**CIS 362 Project**

**Shower Survey - Phase 1**

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**Introduction:** The primary objective of the survey throughout the semester will be to gather the average shower length and average amount of showers per week of the University of Massachusetts - Dartmouth students. A secondary objective or point of analysis would be as to understanding why the shower times are what they are. For this phase of the process, an initial survey was conducted on a focus group consisting of 18 people.

**Data Collection:** The current target population of the project is to be the entirety of the university’s students. The number of currently enrolled students stands at approximately 8,500. The hope would be to have the entire population surveyed in order to generate an overall set of data by which to work from in the future, however since such a goal is unlikely a sample group of 449 would be a more reasonable set. This number of the sample should be diverse enough to represent the overall population accurately.

As stated previously, the primary data to be collected would be the average length of and the average number of showers per week of each surveyed individual. Along with that, the other information that is to be included with the collection is the habits of the students such as whether or not they are physically active, such as with sporting activities or frequent or infrequent trips to the gym, whether they are commuters or are residents and if they are residents then the exact resident hall they reside in would also be included.

The selected precision of the surveying process is 95 %. Precision is how close each measurement is to one another. Essentially precision is how consistent the results are. It is calculated using standard deviation which is how much on average each measurement differs from one another. A high standard deviation would indicate low precision while a low precision would indicate high precision. To find the precision find the average of the data, and then subtract each measurement from the average. This will give you a set of deviatiotions. Average the deviations and the result will give you a value called uncertainty.

The selected accuracy of the surveying process is 4.5%. Accuracy is how close the measurements come to the expected value. To measure accuracy find the percent error ((accepted - experimental)/100). If the accuracy is very low it may be an indicator or an error in measurements. The accuracy is one of the main values used to generate the sample size required for the surveying process, the 4.5% generates that 446 sample size.

The main instrument by which the above data would be measured is a short, comprehensive survey with the initial draft spanning 9 questions. The questions are not long in length due to the loss of attention in the surveyee whilst reading the question. If the surveyee loses focus in the question, then their answer to it could be inaccurate and could create errors and inconsistencies in the final analysis. Along with keeping the length of questions concise, the number of them will also remain at a minimal, but effective number as surveys with a large amount of questions have a trend to drop in quality as the questions go on.

The sample frame for the surveying process would be the entirety of University of Massachusetts - Dartmouth students. The sample size, as stated previously, would be 446 members of the approximate 8,500 students of the campus. The sampling method done onto the sample size, and even with the focus group, would be a combination of convenience and stratified sampling. This occurs due to the ease of being able to ask individuals close to us the content of the survey and along with that these individuals can present a diverse data set that would include people of different majors, years of study, ages and so on and so forth.

**Survey Rework:** After surveying the 18 members of the focus group, a set of feedback was generated from not only the surveyees themselves, but from the observations of the interviewers on the surveyees. Such feedback would include rephrasing of already present questions due to the data gathered being unusual or the current phrasing of them presenting a confusion in the surveyee. For instance, one of the questions that generated some confusion would be question 7 on the original draft of the survey. A question also chosen to be reworked not only for it’s confusion on the surveyee, but also on the interviewer due to it’s answer format would be question 6 due to it being fill-in-the-blank rather than multiple choice, so a “not applicable” option didn’t seem like a viable option. Accompanying that would include questions that could be added to the survey to generate a more focus and quantitative set of data points. For example, a question that could bring in the idea of water conservation into play and pose the thought of whether or not the surveyee would be willing to reduce their shower times by some time frame, big or small. Besides content reworks, visual changes have a possibility of being conducted on the survey to give it a more clean look.

**Conclusion:** The initial setting up of the project and first focus group testing presents an outcome for which improvements can be made. The focus group’s data does present a varied range of participants, but not to a large degree given the size. The number of surveyees interviewed can be increased, and the feedback can be used to generate a more robust survey. This process will likely continue until the ending phase of the project where the projected sample size is fully surveyed.