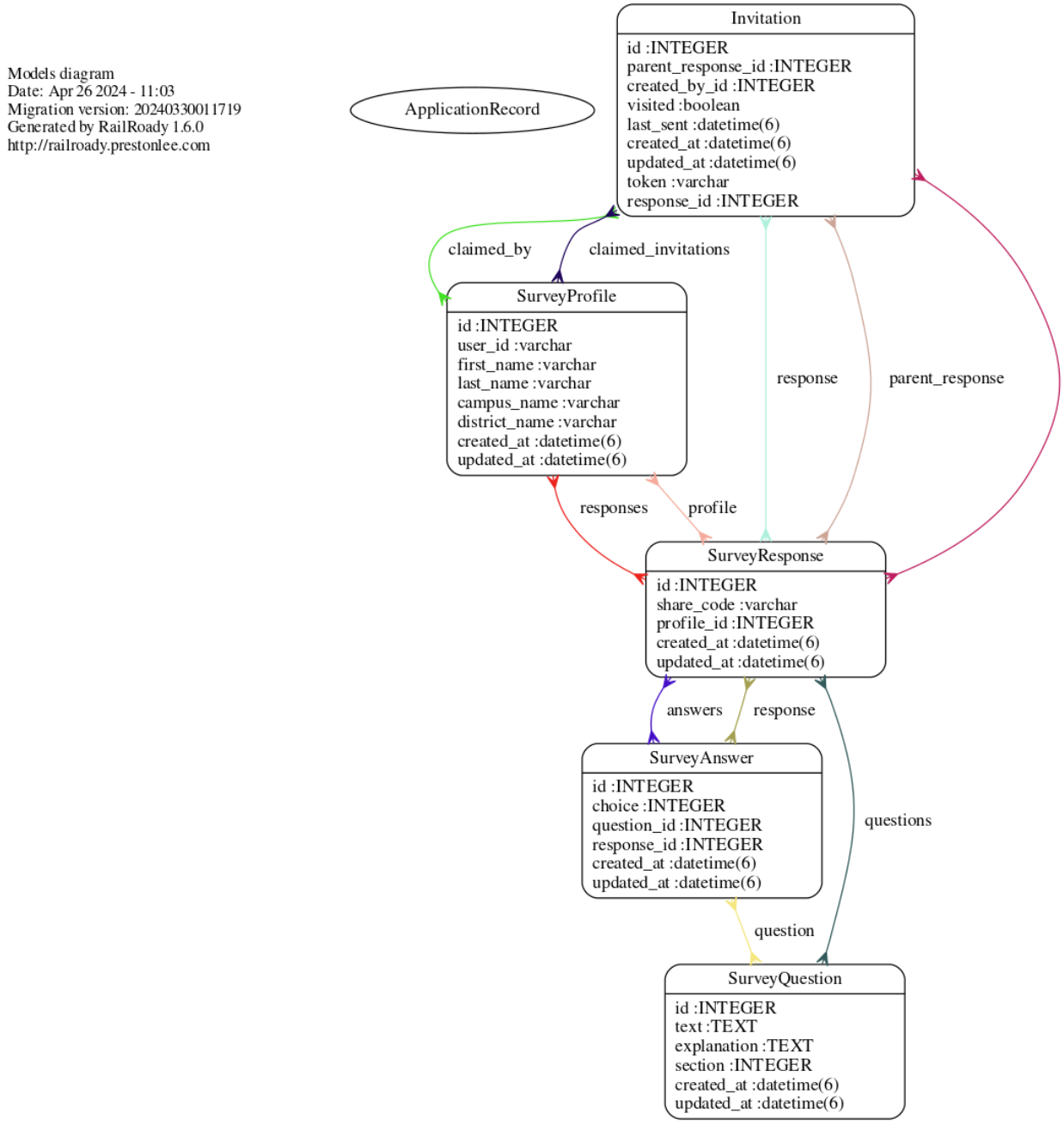
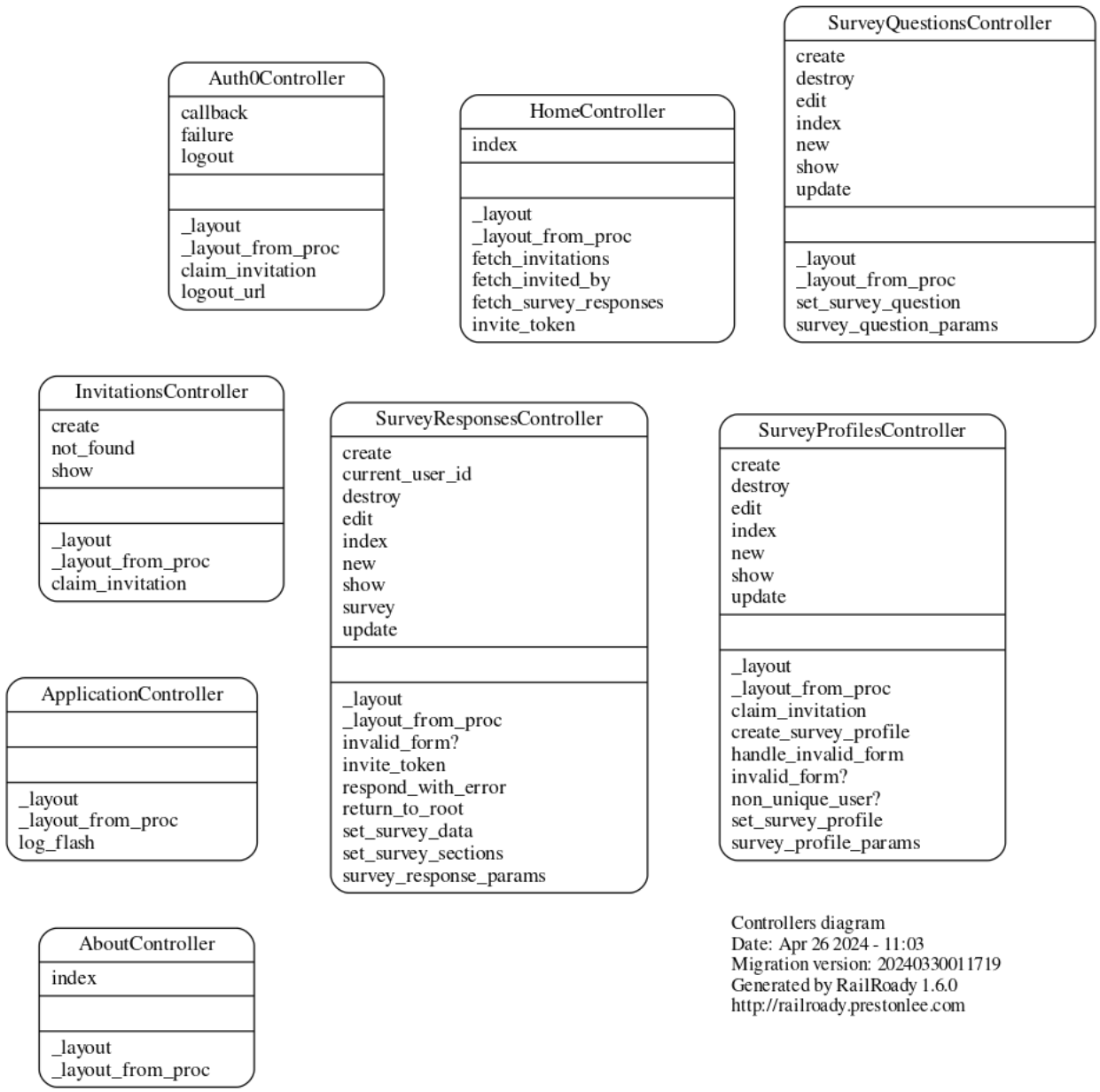
3.5. Burndown



4. Design Diagrams



Design Diagram 1: A Complete Model Relationship



Design Diagram 2: Controller Definitions

5. Documentation of Changes

We have implemented significant changes to the survey response controller design. Previously, pagination functionality was integrated by creating new views and controller actions. In this sprint, we have refactored both the controller and views to adhere to Rails conventions more closely.

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The development of the invitation feature is now complete. This feature links different survey responses and survey profiles through invitation instances, enhancing the association capabilities of our system.

Furthermore, we have introduced role-based survey result analysis into the application. The design of the survey result analysis page has been updated to align with the client's specifications. It now features a table for comparing survey results and employs tetrahedron models to visually represent these results.

6. Code Quality Evaluations & BDD/TDD Review

SimpleCov reports 95.36% percentage coverage from RSpec and Cucumber tests.

Code climate reports 26 total issues - 10 of which are duplications, and the majority of the rest are issues that will not be fixed (i.e. long logic blocks in javascript 3D model rendering).

At the end of sprint 4, Code climate reports that we have an ‘A’ maintainability rating with 184 files and a technical debt of 6 hours.

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```
p34t0s@jacobDesk:~/CSCE606work/project/rails_root$ bundle exec cucumber -f summary
Establish Project Data Models
  Invalid model attributes ✓
  Valid model attributes ✓

Data Submission
  Not logged in ✓
  Not create user profile ✓
  See Next button ✓
  See Save button ✓
  See Previous button ✓
  See Submit button ✓
  See Submit button ✓
  Analysis displays correct values ✓
  Analysis displays tetrahedron ✓

Development Environment Setup
  Verify database connection ✓

Initial UI Design
  Verify survey profile page ✓
  Verify survey form page ✓
  Verify survey qustions ✓
  Verify explanation on survey_responses page /survey_responses/1
✓

Invitation
  User finishes survey and creates an invitation ✓
  Generate unique invitation URL ✓
  User tries to visit an alive invitation link ✓
  User tries to visit an expired invitation link ✓
  Logged in user visits the link and claims the invitation ✓
  Non-logged in user visits the link and is redirected to external auth provider ✓
  Non-logged in user signs up, returns from external auth provider within 15 minutes and claims the invitation ✓
  Non-logged in user logs in, returns and claims the invitation ✓
  User tries hard but misses the 15-minute window ✓
  People join and commence an invitation orgy ✓

Survey Profile Creation upon successful OAuth login
  User logs in and creates survey profile ✓
  User that has already created survey profile logs in ✓

Reworked Project Data Models
  Invalid model attributes ✓
  Valid model attributes ✓

Query Survey information
   ✓
   ✓

Specific Survey Questions Rendered based on User Role.
  User logs in for the first time and takes survey as a principal ✓
  User logs in for the first time and takes survey as a teacher ✓
  User logs in for the first time and takes survey as a superintendent ✓

Theory Exploration
  Verify about page rendering ✓
  Verify tetrahedron rendering ✓

37 scenarios (37 passed)
234 steps (234 passed)
36m6.977s
JSON Coverage report generated for features, specs to /home/p34t0s/CSCE606work/project/rails_root/coverage.         493 / 517 LOC (95.36%) covered.
Coverage report generated for features, specs to /home/p34t0s/CSCE606work/project/rails_root/coverage. 493 / 517 LOC (95.36%) covered.
p34t0s@jacobDesk:~/CSCE606work/project/rails_root$ bundle exec rspec
..............................................................................................................................................

Finished in 3.01 seconds (files took 4.66 seconds to load)
146 examples, 0 failures

JSON Coverage report generated for features, specs to /home/p34t0s/CSCE606work/project/rails_root/coverage.         493 / 517 LOC (95.36%) covered.
Coverage report generated for features, specs to /home/p34t0s/CSCE606work/project/rails_root/coverage. 493 / 517 LOC (95.36%) covered.
```

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Breakdown

184 FILES

MAINTAINABILITY

TEST COVERAGE

Codebase summary

MAINTAINABILITY

A 6 hrs

TEST COVERAGE

A 95%

Repository stats

CODE SMELLS	DUPLICATION	OTHER ISSUES
1	10	2

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7. Customer Meetings Summary

Meeting 1: Zoom, 2024-04-2 16:00 CST

Summary

- User Profile needs to include job position / role
- Part X (in survey) - Could render different questions based on role (Role-based questions).
- Chen suggests sending invite links , and in that process, the subject selects if they are sending to supervisors or subordinates.
- Instead of superior / subordinate, use supervisor - supervisee
- Correlation matrix - if a question is answered, points are added to corresponding categories
- For "360" responses - how does tetrahedron get updated when supervisor finishes survey on supervisee?
- For now - Focus on the bulging between "360" responses on an individual - show where the supervisor disagrees with a supervisee
- To show alignment with different groups within an organization, average the responses from each group (teachers, principal) see how you are aligned with each group.
- Add fields to add 'why' they feel they are misaligned / aligned with different points on survey
- Principal gets responses - principal has two tetrahedrons - superintendents & teachers don’t see tetrahedrons. (tet 1 = p + s , tet2 = p + t_avg)
- It's all about the principal - the principal is the only one answering in first person.
- Include metrics (how aligned?) to show the degree of bulge.

Feedback

Some really good discussion in this last meeting. The sponsor has backed off the need for us to do individual analysis (correlation matrix) for each individual response, and has pivoted to more analyzing the degree of alignment with others within the same organization. This will mean we need to look at implementing more detailed user profiles that include user roles, and implementing phrasings of questions for different roles going forward.

Meeting 2: Zoom, 2024-04-11 16:00 CST

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Summary

- DISCUSSING NEXT STEPS:
- Irby's next steps - (next semester) :
    - Analyze the differences - have a reporting on the actual bulging points. Basically a write up of their differences.
- Chatbot reporting feature - to add a human element to the narrative.
- Steps now:
    - Add OLEI Title to the homepage to make it more clear which page is the home page.
    - Ask Ritchey if Etchells can access to edit the frontend to make wording changes to the survey itself (because they want to edit their proprietary survey questions). Needs to be some capacity where they can modify the UI.

Feedback

Want to demo the survey result analysis next thursday (4/18)

Meeting 3: Zoom, 2024-04-18 15:30 CST

Summary

- Live demonstration of analysis feature:
- Sponsor was pleased with the result analysis

Feedback

For the final report - possibly write the final report in the style of an educational research paper (i.e., designing instruments). We can talk to Ritchey and have him communicate with sponsors.

8. Links

GitHub	https://github.com/tamu-edu-students/csce606-ELRC-Synergistic-Leadership-Theory
Pivotal Tracker	https://www.pivotaltracker.com/n/projects/2690137
Slack	https://app.slack.com/client/T06GRHECJEM/C06GY2R74KX

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Live Deployment	https://elrc-app-dfcfc7cd862b.herokuapp.com/