

Journals Flight Experiment

Expedition 31/32 *Science Symposium*

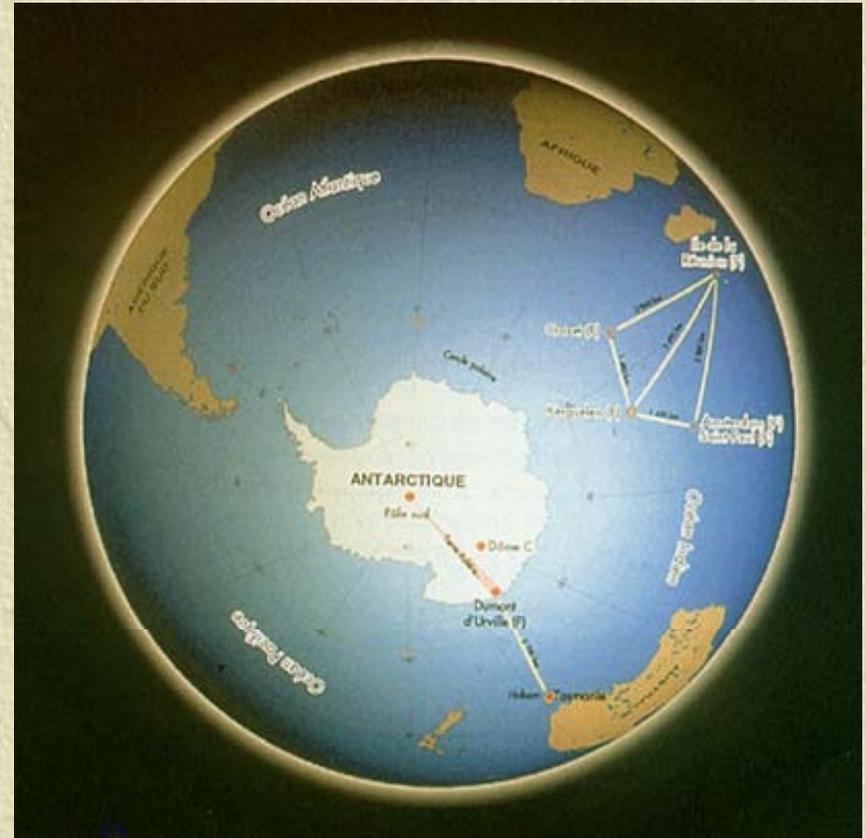
Jack Stuster, PhD, CPE
Principal Investigator

Previous Research

- ✦ Human Factors Review of Orbiter Turnaround Procedures (Rockwell International, 1982)
- ✦ Space Station Analog Study (NASA, 1985)
- ✦ HABEMSI Study Team (ESA, 1991-1992)
- ✦ Lunar/Mars Expedition Analog Study (NASA, 1996)
- ✦ Analysis of French Diaries (NASA, TAAF, ESA, 1998)
- ✦ Expedition Corps Training (NASA, 1999)
- ✦ Journals Flight Experiment (NASA, 2003 - current)

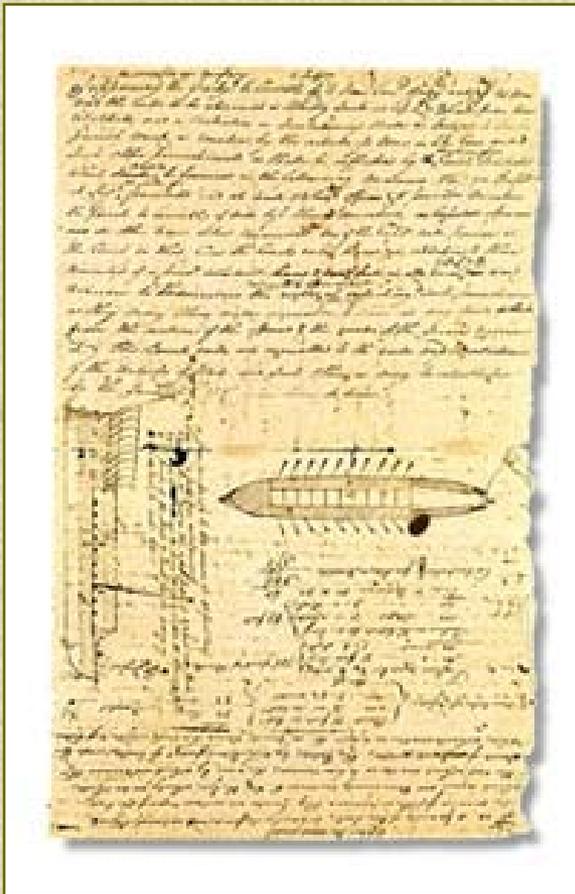
Content Analysis: French Remote Duty Stations

- ✦ Dumont d'Urville, Terre-Adelie
- ✦ Kerguelen Island
- ✦ Crozet Island
- ✦ Amsterdam Island
- ✦ 1993-1994 Expedition
- ✦ IAPP



Territoire des Terres Australes et Antarctiques Françaises (TAAF), and
Institut Française Pour La Recherche Et La Technologie Polaires (IFRP)

Expedition Journals



- ✧ A scientific approach to the experience.
- ✧ The traditional method of explorers, pilots, engineers, and scientists.

Page from the journal of William Clark, Corps of Discovery, 1804.

Purpose

- ✦ The purpose of the Journals Experiment is to obtain information that will lead to the design of equipment and procedures to support adjustment and sustained human performance during long duration space expeditions.

Advantages of Content Analysis

- ✦ Data are obtained unobtrusively;
- ✦ The entries demonstrate that subjects are attending to the task;
- ✦ Large volumes of quantifiable data are generated by the subjects; and,
- ✦ The subjects benefit from their participation in the activity.

Crew Member's Commitment

- ✦ Make at least three journal entries each week (more frequently, if possible).
- ✦ Write candidly about experiences, observations, and feelings.
- ✦ Complete a brief questionnaire before, at the mid-point, and after the expedition.

Principal Investigator's Promise

- ✦ Only the PI will have access to the journals.
 - ◆ Password-protected document
 - ◆ Stored in personal folder on SSC
 - ◆ Encrypted for downloading and on TSC
- ✦ Anonymity of *all* crew members is ensured.
 - ◆ The PI will remove all names and references during coding that might permit attribution to a specific individual, crew, or ISS increment.
- ✦ Journals will be returned to owners intact.

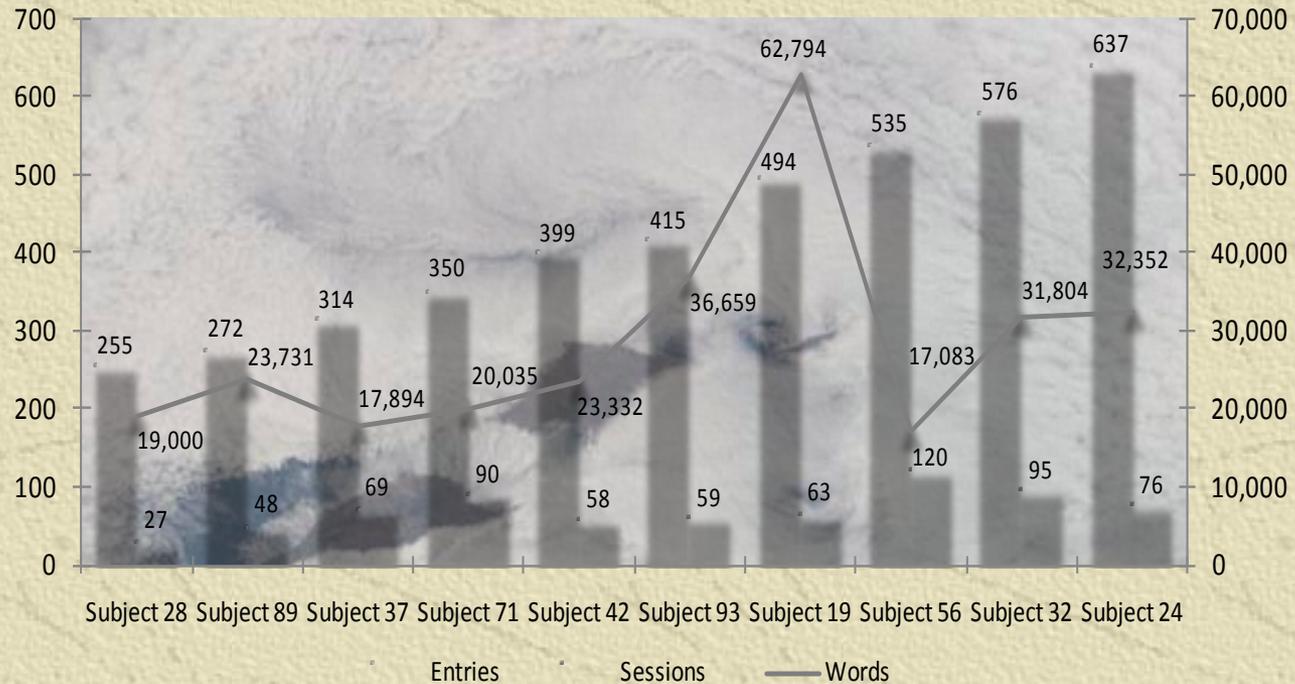
ISS Expedition Journals



Numbers of Sessions, Words, and Journal Entries

10 Subjects

Numbers of Entries, Sessions, and Words By Subject

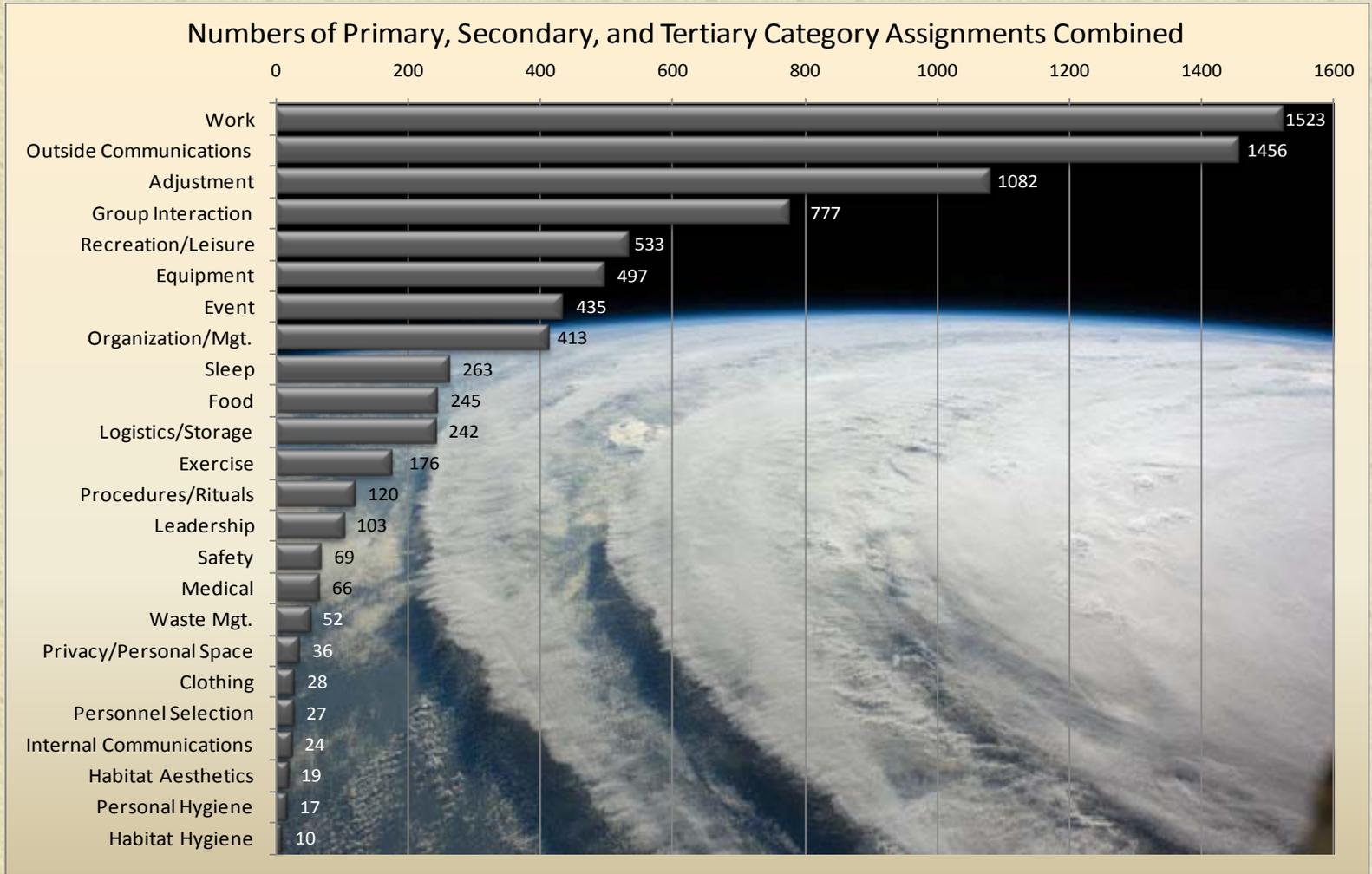


705 Sessions

4,253 Entries

284,684 Words

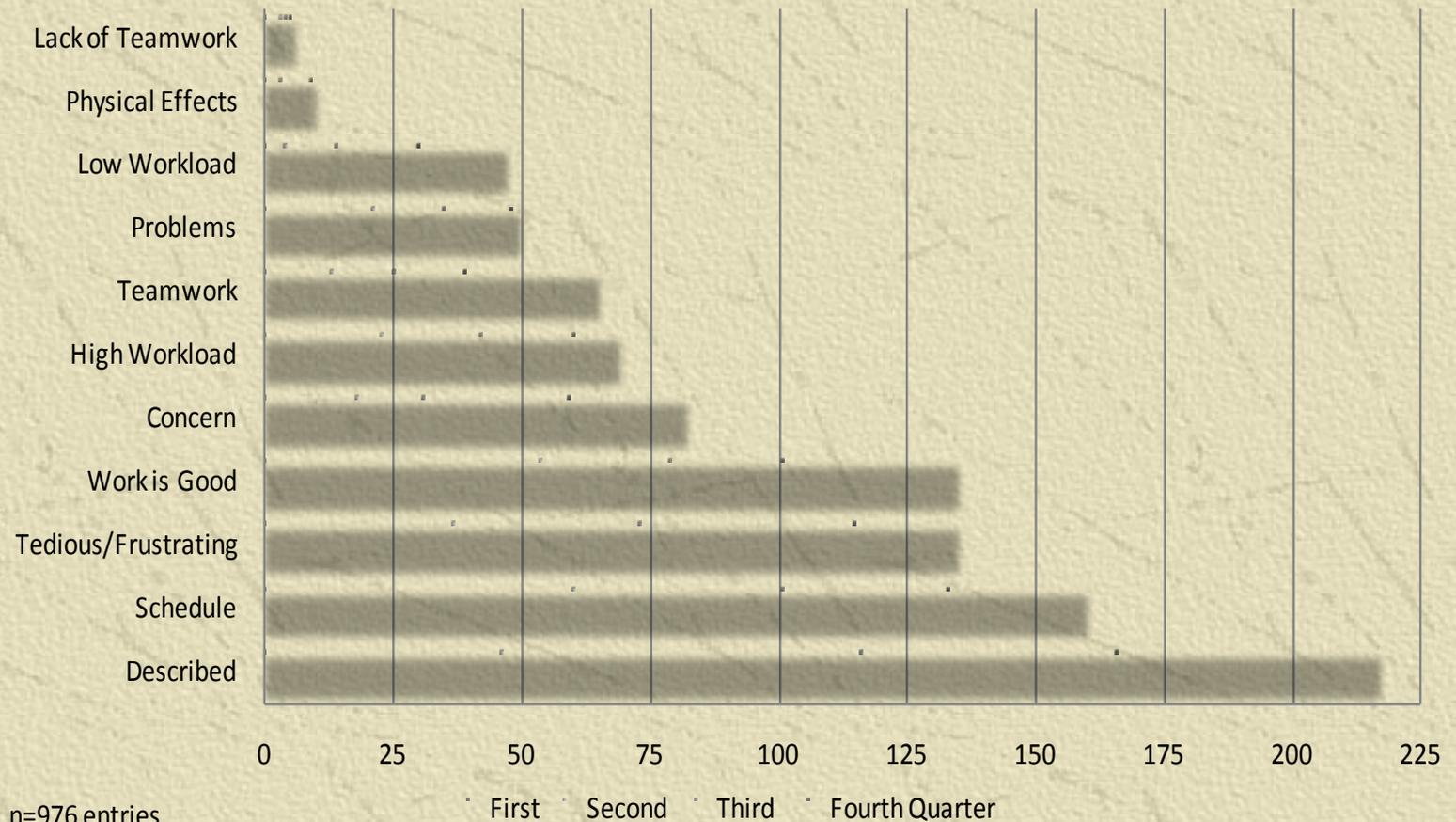
Category Analysis



Sub-Category Analysis (Example 1)



Numbers of "Work" Entries by Subcategory and Quarter

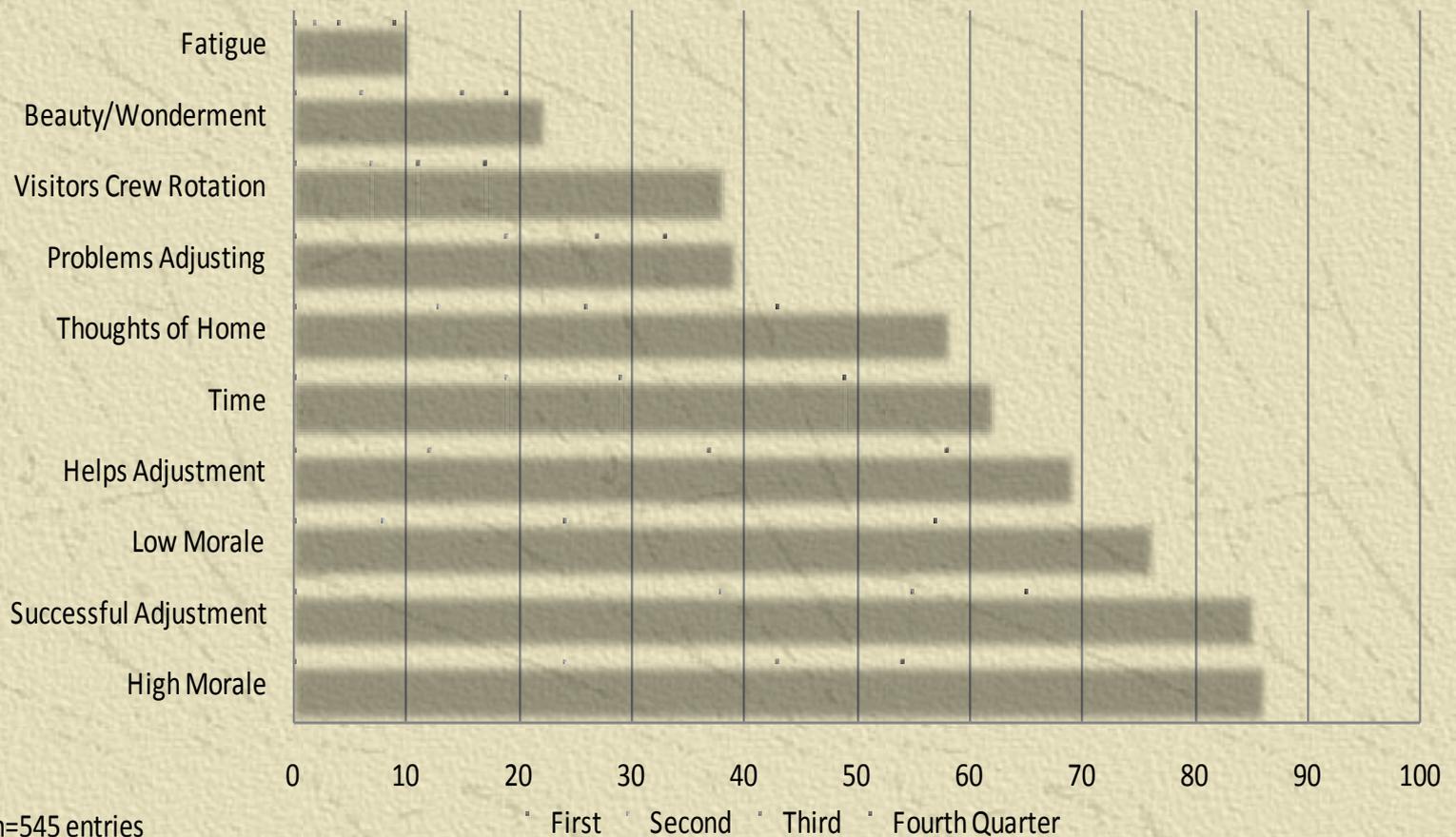


n=976 entries

Sub-Category Analysis (Example 2)



Numbers of "Adjustment" Entries by Subcategory and Quarter

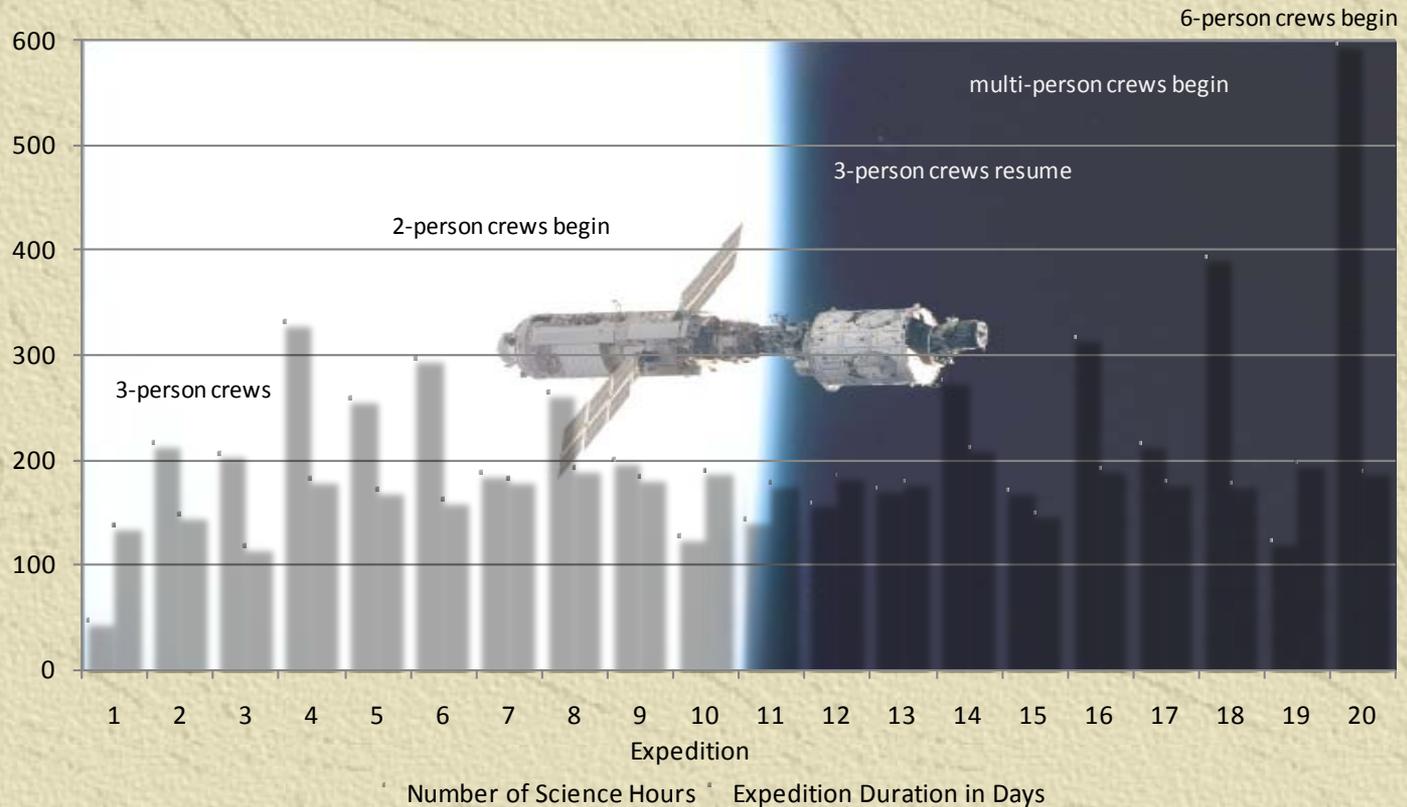


n=545 entries

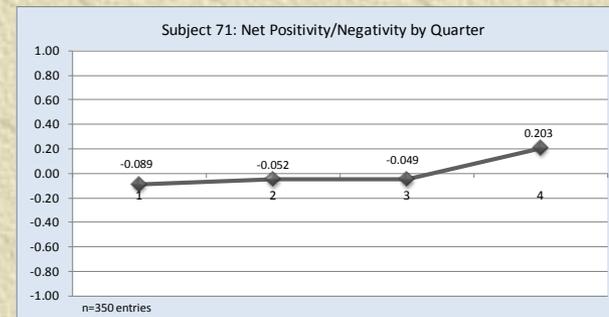
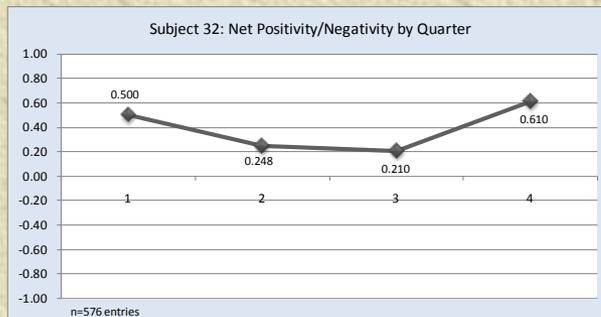
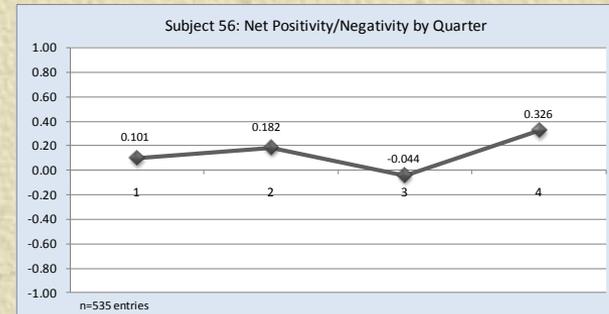
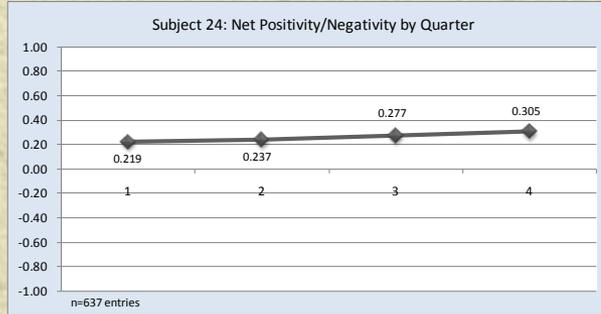
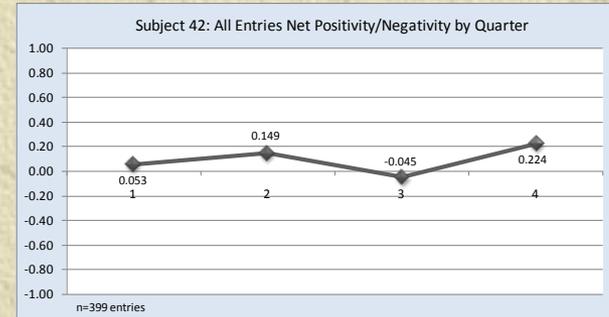
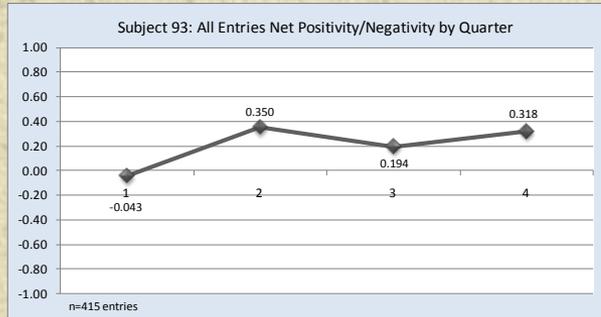
Duration, Crew Size & Workload



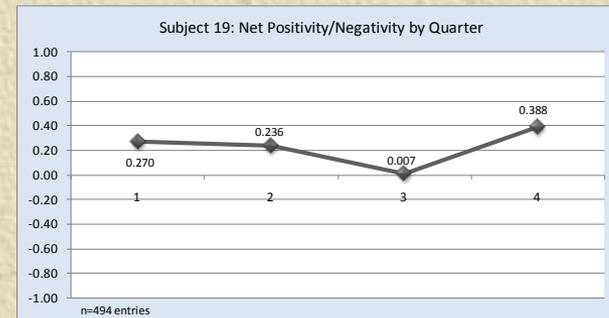
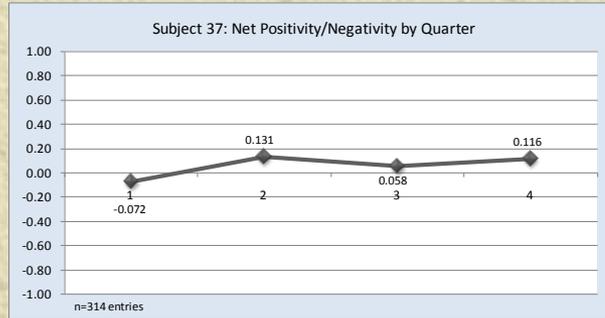
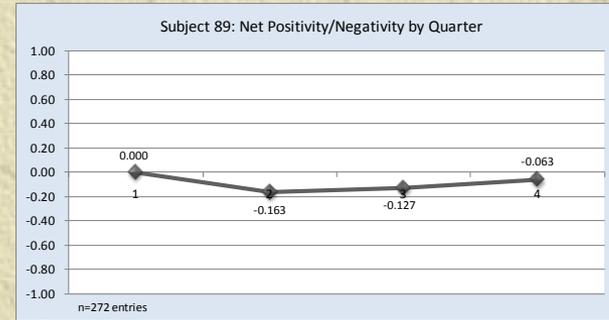
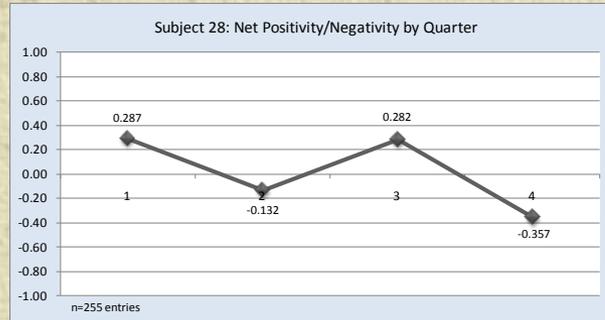
Duration and Number of Science Hours During ISS Expeditions 1-20



Content Analysis: Net Positivity/Negativity by Quarter



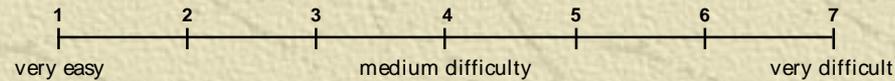
Content Analysis: Net Positivity/Negativity by Quarter



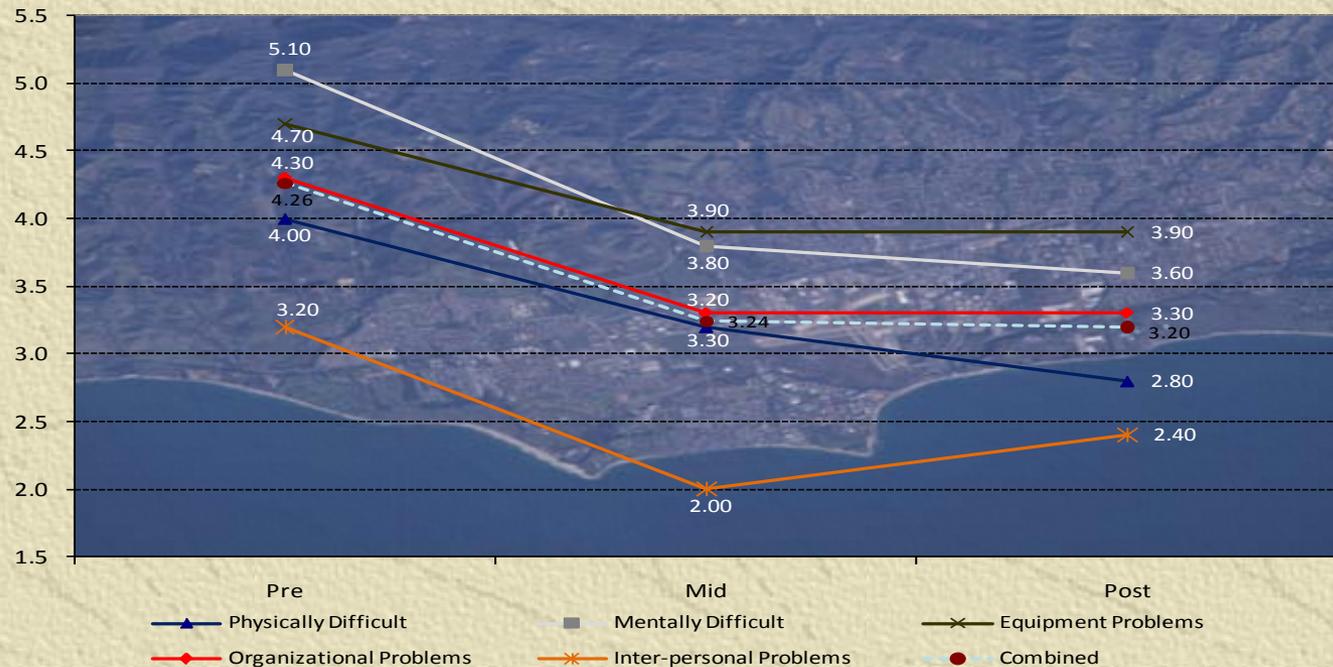
7 of 10 subjects showed a dip during the 3rd quarter;
9 of 10 subjects showed a rise during the 4th quarter.

Questionnaire: Pre-Launch Expectations, Mid, & Post Values

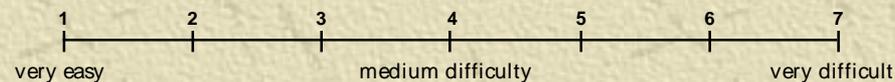
A. How PHYSICALLY difficult do you expect this expedition will be?



Average Pre, Mid, and Post Expedition Questionnaire Responses



A. How PHYSICALLY difficult has your work been?



Example Scales

n = 11

Expected Study Results

- ✦ Quantify the relative salience of behavioral issues on the ISS.
- ✦ Compare data from small and larger crews.
- ✦ Identify specific factors that contribute to adjustment and sustained performance.
- ✦ Recommend guidelines for the design of procedures, equipment, and facilities for future expeditions.

For More Information...



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