IPRO 301: Undergraduate Research on Interprofessional Education

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IPRO Day Presentation Fall 2007:
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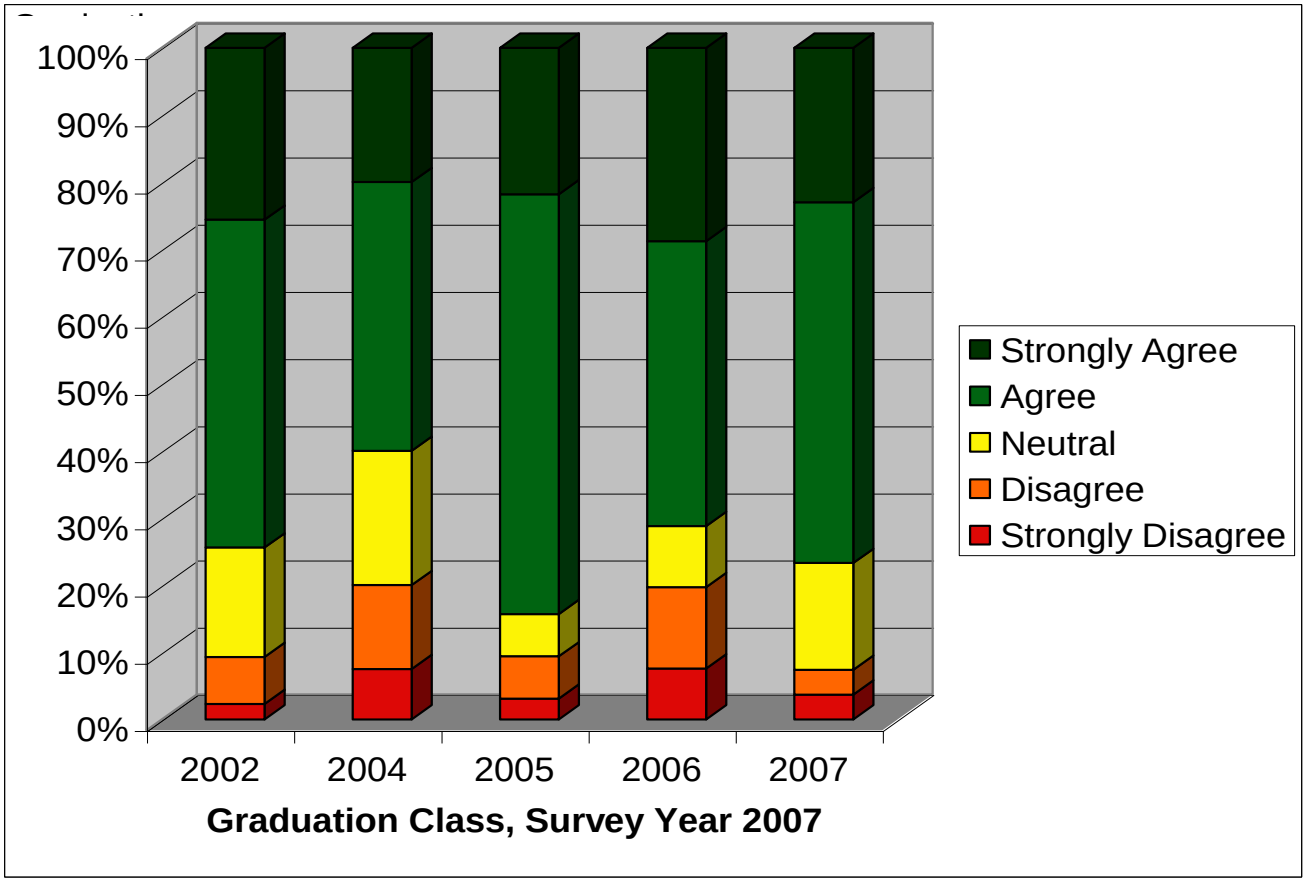
Why Interprofessional Education?

- Working in a team is now a required skill
  - Increase effectiveness of graduates
  - Improve students chances of getting jobs after college
- Teams consist of people from different backgrounds

IPRO Alumni Survey Results: Interdisciplinary project based learning is valued by my employer



Objective of 301

- Improve the quality of the IPRO learning Experience
  - How well are we doing it?
  - Did we improve it?

Research Projects in Fall Semester

- Defining & measuring new Learning objectives
- Improving groupware
- Improving Inter-rater Reliability
- Measuring Reflective thinking
- Increasing Ethical Awareness

Working as a Team

- Weekly Meetings
  - *Conducting Research Literature Reviews* by Arlene Fink
- Weekly Research Seminar
  - Feedback from other students on methodology
- IPRO Deliverables

Base Learning Objectives

- Project Management
- Teamwork Effectiveness
- Ethical Awareness
- Communication Comprehension
- Business Planning

ABET Accrediting Standards

Criterion 3. Program Outcomes

Engineering programs must demonstrate that their students attain the following outcomes:

(a) an ability to apply knowledge of mathematics, science, and engineering

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(c) **an ability to design a system**, component, or **process** to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on **multidisciplinary teams**

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of **professional and ethical responsibility**

(g) **an ability to communicate effectively**

(h) the broad education necessary to understand the **impact of engineering solutions** in a global, economic, environmental, and **societal context**

(i) a recognition of the need for, and an ability to engage in life-long learning

(j) a knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

New Learning Objectives

- Innovation
- Multicultural awareness
- Design or Process Improvement

Defining a Learning Objective

- Identifying leading texts in the field for a body of knowledge
- Sub-domains, measurable skills or behaviors
- Learning objective test questions
- Interventions

Methodology

- Literature review on “how college students learn”
- Contact professors and collaborators for leading texts
- Construct sub-domains, measurable skills/behaviors, and LO questions from body of knowledge
- Have identified experts approve final form

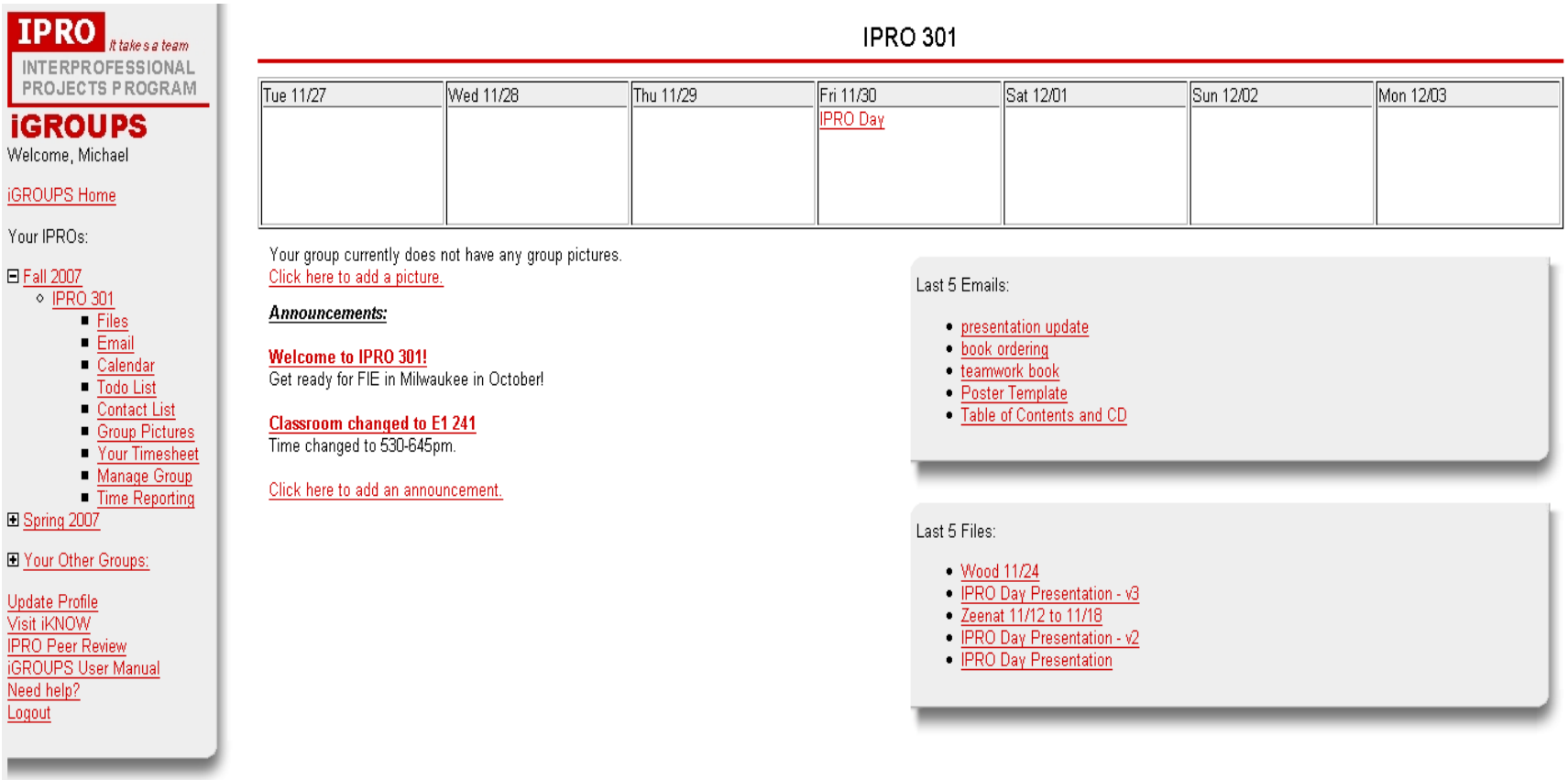
Results

- Rough copies of all new LOs implemented
- Many sources reviewed for potential as body of knowledge; candidates for innovation and design
- Attended Frontiers in Education (FIE), contacted new potential collaborators

Groupware: The Problem

- What is groupware?
- Does groupware usage affect learning outcomes in the IPRO program?
  - Collect already-existing knowledge in this field
  - Collect information about our own program

iGroups


IPRO It takes a team
INTERPROFESSIONAL PROJECTS PROGRAM
iGROUPS
Welcome, Michael
iGROUPS Home
Your IPROs:
Fall 2007
IPRO 301
Files
Email
Calendar
Todo List
Contact List
Group Pictures
Your Timesheet
Manage Group
Time Reporting
Spring 2007
Your Other Groups:
Update Profile
Visit iKNOW
IPRO Peer Review
iGROUPS User Manual
Need help?
Logout
IPRO 301
Tue 11/27
Wed 11/28
Thu 11/29
Fri 11/30
IPRO Day
Sat 12/01
Sun 12/02
Mon 12/03
Your group currently does not have any group pictures.
Click here to add a picture.
Announcements:
Welcome to IPRO 301!
Get ready for FIE in Milwaukee in October!
Classroom changed to E1 241
Time changed to 530-645pm.
Click here to add an announcement.
Last 5 Emails:
presentation update
book ordering
teamwork book
Poster Template
Table of Contents and CD
Last 5 Files:
Wood 11/24
IPRO Day Presentation - v3
Zeenat 11/12 to 11/18
IPRO Day Presentation - v2
IPRO Day Presentation

Methodology

- Literature review
- Collection and compilation of iGroups usage data and IPRO outcomes
- Student survey

Results & Future Work

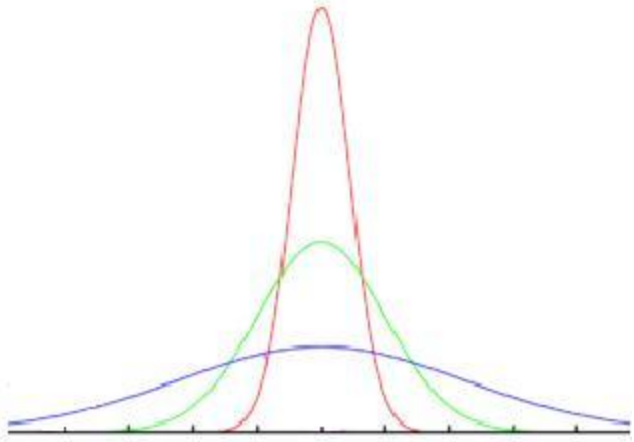
- A literature review was completed, finding 7 interesting articles
- Compiled iGroups usage with IPRO outcomes
- Survey created
- Analyze compiled data and survey in the future

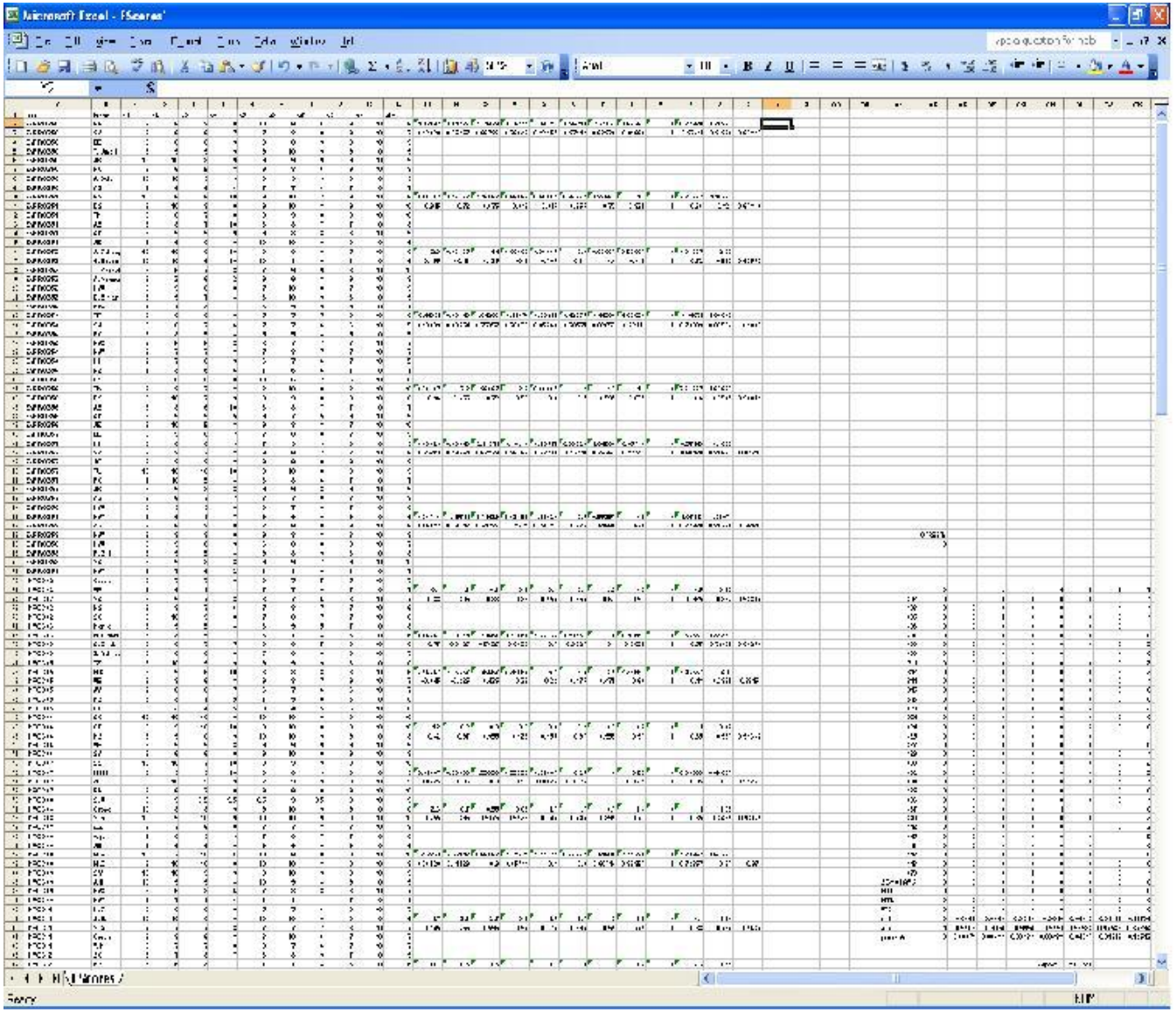
Inter-rater Reliability

- Inter-rater Reliability is the degree to which two or more raters agree.
- Where does it come into play?
  - IPRO Day
  - Proposal Reviews
  - Science Fair Competitions

Methodology

- Literature review
- Look at previous IPRO Day scores
- Calculate Reliability
  - Kappa Coefficient
  - R_{wg}





Results and Future Work

- Calculated coefficients for Spring 2006 and Spring 2007 data
  - About a 4% decrease
- Perform statistical transformations to improve reliability
- Create intervention for IPRO Day judges

Reflective Thinking

Reflective thinking is a way of thinking about ill-structured problems that acknowledges that there is not a single right answer, that decisions must be made based on judgments of available evidence, and that the best solution today might not be the best solution tomorrow.

Problem & Objectives

- Problem: College students do not typically think Reflectively
- Stretch objective: Stimulate development of Reflective Thinking
- Current objective: Develop feasible, valid method of measuring Reflective Thinking

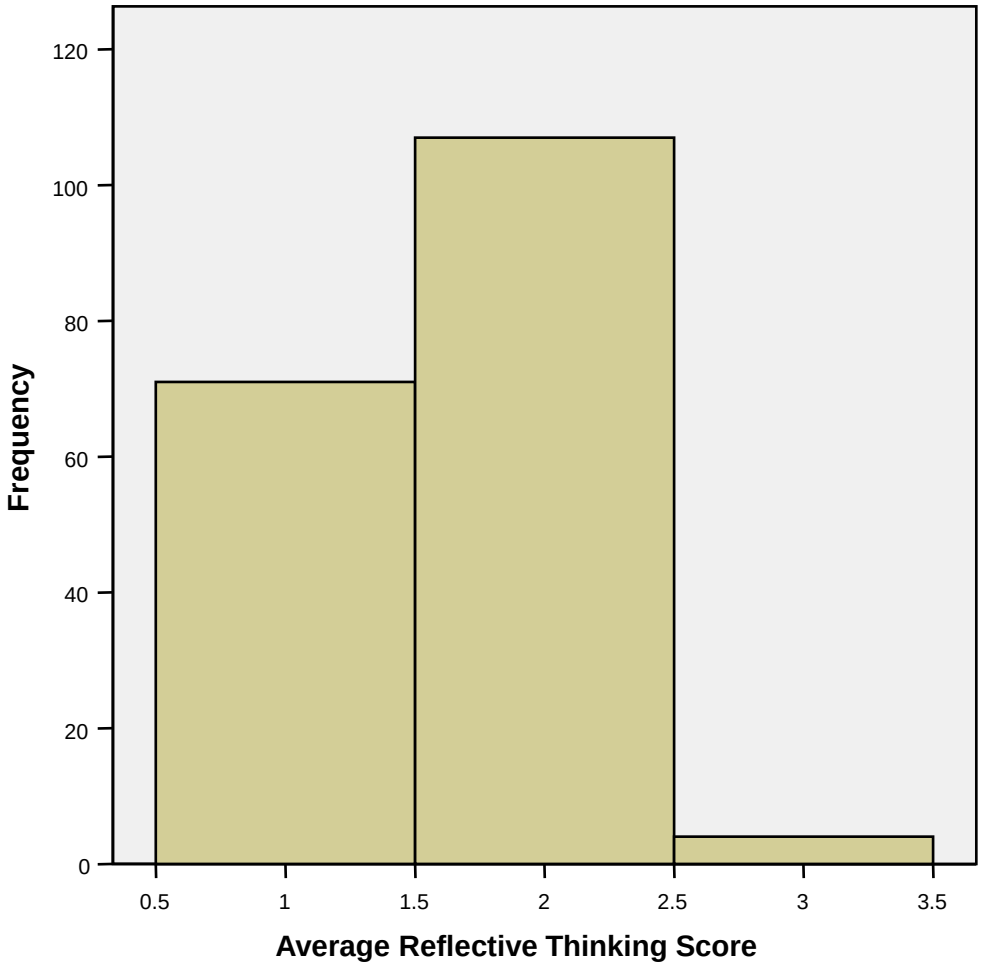
Methodology

Measure through Individual Reports/Reflections

Responses scored into 3 levels of Reflective Thinking (condensed from King & Kitchener's 7-stage reflective judgment model):

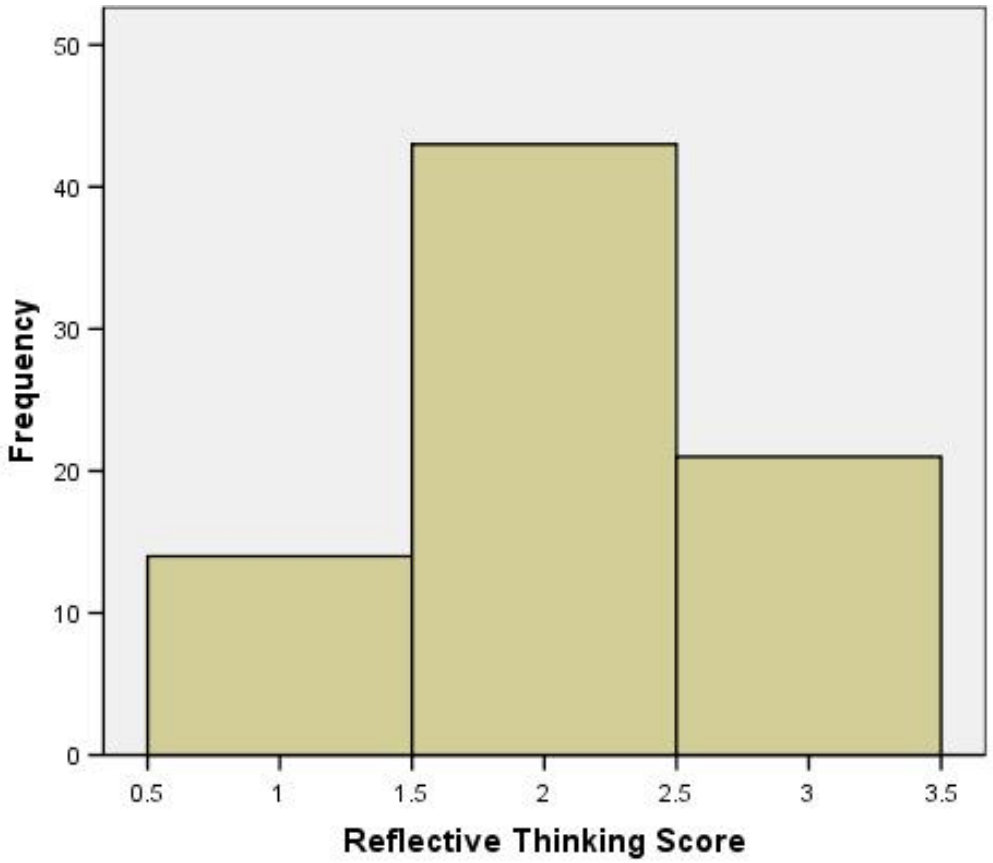
- Pre-reflective thinking
- Quasi Reflective thinking
- Reflective thinking

Previous Results



Mean =1.63
Std. Dev. =0.527
N =182

Fall 2007 Results So Far

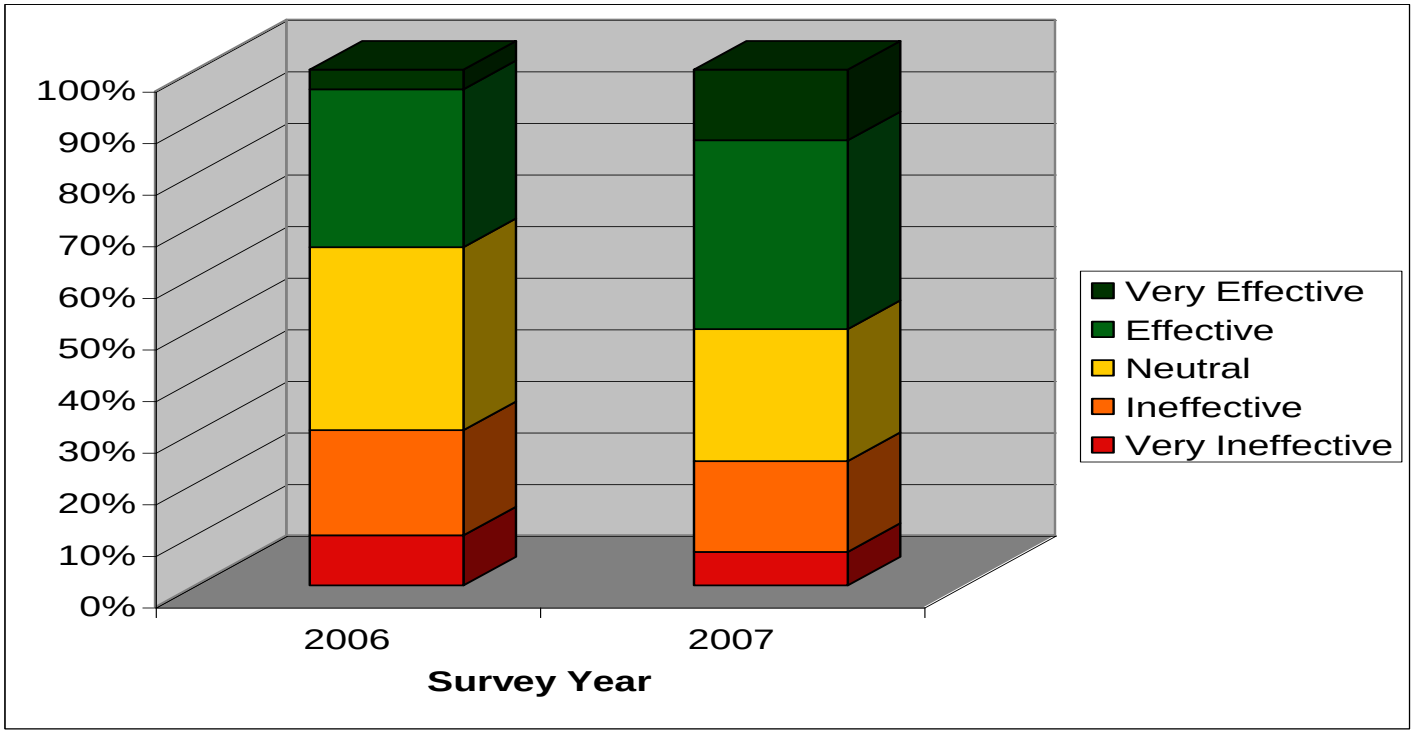


Ethical Awareness

- Problem: Students are unsatisfied with ethical education.
- Objective: Increase the ethical awareness of IPRO students.

Alumni Survey

How effective was the Ethical Education?



Methodology

- Instituted new intervention.
- Support:
  - Seven Layers of Integrity
  - Workshop with June Ferrill, Ph.D. of Rice University
- Research methods of teaching ethics.
- Research methods for generating and grading codes of ethics.

Results

- Results:
  - The student generated codes indicate a strong understanding of ethical situations.
  - Average score: 78%

Future Work

- Fine tune support programs.
- Design and implement interventions for continuing IPROs.
- Collect data from outgoing students.

Conclusion

- Making a difference in the IPRO program
- Publishing peer-reviewed papers
- Helping 400 students get more out of the IPRO Program every semester

Acknowledgments

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- IPRO Staff
- Psych Service Center

Questions?