Writing Successful Abstracts - Examples from NCUR Presentations

Read the following abstracts and notice how well you respond to each one as a reader. How successful is each example in establishing a sense of relevance and urgency for its project? Which example could serve as a good model for your project?

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| Example 1:  With the game of basketball continuously evolving, teams are always looking for ways to stay ahead of the competition. The teams aspire to win more games and increase profitability of their franchise. This research aims to address two questions: 1) Which basketball stats can help predict a team’s win or loss in a game? 2) Which machine learning classifier provides the most accurate and reliable prediction? To answer the research questions, we analyze regular season games data from the NBA website (2012 – 2018). We use machine learning, a branch of Artificial Intelligence, to build the predictive models. The data analysis process includes data cleaning and data transformation. Using machine learning, we determine the features that can predict wins and losses in each game. The accuracy of the models is validated using best practices such as k-fold cross-validation. For our binary classification model, we compare various machine learning algorithms such as logistic regression, decision trees, random forest, and support vector machines. With the use of accuracy and validation metrics, we select the best performing model. This research provides insights about basketball stats that can help predict a win or loss for a team. The findings of this research could be used to build similar predictive models in other sports.  Senzanje, M. and Bukralia, R. (2019). “Predicting outcomes of basketball games using machine learning.” | Example 2:  Artificial sweeteners have become a comparable option to sugar, especially for those who cannot tolerate sugar in their diets, such as diabetics. There have been many stated negative effects resulting from the consumption of artificial sweeteners, which may result from the metabolism of the artificial sweeteners. Research has shown that aspartame is hydrolyzed into aspartic acid, phenylalanine, and methanol. Methanol is further metabolized into products that contribute to mitochondrial damage and the generation of superoxide, peroxyl, and hydroxy radicals. Increased reactive oxygen species (ROS) and mitochondrial damage can lead to oxidative stress, which may trigger of apoptosis in cells and cause DNA damage. As a model, yeast cells were cultured and grown in glucose and other artificial sweeteners. Detection of ROS in the mitochondria was measured using MitoSox staining. Western Blot Analysis was conducted to show the effects of ROS on the expression of certain proteins in the cell. An increase in ROS is expected in the yeast cells fed with artificial sweeteners as compared to those fed with glucose. Aspartame is expected to have the greatest amount of ROS. The expression of proteins in the ROS production and apoptotic pathways are expected to be altered and shown on the Western Blot analysis.  Grandstaff, M. and Mudrack, K. (2019). “The effect of artificial sweeteners on reactive oxygen species in the growth of yeast.” |
| Example 3:  We plan to investigate the improvement of social jet lag induced cognitive deficits in college students after they are given caffeine. Previous studies have examined the negative physiological consequences of jet lag on flight crew members and athletes but did not focus on college students, social jet lag or cognition. Additional studies have examined the cognitive and psychological responses of caffeine on the quality of performance of shift workers, but again were not able to make their study generalizable to college students, and the cognitive abilities that are relevant to college coursework. Approximately fifteen college students already suffering from social jet lag will be given baseline cognitive tests in order to measure cognitive abilities without caffeine, then at a different time, they will be given either 200 milligrams of caffeine or placebo. They will then be tested again on basic cognitive functions including attention and working memory, two important functions for college curriculum. We will utilize a psychomotor vigilance task for PC to test attention, and the Online Working Memory Lab (OWL) test to measure working memory. Scores will then be analyzed and compared with an independent studies t-test. We predict that scores of caffeine users will improve more compared to the the scores of the placebo group.  Robinson, J. and Besing, R. “Effect of caffeine on college students suffering from social jet lag.” | Example 4:  According to the National Institute on Alcohol Abuse and Alcoholism, over 1,825 college students die every year from an alcohol-related accident. In addition to this, almost 700,000 college students are physically or verbally assaulted in an alcohol-related situation, and around 97,000 college students are sexually abused in alcohol-related incident. These statistics make a compelling case for sobriety on college campuses, yet according to the National Council on Alcoholism and Drug Dependence, nearly 80% of college students drink alcohol, and half of those individuals also participate in binge drinking. This research project explores the disconnect between these statistics and college students’ attitudes toward intoxication. Rhetorical analysis, document design theory, and design thinking were employed to reveal how the consequences of alcohol consumption could be more effectively communicated to college students in written media. The rhetorical analysis revealed the predominant narrative that is presented to college students: drink, but drink responsibly. In response, two alcohol-harm-awareness campaigns were created and presented to college students in focus groups, which revealed the design choices and rhetorical approaches that most effectively communicated the sobering reality of alcohol-harm.  Martin, K. and Eidson, D. (2019). “The impact of document design on alcohol-harm awareness.” |

Moving the Reader from “So what?” to “I see.”

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**Context:**

By definition, context is essentially what surrounds a thing. In other words, in order to understand a snippet of conversation, we often ask, “He said that in what context?” When we provide context for our readers, we are establishing a comfortable common ground, a shared understanding that provides an entry point into the larger or more specific ideas of our project. Common ground might take the form of a shared belief, a kind of truism, a basic principle of the field. Frequently this takes the form of a brief survey of the field or an overview of a current situation. This might include what those in the discipline already know to be true, a point of conventional wisdom, something we’ve all seen and heard, a primary text, a case study, or an anecdote of some kind.

**Problem:**

The problem is essentially establishing a deficit. A deficit in this sense refers to a gap in knowledge or what might be misunderstood or overlooked. The problem is what our research question or project is trying to solve. This might be, for example, a practical or real-life question (how can we best distribute H1N1 vaccine?) or it can be a theoretical or conceptual question (to what degree is marital behavior determined by intergenerational influences?). As researchers, we begin with the problem, but often by the time we are ready to write our abstracts, introductions, or proposals, the problem has moved into the background, obscured by the details of our work. However, in terms of meeting the reader’s needs, the problem is an essential and necessary feature. The reader’s level of investment, and thus the grade, the acceptance, the funding for your project hinges upon how successfully you articulate the problem.

**Response:**

This is generally your summary or description of your paper or project, which you position in dialogue with the problem as you’ve established it. Depending on the nature of your project, in your response you might explicitly state your main point or thesis or you might present your hypothesis and generalize your results. In addition, research that relies on primary data often includes an abbreviated description of the methodology used.

Now What? Next Steps

Evaluate Examples in Your Field

* Find well-written abstracts in your field:
* A dissertation
* A “big name” journal
* A small, specialized journal
* An conference program
* Evaluate each abstract using the CPR structure
* Evaluate each abstract at the sentence level, choosing example sentences that you think work well
* Apply what worked well to your own abstract

Begin Writing

* Choose the brainstorming method that works for you:
* Reverse outlining
* Cut/paste key sentences from paper
* Practice aloud your 1-minute “elevator speech” about the paper
* Map out your abstract visually
* Start by writing the problem, then build by adding the context and response
* Write as much as is needed at first – don’t worry about word limit
* Evaluate the CPR of your own abstract
* Edit out all elements not related to CPR (edit for concision and precision)
* Have someone else edit your abstract (a peer in your field, Writing Center, etc.)