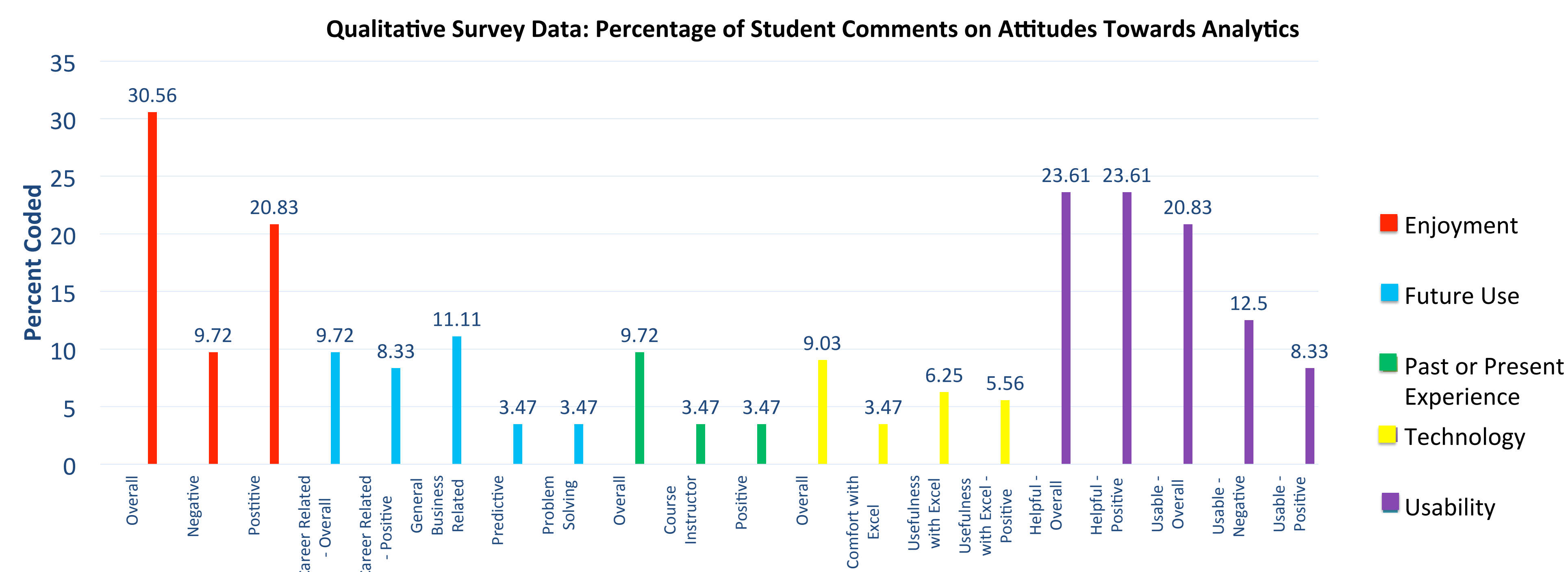


Assessing Analytics Motivation in Business and Engineering Students

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Abstract

This research examines differences in motivation and attitudes towards analytics between business and engineering students, and is joint work with Dr. Andrea Goncher (Queensland University of Technology, Australia) and Dr. Karen Bursic (University of Pittsburgh). Instructors of business and engineering analytics-based courses at two universities give the same lecture on the use of spreadsheets to both analyze trendline data and make predictions about dependent data. We assign the same individual assessment to the two groups of students and then administer an end-of-semester survey built from the established MUSIC model of academic motivation and other self-efficacy survey constructs. Student data is paired by the homework assessment and individual survey responses. This poster addresses assessment scoring, survey data coding, and descriptive statistics calculations.



Instruments

Survey

- Topic areas
 - Motivation
 - Self-efficacy
 - Demographics
- MUSIC Model of Academic Motivation (Jones, 2009)
 - Empowerment
 - Usefulness
 - Success
 - Interest
 - Caring
- Free form text for comments on attitudes towards analytics

Assessment

- Identify proper trendline for given data
- Understand trendlines as a predictive analytic
- Build profit model

Methodology

Database

Microsoft Access database created for survey and assessment data

- Address dirty/missing data
- Organize data by demographics, survey results, and assessment scores

Scoring

- Standard rubric and assumptions for every assessment

Literature Review

Examined literature with the following themes:

- MUSIC
- Self-efficacy
- Intrinsic and extrinsic motivators
- Attitude

Results

Qualitative Analysis

Coding and analysis of survey comments

- Most common textual response identified *enjoyment* or lack thereof regarding data analytics
- 20% of students (14 engineering and 16 business) responding had an enjoyable or positive outlook on data analytics
- Second most common response was *helpfulness* of data analytics
- About 24% of students felt data analytics is a helpful tool
- More students had a negative outlook on *usability* than a positive one

Statistical Analysis

Hypothesis example:

Engineering students will have higher levels of success towards analytics than business students.

- Success mean for engineering: 4.77
- Success mean for business: 4.55
- Hypothesis supported with p -value of 0.027

Other interesting results:

- Men are more motivated by empowerment, success, self-efficacy, and extrinsic factors
- Women are more motivated by usefulness, interest, caring, expected success, intrinsic factors, attainment, identification with their major
- Women as a whole scored higher on the assessments

