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| **Client:** | Christopher Ghita | **File:** 24-064 |
| **Dept:** | Library Sciences | **Faculty:**  **Student:** |
| **Date:** | 2/12/25 | **Initial Meeting:**  **Follow-up:** |
| **Consultant and Attendees:** Christopher Ghita, Sumeeth Guda, Zoeanna Mayhook, Dr. Chong Gu | | |
| **Statement of Problem:**  To determine what specific academic benefits first year undergraduate students attribute to their involvement in case competitions with a finance component. | | |
| **Goal of this Project:** Journal Publication | | |
| **Background:**  The client is an undergraduate student working with Professor Mayhook in the department of libraries to complete an undergraduate honors project. Their project explores the specific benefits that undergraduate students attribute to their involvement with case competitions with a finance component. A case competition is an event where students come together to present solutions to real-world or fictional business problems using the skills they learned in management classes.  They created a survey to gather data and insights from the students to understand their initial and retrospective perspectives on the case competition benefits. The survey was created using a retrospective survey design and includes four types of questions: Likert Scale, select all that apply, written response, and multiple-choice question. The questions range from the students’ backgrounds and initial knowledge of case competitions and the lessons learned, to post perceptions of case competitions with regards to the benefits and growth.  They have previously worked with the SCS in the Summer 2024 and Fall 2024 semesters where they needed help principally with the design of their survey instrument. They’ve now collected data from 76 first-year management students, and in the Spring 2025 semester they need help with the analysis of their data particularly with finding correlations / trends within the dataset. | | |
| **Progress of project at this time:** Analysis | | |
| **Relevant information presented at the meeting:**  At the very start of the meeting Christopher gave a background to the work completed so far with the project and explained how they integrated the suggestions given by the SCS into their survey. Their survey consists of four sections: (1. Demographics, 2. Academic concepts, 3. Behavioral Components, 4. Finance / Ethics components). The survey questions are a mix of Likert scale questions, select-all-that apply questions, multiple choice, and written questions. They administered this survey to first-year management students in a case competition held during the Fall 2024 semester and collected responses from 76 students. The survey was administered after the case competition was finished. All the respondents were students in the school of management, and although there were a few exceptions most of the students did not have previous case competition experience. For simplicity in the analysis and sampling, the client and Prof. Mayhook only collected data from a finance focused business case competition.  Dr. Gu agreed with the collection methods, since a prior concern he had was that the client didn’t have even baseline information from the survey respondents, that the data in this case can have a clean inference without the academic backgrounds and prior experience of the respondents confounding the interpretation of the results. This alleviated one of the concerns the SCS had with the project, but the second concern with not having a specific research question or hypothesis was not addressed.  Prof Mayhook explained that they came to the SCS because they needed help analyzing their data and to essentially do exploratory data analysis (EDA) on their dataset to uncover the underlying correlations and patterns. Dr. Gu explained that our service requires the client to come up with specific research questions in order to statistical analysis of the data, we cannot do EDA for the client’s project since we are not subject matter experts in the area.  Because the client and his advisor did not have an in-depth understanding of the analysis techniques for survey questions, Dr. Gu gave a rough overview of the methods needed to analyze the survey data. To preface the client and his advisor need to do the EDA on the raw data first, visualize the patterns and identify the trends on their own end to gauge the behavior of the data, as well as come up with specific research questions concerning the responses and covariates of the dataset. | | |
| **Recommendations for Design and/or Analysis:**  Suggested Analysis Methods  Before doing any of the analysis methods below, the client needs to visualize and look at the data first and do the EDA for the data itself to uncover the raw patterns. Once they do this and come up with a specific research question could the following analysis methods be used, and having a predetermined hypothesis in mind can help with the data storytelling of the results.   1. If the client is interested in seeing how a set of covariates affects the response, it was recommended to use regression. If they isolate a specific response and see if they want to see the behaviors in the other factors, this will be a regression question. Regression needs to include every related covariate within the dataset in addition to the interaction terms to minimize the noise. 2. If the client is interested in the relationship between a pair(s) of continuous quantitative variables in the dataset it was recommended to create a scatter / jitter plot matrix to show the correlations for the predictors with each question. 3. If they are interested in the relations between 2 categorical factors, a 2-way table analysis could be used to compute the chi square test statistic to establish difference between the 2 factors’ variances. 4. If there are multiple Likert scales in one question, we usually aggregate and treat it as continuous response. If it is on a single Likert scale it would be treated as an ordinal response. If the scale presents itself as an independent variable, we will treat it as categorical. Treating correlation between 2 Likert scales would need polychoric correlation assuming they are cut from the same latent. | | |
| **Who will carry out these actions?**  Client:   * Do the exploratory data analysis and visualize the data to look at the patterns. * Come up with at least 1 specific research question that the consultant can use to do statistical analysis with.   Consultant:   * Work with the client to come up with specific research questions for analysis. * Once the research question is agreed upon, using the approach suggested by Dr. Gu, apply it to the client’s research question and share the results of the analysis utilizing the R programming language with the client and Prof. Mayhook. | | |
| **Status:** Follow up not needed | | |

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