Designing Packaging Platforms to Reduce Medication Errors

Overview
Engineered products often have identifiable features that establish commonality and differentiation within a product family. Being able to choose the correct over-the-counter medicine is very important to help keep consumers from damaging health effects from taking the wrong medication. After performing qualitative and quantitative analyses, the team worked together with two graphic design students to create prototypes based on the results from these analyses. After surveying and performing a Design of Experiments on the data, a few recommendations were given.

Objectives
- Analyse the commonality level of package features for multiple brands of cold and flu syrup.
- Develop and test prototypes to make recommendations for improvement.
- Learn how packaging and decision making differs with over-the-counter cold and fly syrup in the Chinese culture.

Approach
- Met with Professor Shooter and Shane Cohen at Bucknell University to learn more about their initial research.
- Took measurements for the Feature Location Commonality Index (FLCI) and Feature Area Commonality Index (FACI), based on Professor Shooter and Shane Cohen’s work.
- Completed the PRAMS submission to get eligibility to perform surveys from the Institutional Review Board.
- Had a conference call with Mr. Perry from the consulting firm that redesigned Robitussin to get some ideas on why they changed the things they did.
- Surveyed human participants in Leonhard Building and Stuckeman Family Center.
- Analysed data from surveys to determine a redesign for prototypes.
- Based on easiness to choose the correct product, it was determined to add a color backdrop to symptoms and icons much like equate to Robitussin.
- Based on difficulty and long times to choose, Tylenol was redesigned with a larger label/font size and colored backdrop for symptoms.
- A second survey was performed on these prototypes to collect data.
- A Design of Experiments was performed using Minitab.
- Based on the DOE, a final recommendation was made.

Outcomes
- Recommendations were made, such as:
  - Use color to distinguish between different medicines within a brand.
  - Icons could lead to improvements but are not as effective as the utilization of color.
  - The size of the packaging/font should be enlarged to be easily read.
- With the Chinese students performing a similar study, we learned several things, such as:
  - Times to choose medication were much longer, indicating their participants gave a more detailed analysis regarding the packaging.
  - Their study also proved color had a significant impact on decision making.