

A Report To The Faculty Council  
From The Undergraduate Studies Committee  
On The Status Of The IPRO Initiative

April 10, 2007

This report is presented in response to the recently enacted Faculty mandate that the Undergraduate Studies Committee report yearly to the Faculty Council on the financial status of the IPRO initiative.

At a regular meeting of The Undergraduate Studies Committee on February 13, 2007 Dr. Margaret Huyck, Messrs. Thomas Jacobius and Daniel Ferguson came to speak on the IPRO program. Mr. Jacobius is the Director of the program. Mr. Ferguson is the Associate Director and teaches a number of IPRO courses each semester. Dr. Huyck chairs a faculty oversight committee. Mr. Jacobius spoke on the financial aspects of the IPRO program for the 2006/2007 academic year. His comments summarize a report that he presented which is reproduced here as Appendix A. Dr. Huyck spoke briefly on the composition and activities of the IPRO's faculty oversight committee. A report from her committee is presented here as Appendix B. Finally Mr. Ferguson summarized a report on the assessment effort which is attached here as Appendix C. This latter report documents the time frame of the 2005/2006 academic year and was used in preparation for the recent NCA report. Members of the committee had a number of questions all of which were answered. The discussion took place over a period of a half hour.

As is the custom of the Undergraduate Studies Committee all motions are automatically moved for reconsideration at the next regular meeting. At the March 8, 2007 meeting Mr. Jacobius returned to answer any additional questions, a few were asked and Mr. Jacobius responded. At the April 10, 2007 regular meeting of the Undergraduate Studies Committee a draft of this report was adopted by unanimous consent.

*The Undergraduate Studies committee states that for the 2006/2007 academic year the IPRO program is fully funded (\$8000 for full-time faculty and \$4000 for part-time faculty) relative to the academic units supplying the instructional support.*

## **APPENDIX A**

<b>IPRO FINANCIAL SUMMARY</b>				
	<b>AY 05-06</b>		<b>AY 06-07</b>	
				<b>AY 07-08</b> (Proposed)
<b>IPRO Expenses</b>				
Salaries & Benefits	\$ 225,000		\$ 304,000	\$ 352,000
Program & Project-Specific Costs	100,000		123,000	152,500
IPRO Stipends	184,000		433,000	608,000
	<b>\$ 509,000</b>		<b>\$ 860,000</b>	<b>\$ 1,112,500</b>
<b>IPRO Funding</b>				
IBIS/SSB Operating Budget (2-xxxxx)	297,000		365,000	352,000
IPRO Sponsor Donations (6-xxxxx)	212,000		155,000	212,500
Provost Budget (x-xxxxx)	-		340,000	548,000
	<b>\$ 509,000</b>		<b>\$ 860,000</b>	<b>\$ 1,112,500</b>
<b>Number of IPRO Sections</b>				
	67		76	80
IPRO Section Size Average	11		11	11
Credit-Hour Production	2,211		2,508	2,640
<b>Number of Academic Units Involved</b>				
	15		15	15
Regular Faculty	48		56	68
Adjunct Faculty	19		20	12
<b>ATTACHMENTS</b>				
Fall 2005 IPRO Course Section, Instructor & Stipend Summary				
Spring 2006 IPRO Course Section, Instructor & Stipend Summary				

FALL 2006 IPRO COURSE SECTIONS (AS OF 9/5/06)											
IPRO Section 497/597- xxx	Faculty-of-Record			Academic Unit	Enrolled	Credit Hours	Sponsor	Donation to:		Title	
	IPRO Instructor(s)	IIT Appointment						IPRO Program	Academic Unit		
		I	II								III
302	Menhart	X		BCPS	11	33.00				Synthetic Biology -- Engineering Novel Organisms	
306	Young Ben-Zeev	X		PSYC	9	27.00	Discussions with HP			Enhancing Psychology Research through Advanced Communications Technology	
307	Rohter			X CAE	9	27.00	Mi-Jack	\$ 5,000		Advancing Shipping Container Transportation System Solutions	
308	Opara			X BME	11	33.00	Collaboration with U of Chicago			Developing an Artificial Pancreas	
309	Meade	X		MMAE	10	30.00	Centro Don Bosco (Columbia)			Orthotics & Prosthetics Education Support for Latin America	
311	Frieder	X		CS CS	6	18.00	US Holocaust Memorial Museum			Using the IIT Intranet Mediator for US Holocaust Memorial Museum Archives	
312	McKee (II) Maurer (III)		X X	MTM MTM	10	30.00	Colson Associates	\$ 15,000		Preliminary Layout for a Caster Factory	
315	Mohammadi Shen	X		CAE CAE	15	45.00				Design of a Large-Scale Structure	
317	Ruiz	X		MMAE	11	33.00				The VTOL Flying Car: Making it Work!	
318	Zhang	X		BCPS	11	33.00				Searching for Novel Drug Targets	
319	Shields			X MTM	10	30.00	NCIIA (KEEN)	\$ 15,000		Logistics Outsourcing Tool	
320	Hamill			X ARCH	11	33.00				Sustainability Planning for IIT Buildings	
321	Maurer			X MTM	9	27.00	IGC, Inc.			Bar Code Assessment and Integration	
324	Flury	X		ARCH	14	42.00				Disaster Recovery: Do-It-Yourself Home Building Training	
325	Ferguson Schug	X	X	BCPS IBIS	10	30.00				Developing Extremely Affordable Products for the Rural Poor of the World	
328	Snapper (I) Gehrs (III)	X		X HUM HUM	12	36.00	Play for Peace			Develop & Prototype a Play for Peace Web Site for Global Collaboration	
329	Feinberg	X		HUM	12	36.00	Collaboration with CPS			Edutainment: Designing & User Testing E-Learning Games	
332	Ruiz	X		MMAE	9	27.00	Pritzker Institute		\$ 25,000	Design & Analysis of a Longitudinal Oscillator for Cardiac Arrest Victims	
333	Ferguson		X	IBIS	10	30.00				Capturing IIT Reality in Video: Finding a Job as an IIT Grad	

335	DeSantiago Muehleisen	X		CAE CAE	15	45.00				Design of a Stadium
339	Ferguson		X	IBIS	11	33.00				Team Building Games & Training Tools for IPRO Teams
340	Ferguson		X	IBIS	5	15.00	Access Community Health Network	\$ 10,000		Improving Health Care Information Systems for a Community Health Network
341	Woerner		X	SS	10	30.00	Collaboration with Ball State			Nanotechnology & the Public
342	Emadi Rodriguez	X		ECE	10	30.00				Hybrid Electric School Bus: Simulation, Design & Implementation
343	Shahidehpour	X		ECE	10	30.00	Dr. Alex Tseng (IIT ECE Alumnus)		\$ 25,000	Technical & Market Integration of Hydroelectric Energy
344	Shahidehpour	X		ECE	8	24.00	Michael Polsky (Invenergy)		\$ 25,000	Technical & Market Integration of Wind Energy
345	Abbasian (I) Lindahl (III)	X		CHEE CHEE	10	30.00				Designing a Novel Mobile Process for Remediating Contaminated Soils
346	Abbasian (I) Ehsani (III)	X		CHEE CHEE	9	27.00				Designing Coal Desulfurization Processes to Improve the Environment
350	Braband		X	IBIS	8	24.00	Collaboration with Entrepreneur			Tech Translations (A Kaplan Fellows Entrepreneurial IPRO Project)
351	Braband		X	IBIS	6	18.00				Solar/Battery Hybrid Three Wheel Rickshaw for India (A Kaplan Fellows Entrepreneurial IPRO Project)
352	Braband		X	IBIS	8	24.00				ZINDA: Custom Clothing (An Entrepreneurial IPRO Project)
353	Liao (I) Reznik (III)	X	X	IBIS BCPS	10	30.00				DNA, Dollars & Drugs: Applications of Pharmacogenomics (An Entrepreneurial IPRO Project)
354	Thompson (III) Burstein (III) Pistrui (II)		X	X IBIS IBIS	9	27.00	Collaboration with IIT Entrepreneur			Web Tool for Managing the Job Search Process (An Entrepreneurial IPRO Project)
355	Khalili	X		SSB	8	24.00	NClIA	\$ 13,500		Pilot Study of the KlarAqua Water Purification System in Mexico (An Entrepreneurial IPRO Project)
356	Emadi Wirasingha	X		ECE	10	30.00				Plug-In Hybrid Electric Vehicle (An Entrepreneurial IPRO Project)
357	Sun Braband	X	X	CS IBIS	13	39.00	Segway of Chicago			myWay+gWay: Touring the High-Tech-Way (An Entrepreneurial IPRO Project)
					360	1080.00		\$ 58,500	\$ 75,000	

Note 1: IPRO 345 and 346 enrollment numbers include chemical engineering seniors enrolled in cross-listed capstone course CHE 496.

Note 2: Funds identified as "Donation to Academic Unit" are not available to the IPRO Office. They also cover two semesters.

SPRING 2007 IPRO COURSE SECTIONS (AS OF 1/19/07)												
IPRO Section 497/597- xxx	Faculty-of-Record						Enrolled	Credit Hours	Sponsor or Collaborator	Donation to:		Title
	IPRO Instructor(s)	IIT Category			Acad Unit	IPRO Program				Academic Unit		
		I	II	III								
302	Menhart	X			BCPS	12	36.00				Synthetic Biology -- Engineering Novel Organisms	
303	Chmielewski (I) Tijunelis (III)	X		X	CHEE INTM	11	33.00	Smart Signal	\$ 15,000		Information Design for Plant Management to Predict Equipment Failure	
304	Pulik			X	ID	17	51.00	Honeywell	\$ 15,000		User-Centered Design & IT Solutions for Rural Health Workers in India	
305	C.Hood (I) D.Hood (III)	X		X	CS CS	10	30.00	Air2Access	\$ 5,000		Building a Wireless Broadband Infrastructure to Support Maritime Applications	
306	Young (I) Ben-Zeev	X			PSYC	9	27.00				Enhancing Psychology Research through Advanced Communications Technology	
307	Rohter			X	CAE	12	36.00	Mi-Jack	\$ 5,000		Advanced Shipping Container Transport System Solutions	
308	Opara			X	BME	11	33.00	Collaboration with U of Chicago			Developing an Artificial Pancreas	
309	Meade	X			MMAE	10	30.00	Collaboration with Centro Don Bosco			Education & Training Support of Orthotics & Prosthetics Education in Latin America & the US	
311	Grossman	X			CS	13	39.00				Helping Fight Computer Crime: The Misuse Problem	
312	Maurer			X	INTM	10	30.00	Kern Family Foundation	\$ 15,000		Expanding Quality & Safety Measures for the Pharmaceutical Industry	
314	Elnimeiri	X			ARCH	12	36.00	Dynamo Dsgns, Knapp Ctr, Art Inst	\$ 5,000		The Art of Wind Power	
315	Budiman (I) Shen (I)	X			CAE CAE	25	75.00				Design of a Large-Scale Bridge Structure	
318	Zhang	X			BCPS	9	27.00				Searching for Novel Drug Targets	
319	Shields			X	INTM	10	30.00	Kern Family Foundation	\$ 15,000		Decision Making Tool for Warehouse Logistics Pricing	
320	Maurer			X	INTM	10	30.00	Arrow Gear	\$ 7,500		Planning the Implementation of a new Enterprise Resource Planning Platform	
321	Maurer (III) Mostovoy (I)	X		X	INTM	11	33.00				Consumer Product Design & Performance Evaluation	
324	Flury	X			ARCH	13	39.00				Disaster Recovery: Do-It-Yourself Home Building Traning	
325	Ferguson Schug	X	X		SSB BCPS	12	36.00				Developing Extremely Affordable Products for the Rural Poor of the World	
327	Kurzydlo			X	CAE	19	57.00	Collaboration with EWB			Sustainable Water Distribution System for Pignon, Haiti	
329	Feinberg	X			HUM	10	30.00				Simulations: Health Physics Computer Game Design	

330	Fasshauer	X		AM	12	36.00	Collaboration with CPS			Creating a Dynamic & Contemporary Math & Science Fair Project Bank for Chicago Public Schools
332	Braband		X	SSB	8	24.00	Collaboration with CPS			Our Energy Future: Creating Multimedia Education Modules
334	McLeish			X ARCH	14	52.00				Resource Consumption Awareness in the Home
335	DeSantiago Muehleisen	X		CAE CAE	20	60.00				Renovation of Alumni Memorial Hall
336	Megri	X		CAE	15	45.00	ASHRAE		\$ 5,000	Innovative Designs for Building Airflow, Sustainability & Fire Safety
337	Hamill-Governale			X ARCH	10	30.00				Energy Efficient Lighting Design Using LEDs and Other Technologies
340	Ferguson		X	SSB	8	24.00	Access Community Health Network	\$ 10,000		Improving Health Care Information Systems for a Community Health Network
342	Emadi (I) Rodriguez	X		ECE	11	33.00				Hybrid Electric School Bus: Simulation, Design & Implementation
345	Abbasian (I) Lindahl (III)	X		X CHEE CHEE	12	36.00				Optimizing a Modern Refinery for Fuels & Petrochemicals
346	Abbasian (I) Zalc (III)	X		X CHEE CHEE	12	36.00				Design & Econ Evaluation of Bioethanol Production from Corn
347	Abbasian (I) Parulekar (I) Perez-Luna (I)	X		CHEE CHEE CHEE	12	36.00				Developing a Microbrewery System
348	Abbasian (I) Al-Hallaj (III) Bharathan (III)	X		X CHEE CHEE CHEE	12	36.00				Design & Analysis of a 20 Megawatt Geothermal Power Plant
350	Braband		X	SSB	7	21.00	Collaboration with Entrepreneur			EnPRO: Browsable Audio for Interactive Language Learning on Mobile Devices
351	Braband		X	SSB	7	21.00				EnPRO: Solar/Battery Hybrid Three Wheel Rickshaw for India
352	Braband		X	SSB	6	18.00				EnPRO: E-Tailoring -- A Custom Clothing Venture
354	Thompson (III) Burstein (III) Pistrui (II)		X	X SSB SSB	10	30.00	Collaboration with IIT Entrepreneur			EnPRO: Web Tool for Managing the Job Search Process
356	Emadi (I) Wirasingha	X		ECE	11	33.00				EnPRO: Plug-In Hybrid Electric Vehicle
357	Braband		X	SSB	11	33.00	Segway of Chicago			EnPRO: gWay -- Advanced Technology for Guided Tours
358	Ferguson		X	SSB	10	30.00	Collaboration with Rose-Hulman			EnPRO: Sonar for Blind & Visually Impaired Swimmers
370	Tomal			X INTM	11	33.00				Crisis Management & Security Assessment Program
					465	1405.00		\$ 92,500	\$ 5,000	

Note 1: IPRO 304 enrollment numbers include Institute of Design graduate students enrolled in cross-listed ID 583 Product Design Workshop.

Note 2: IPRO 314 is in tandem with a studio workshop class at the Art Institute of Chicago.

Note 3: IPRO 345 346, 347 and 348 enrollment numbers include chemical engineering sophomores and seniors enrolled in cross-listed CHE 296 and 496.

Note 4: Donations to academic unit are not available directly for the IPRO Program, though they may defray essential project expenses.

## **APPENDIX B**



## Interprofessional Studies Committee

### Background

The Interprofessional Projects Program is responsible for organizing interprofessional project team courses to meet the general education requirement that all undergraduates complete two IPRO team projects. In addition, the Ed Kaplan Entrepreneurial Studies Program, the Coleman Entrepreneurial Center and the Jules F. Knapp Entrepreneurship Center work with students, faculty and entrepreneurs to create Entrepreneurial IPRO (EnPRO) projects. IIT faculty members that represent on the order of 15 academic units every semester serve as IPRO instructors for 80 sections per year at current enrollment levels.

### Charter & Composition

The Interprofessional Studies Committee is an academic oversight committee established by the IIT University Faculty Council. The ISC includes faculty members that: (a) represent IIT degree programs, (b) represent the Undergraduate Studies Committee and (c) represent experienced IPRO instructors. Appropriate IIT staff members and students also serve as ISC members. ISC membership is reviewed on an annual basis and approved by the University Faculty Council. The ISC is coordinated by a regular IIT faculty member who serves as chairperson of the ISC along with the director of Interprofessional Studies & The IPRO Program.

### Mission Statement

The ISC provides oversight, guidance and recommendations concerning the pedagogical approach, best practices and academic policies associated with interprofessional project courses and their relationship to individual academic units and degree programs, so that they achieve their prescribed learning objectives and offer a consistent, high quality and valued educational experience.

### Scope of Responsibility

The work of the ISC is focused to the scope of issues listed below. The ISC prioritizes these issues, consistent with the needs of the IPRO Program and the Entrepreneurial Studies Program over time. It will be the purview of the ISC to evaluate such issues -- spanning current pedagogy, polices and practices -- and make recommendations for resolving them in a timely and effective fashion. The continuous improvement, a.k.a. assessment, process for the interprofessional courses is considered an information gathering resource for supporting the identification, exploration and resolution of such issues as:

- Learning objectives<sup>1</sup> – Periodically review and make recommendations concerning the five learning objectives associated with the interprofessional course, i.e., IPRO projects, and an additional learning objective specific to EnPRO projects.
- Course content – Periodically review and make recommendations concerning the underlying framework of deliverables, reporting and knowledge- and skill-building tools that facilitate team process and instill awareness about important ethical, economic and other issues across all IPRO projects.
- Project selection – Review and make recommendations concerning guidelines and a process for prioritizing candidate IPRO and EnPRO projects in order to offer the topics that will best achieve the learning objectives and create a high quality and valued learning experience, as well as participate in the project selection process each semester.
- Scheduling – Review and make recommendations for scheduling IPRO course sections
- Faculty role and development – Review and make recommendations for guidelines, processes, tools and workshops that support the development and performance of faculty leading IPRO project courses, as well as the roles of senior lecturer and faculty expert in facilitating team process and technical content respectively.
- Grading – Review and make recommendations for grading policies and guidelines that incorporate both team performance and individual performance evaluation, as well as peer evaluation.
- Assessment -- Review annual assessment report for the interprofessional project course and provide recommendations for action based on the report, as well as recommend any appropriate changes to the assessment process.
- Benchmarking Best Practices – Recommend and review multidisciplinary team project programs offered by other colleges and universities and identify best practices that merit consideration by IIT.
- Institution-Wide Coordination – Work with faculty across all academic units and professional programs to harmonize all IIT courses involving interdisciplinary project-based learning, help address program-specific accreditation requirements and help strengthen the freshman experience.

### **Reporting Responsibility**

The ISC provides an annual report to the Undergraduate Studies Committee that is reviewed and submitted to the University Faculty council.

### **Meeting Schedule**

The ISC meets a minimum of two times each semester during the academic year.

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<sup>1</sup> The learning objectives are achieved through IPRO course sections through unique open-ended, complex projects that offer each student the opportunity to apply discipline-specific knowledge and methodologies in the context of: multidisciplinary teamwork, project management, communication and real-world problem solving that includes consideration of ethical and other non-technical issues). EnPRO course sections have the added learning objective of developing awareness about business planning principles and gaining experience in their application. In addition to the explicit learning objectives, the IPRO course experience helps develop in students a resourcefulness and diligence in gaining new knowledge or skills (i.e., good lifelong learning practices); and helps develop credentials that benefit students in pursuit of career positions.

# Interprofessional Studies Committee

AY 2006-2007

(Scheduled Meetings: 2/26/07 and 4/19/07)

Javad Abbasian  
Chemical & Environmental Engineering

Peter Beltemacchi  
Architecture

Jim Braband  
Senior EnPRO Lecturer, Stuart School of Business

Chris Conley  
Institute of Design

Susan Feinberg  
Humanities

Dan Ferguson  
Senior IPRO Lecturer & Associate Director, IPRO Program, Stuart School of Business

David Grossman  
Computer Science

Margaret Huyck (Chairperson)  
Psychology

Tom Jacobius  
Director, Interprofessional Studies & The IPRO Program

John Kallend  
Mechanical, Materials & Aerospace Engineering

Peter Lykos  
Biological, Chemical & Physical Sciences

Keith McKee  
Industrial & Technology Management Programs

Kevin Meade  
Mechanical, Materials & Aerospace Engineering

Jennifer Miller  
SGA Representative  
Junior, BCPS

Sheldon Mostovoy  
Mechanical, Materials & Aerospace Engineering

Dennis Roberson  
Vice Provost, New Initiatives

Stephen Sennott  
Architecture

Don Ucci  
Electrical & Computer Engineering

## **APPENDIX C**

**Interprofessional Projects Program[IPRO]  
Academic Year 2005/2006 Program Report**

**on**

**Attainment of Learning Objectives**

**by**

**Director, Thomas M. Jacobius**

**and**

**Associate Director, Daniel M. Ferguson**

## Executive Summary:

### Purpose of the Overall IPRO Program Report:

**The purpose of the Overall IPRO Program Report is to collect and present the data for assessing whether the IPRO program as a whole is attaining its' goals and whether individual IPROs are meeting the minimum learning objectives goals.** Currently there are four measures implemented for current students to measure learning objectives attainment: 1. IPRO Day team judging by independent judges, 2. Self Assessment by students as to whether they perceive they have attained the learning objectives and two subsidiary measures, 3. the student learning objectives cognitive test [in pilot in fall 2005 and spring 2006] and 4. the student teamwork survey. These measures are administered during the semester only to currently enrolled students. Additional surveys are or will be administered annually to the student body at large, alumni of the past several years who have participated in IPROs and current faculty and staff.

### Methodology and Findings:

**Minimum attainment of learning objectives as a whole and for individual learning objectives is currently defined as hitting a mean target of 80% of the maximum score or rating on the different measurement scales.** Across the measurement scales, the goal of the IPRO program is to attain a mean of 80% of the maximum score and to continuously weed out ideas, enhance IPRO program interventions and individual training or support and train or enhance faculty skills so that every IPRO course offered exceeds the minimum learning objectives goals.

In the Spring of 2006 there were 36 IPROs offered and 34 teams and faculty advisors who participated appropriately in the learning objectives measurement process. On IPRO Day there were only four IPROs who failed to meet a minimum performance as measured by the external judges of 160 points in the presentation and exhibit scoring [314, 320, 323 and 331 shown in yellow in table 1]. **Overall, measured by IPRO Day judging results, self assessment surveys, teamwork surveys and the combination of all three measurement means, the IPRO Program exceeded its minimum goals for learning objectives attainment in the fall of 2005 by 5%, a 4% improvement over the fall 2005 semester.**

In the fall of 2005 there were 31 IPROs offered and 29 who participated appropriately in the learning objectives measurement process. On IPRO Day there were only five IPROs who failed to meet a minimum performance as measured by the judges of 160 points in the presentation and exhibit scoring [306, 315, 352, 304 and 314 shown in yellow in table 2]. **Overall, measured by IPRO Day judging results, self assessment surveys, teamwork surveys and the combination of all three measurement means, the IPRO Program just met its minimum goals for learning objectives attainment in the fall of 2005 with an 81% mean score.**

### **Conclusions and Recommendations for IPRO Program Management:**

The first and most important conclusion is that substantial opportunity for improvement in the IPRO Program exists as the program is just meeting minimum standards. Introduction of new support programs or interventions designed to improve learning objectives results should be undertaken and evaluated. Second, measures should be implemented to track specific performance on learning objectives besides teamwork. Finally faculty should be held accountable for failure to comply with program requirements and interrogated as to why below minimum learning objective results have been obtained.

Table 1 IPRO Dav Scores Spring 2006

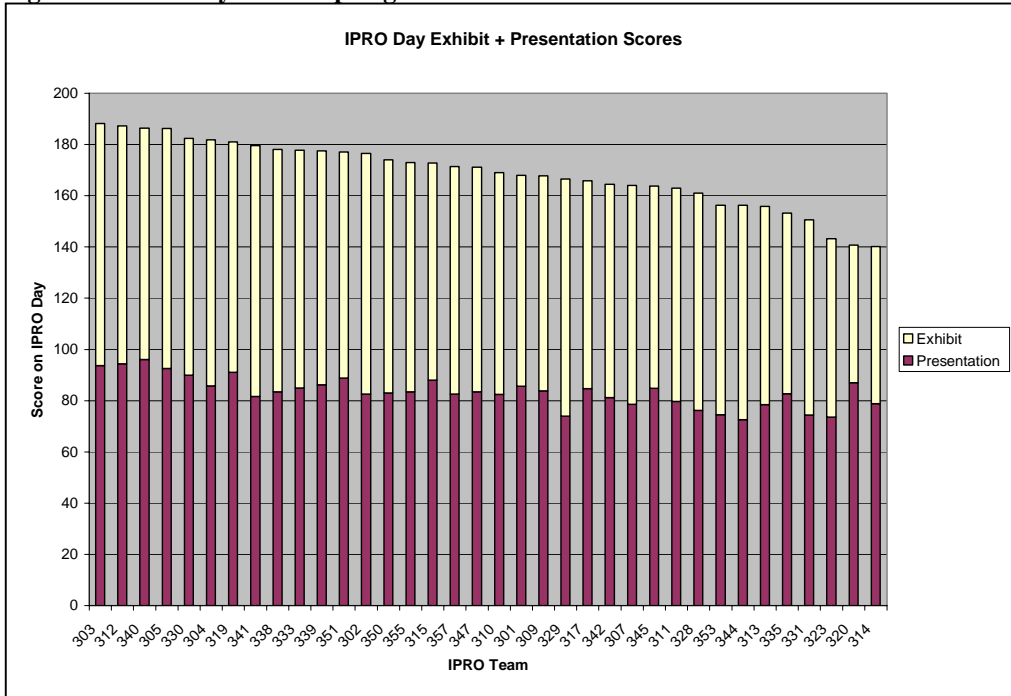
IPRO	Fall 2005	IPRO DAY	SELF ASSESSMENT LO		LO TEST	TEAMWORK		mean position	mean percent not LO	IPRO TEAM RANK		
	Faculty	POSITION	PERCENT OF GOAL	POSITION	PERCENT OF GOAL	POSITION	PERCENT				PERCENT OF GOAL	
301	Al-Hallaj A	24	98.88%	11	102.75%	16	51.30%	18	98.75%	17.25	100.13%	20
302	Menhart II	1	114.50%	5	107.67%	17	51.11%	4	111.88%	6.75	111.35%	2
303	Ferguson D	11	107.69%	15	100.67%	7	58.13%	23	96.43%	14	101.59%	12
304	Abbasian J	29	90.69%	22	96.75%	24	47.00%	25	94.64%	25	94.03%	30
305	Sun X	30	105.75%	4	110.75%	11	54.41%	3	114.42%	12	110.31%	7
306	Yang E	17	90.13%	10	104.00%	8	56.71%	14	100.00%	12.25	98.04%	8
307	Rohter L	10	108.00%	19	98.58%	22	49.62%	12	101.21%	15.75	102.60%	15
310	Al-Hallaj S	20	104.75%	2	111.67%	5	60.22%	28	92.28%	13.75	102.90%	11
311	Frieder O	4	111.06%	6	106.83%	20	50.50%	1	118.30%	7.75	112.07%	3
313A	Maurer W	23	99.31%	14	101.08%	31	31.67%	20	97.81%	22	99.40%	26
313B	Maurer W	26	96.69%	14	101.08%	32	31.67%	21	97.81%	23.25	98.53%	27
314	Fagette P	31	68.88%	31	0.00%	33	0.00%	27	92.81%	30.5	53.90%	31
315	Cinar A	27	92.50%	21	96.83%	13	52.92%	5	111.70%	16.5	100.34%	18
317	Ruiz F	18	105.50%	1	114.25%	19	50.53%	8	106.79%	11.5	108.85%	6
318	Braucher C	15	106.25%	29	88.08%	34	0.00%	17	99.60%	23.75	97.98%	29
319	Anderson P	8	108.75%	12	102.67%	29	40.17%	26	93.35%	18.75	101.59%	22
329	Feinberg S	13	107.13%	26	94.75%	30	35.48%	9	106.21%	19.5	102.69%	25
333	Ferguson D	16	105.81%	13	101.33%	1	64.11%	2	118.57%	8	108.57%	4
335	Mohammad J	22	103.13%	8	106.08%	14	52.89%	22	97.54%	16.5	102.25%	17
338	Ferguson D	19	105.38%	23	96.50%	4	61.23%	29	89.02%	18.75	96.96%	23
339	Ferguson D	12	107.50%	27	94.50%	2	63.69%	15	99.91%	14	100.64%	13
340	Ferguson D	14	106.38%	9	105.00%	6	60.94%	24	96.25%	13.25	102.54%	10
341	Woerner J	5	111.00%	20	97.00%	9	56.43%	10	105.27%	11	104.42%	5
350	Braband J	2	114.50%	3	111.33%	3	63.08%	6	110.49%	3.5	112.11%	1
351	Braband J	6	110.56%	18	98.75%	23	48.89%	19	97.86%	16.5	102.39%	16
352	Tynan C	28	91.75%	25	94.83%	10	55.42%	31	87.05%	23.5	91.21%	28
353	Braband J	7	109.00%	16	99.83%	21	50.36%	7	109.55%	12.75	106.13%	9
354	Pistru D	25	97.88%	7	106.25%	28	44.17%	16	99.96%	19	101.36%	24
355	Khalili H	21	103.63%	17	98.92%	18	51.11%	13	100.80%	17.25	101.12%	19
357	Bradband J	3	111.25%	24	95.67%	15	52.82%	30	88.97%	18	98.63%	21
358	Bradband J	9	108.13%	23	92.58%	12	53.25%	11	101.29%	15	100.67%	14
IPRO DAY IS PRESENTATION AND EXHIBIT TOTAL, 200 MAX POINTS, 160 POINTS MINIMUM GOAL												
LO TEST IS PERCENT CORRECT OF QUESTIONS ON TEST TWO, THE POST TEST, 80% MEAN CORRECT IS MINIMUM GOAL, spring is pilot test not in mean												
TEAMWORK SURVEY MINIMUM GOAL IS 22.4 OR 80% OF MAXIMUM 28 POINTS ON SEVEN SURVEY DIMENSIONS												
SELF ASSESSMENT is 150 maximum and 120 goal (table B) and 12/15 goal and 12 desired minimum mean score (table C).												
yellow or blue and the team did not meet minimum standards purple and the team did not comply with IPRO Program Requirements												
No IPRO met the Learning Objectives Standard and this was a pilot semester test of the Learning Objectives Test												
Rounds to meet minimum standard												

Table 2 IPRO Dav Scores Fall 2005

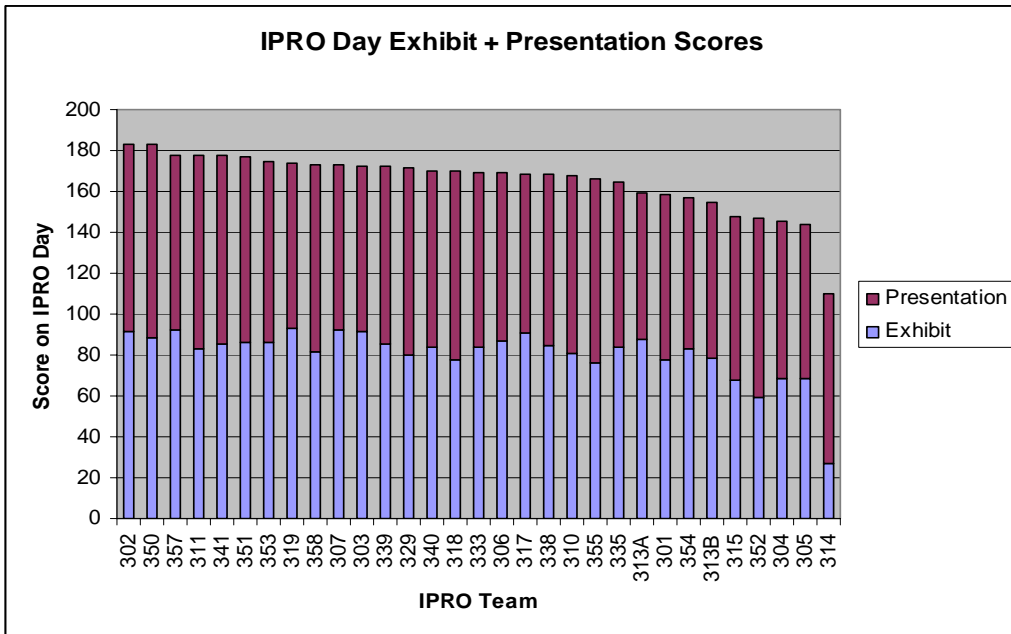
IPRO	Faculty	IPRO DAY		SELF ASSESS LO		LO TEST		TEAMWORK		mean position	mean percent	IPRO TEAM RANK
		POSITION	PERCENT OF GOAL	POSITION	PERCENT OF GOAL	POSITION	PERCENT Correct	POSITION	PERCENT OF GOAL			
312	McKee K	2	117.0%	3	116.4%	11	63.6%	3	111.7%	4.8	115.1%	1
305	Sun X	4	116.4%	2	123.3%	14	62.4%	1	112.9%	5.3	117.5%	2
340	Ferguson D	3	116.5%	11	106.1%	5	67.6%	7	107.2%	6.5	109.9%	3
350	Braband J	14	108.8%	10	110.2%	4	70.0%	6	107.4%	8.5	108.8%	4
339	Ferguson D	11	111.0%	13	104.6%	6	67.5%	5	108.4%	8.8	108.0%	5
341	Woerner J	8	112.3%	5	113.0%	17	57.5%	8	106.4%	9.5	110.5%	6
330	Mostovoy S	5	114.0%	4	113.7%	26	41.2%	4	109.9%	9.8	112.5%	7
311	Frieder O	27	101.9%	1	120.2%	13	62.9%	2	112.7%	10.8	111.6%	8
351	Braband J	12	110.7%	8	113.5%	10	63.9%	14	102.8%	11.0	109.0%	9
303	Ferguson D	1	117.6%	12	104.2%	7	64.7%	27	93.1%	11.8	105.0%	10
302	Menhart II	13	110.4%	15	104.7%	12	63.5%	9	105.9%	12.3	107.0%	11
304	Yee W	6	113.6%	6	113.1%	22	53.5%	16	102.6%	12.5	109.8%	12
338	Ferguson D	9	111.3%	25	96.5%	2	71.6%	22	98.2%	14.5	102.0%	13
328	Snapper J	28	100.6%	14	102.3%	3	71.0%	13	103.9%	14.5	102.3%	14
319	Anderson P	7	113.1%	27	99.6%	1	71.7%	26	93.9%	15.3	102.2%	15
333	Ferguson D	10	111.1%	23	102.9%	9	64.0%	24	95.0%	16.5	103.0%	16
315	Budiman J	16	108.0%	22	99.9%	15	62.2%	21	98.2%	18.5	102.0%	17
307	Rohter L	25	102.5%	16	101.8%	8	64.4%	20	98.7%	17.3	101.0%	18
323	Maurer W	34	89.5%	7	112.8%	20	56.0%	11	104.9%	18.0	102.4%	19
313	Maurer W	31	97.4%	20	102.9%	16	58.2%	12	104.0%	19.8	101.4%	20
344	Davis B	30	97.7%	18	103.5%	24	50.3%	10	105.7%	20.5	102.3%	21
345	Abbasian J	26	102.3%	19	103.9%	23	50.9%	17	102.5%	21.3	102.9%	22
335	DeSantiago E	32	95.7%	9	110.2%	27	34.6%	18	100.6%	21.5	102.2%	23
301	Alhallaj S	20	105.0%	24	100.5%	25	42.4%	19	99.3%	22.0	101.6%	24
347	Abbasian J	18	106.9%	28	96.6%	19	56.6%	25	93.9%	22.5	99.2%	25
329	Feinberg S	22	104.1%	17	105.4%	28	29.9%	23	97.9%	22.5	102.5%	26
355	Khalili II	15	108.1%	21	100.9%	29	28.6%	29	90.8%	23.5	99.9%	27
331	Mostovoy S	33	94.1%	29	93.7%	21	54.6%	15	102.7%	24.5	96.8%	28
353	Braband J	29	97.7%	30	86.1%	18	57.3%	30	81.3%	26.8	88.4%	29
342	Williamson S	24	102.8%	26	97.4%	30	1.4%	28	91.5%	27.0		30
309	Meade K	21	104.9%	31	n/a	31	n/a	32	n/a	28.8		31
310	Alhallaj S	19	105.6%	32	n/a	32	n/a	33	n/a	29.0		32
357	Braband J	17	107.1%	36	n/a	36	n/a	31	69.2%	30.0		33
317	Ruiz F	23	103.6%	34	n/a	34	n/a	35	n/a	31.5		34
314	Fagette P	36	87.6%	33	n/a	33	n/a	34	n/a	34.0		35
320	Hamill-Governale	35	88.0%	35	n/a	35	n/a	36	n/a	35.3		36
IPRO DAY IS PRESENTATION AND EXHIBIT TOTAL, 200 MAX POINTS, 160 POINTS MINIMUM GOAL												
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SELF ASSESSMENT is 150 maximum and 120 goal (table B) and 12/15 goal and 12 desired minimum mean score (table C).												
yellow and the team did not meet minimum standards						purple and the team is not in compliance with IPRO Program requirements						



**Figure 1. IPRO Day Scores Spring 2006**



**Figure 2. IPRO Day Scores Fall 2005**



## Purpose and Methodology of the Learning Objective Test:

The IPRO Program strives to instill four main learning objectives in IPRO students that will better prepare them to thrive in a professional career setting and environment. These learning objectives are communication, teamwork, project management, and ethical standards and behaviors. We believe that students that are able to effectively develop their knowledge and behavior in these areas will be aptly suited for any professional career. Through this research, we hope to quantitatively assess whether or not students that participate in an IPRO gain a more thorough understanding of the knowledge supporting the comprehension of the learning objectives by administering a test at the beginning and end of each semester.

The learning objectives for the IPRO Program are communication, teamwork, project management, and ethical standards and behaviors. These learning objectives were established by the academic deans of the university as goals toward providing students with an enriching and innovative program where students can develop and apply many of the skills they will need in a professional career. During the Spring and Summer semesters of 2005, a select group of students, along with distinguished faculty, worked together to develop an outline of the body of knowledge on the four learning objectives. The body of knowledge contained information that was deemed essential (by tenured faculty and the IPRO Program) for students to obtain and retain as part of their IPRO experience.

The test was generated to include between 60 and 65 questions for all four Learning Objectives. A final test was generated that included approximately 80 questions for all four learning objectives: 15 questions on project management, 15 questions on communication, 25 questions on ethics, and 25 questions on teamwork. An updated tool consisted of 65 questions (15 questions in project management, communication, teamwork and 20 questions for ethics) and was administered at the end of the Fall 2005 semester to 247 students.

## Findings of Learning Objective Test:

**Table 3. Learning Objective Pretest Spring 2006**

	Communication	Project Management	Teamwork	Ethics
Average	45.06%	35.72%	54.53%	43.54%

**Table 4. Learning Objective Posttest Spring 2006**

	Communication	Project Management	Teamwork	Ethics
Average	40.98%	56.92%	42.05%	37.54%

**Table 5. Learning Objective Pretest Fall 2005**

	Communication	Project Management	Teamwork	Ethics
Average	44.59%	34.99%	54.54%	44.20%

**Table 6 Learning Objective Posttest Fall 2005**

	Communication	Project Management	Teamwork	Ethics
Average	31.64%	42.63%	48.96%	44.72%

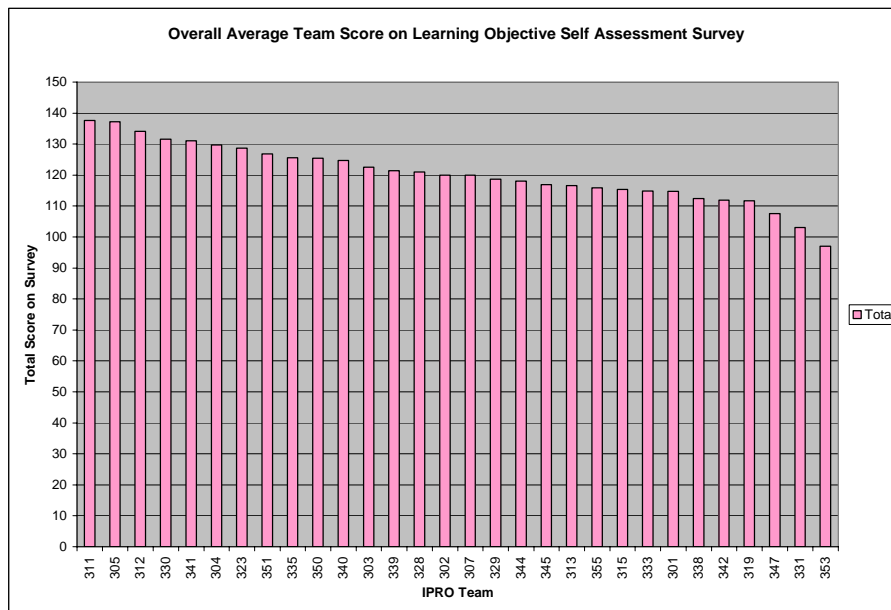
## Purpose and Methodology of Learning Objective Self Assessment Survey:

Perception of achievement is an important aspect of the IPRO experience. Whether individuals think they are achieving anything from the IPRO experience is measured through the Learning Objective Self Assessment Survey. Five learning objectives for the self assessment have been established for the IPRO Program. These objectives include the following: multidisciplinary teamwork, communication, project management, real-world problem solving, and continuous learning. The Learning Objective Student Assessment Survey was designed to measure students' perception of the five main learning objectives of the program.

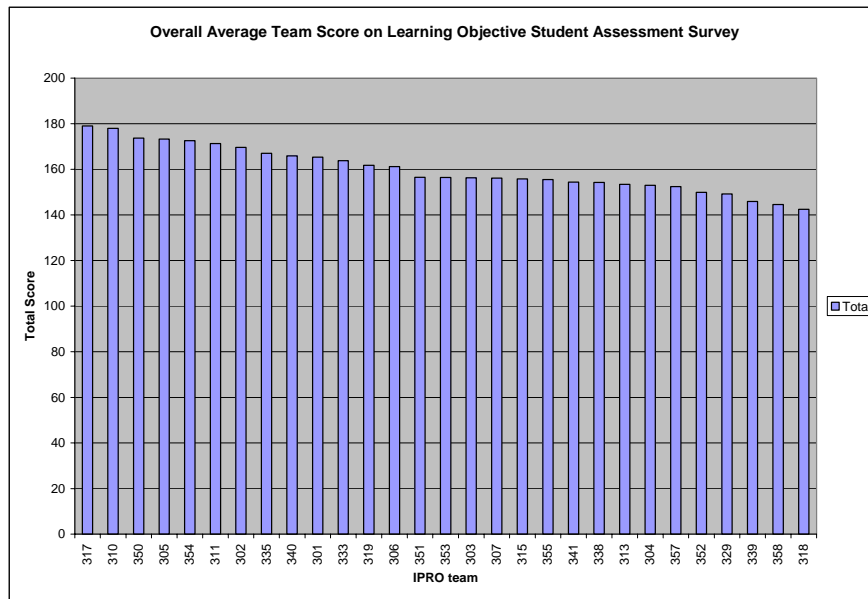
Faculty and students from the IPRO program collaborated to devise items for the Learning Objective Student Assessment Survey. The items of the survey were revised and the model was changed to better reflect student's perception of what they learned, and to ensure that the survey was evaluating the objectives of the program. Items were chosen to create an effective instrument to measure students' perception of achievement and of the value placed on the important learning objectives of the program. Participation for completing the survey was voluntary. The survey is a self-report instrument assessing the perception of achievement of the learning objectives rather than an actual measure of achievement.

The Spring 2005 Survey consisted of 35 items that fell into the five categories being studied: multidisciplinary teamwork, communication, project management, real-world problem solving, and continuous learning. The Fall 2005 survey contained 45 items.

## Findings of Learning Objective Self Assessment Survey:



**Figure 3. Learning Objective Self Assessment Survey Results Spring 2006**



**Figure 4. Learning Objective Self Assessment Survey Results Spring 2006**

**Table 7. Learning Objective Self Assessment Survey Spring 2006**

	Teamwork	Project Management	Communication and Leadership	Total
Average	3.96	3.63	4.20	11.80

**Table 8. Learning Objective Self Assessment Survey Fall 2005**

	Team-work	Communication	Project Management	Desire for Life-Long Learning	Real World Problem Solving	Total
Average	4.19	4.09	3.92	4.06	3.99	20.74

## Purpose and Methodology of Teamwork Survey:

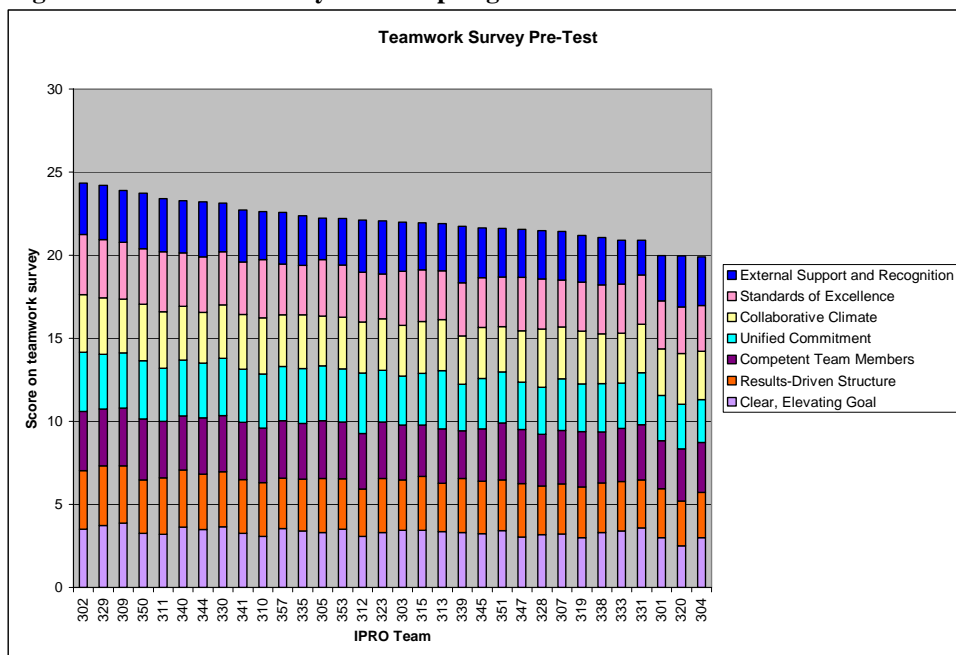
The Interprofessional Projects at this university are specifically designed, amongst other things, to train students how to work well with others. Thus, good teamwork skills have become an increasingly important role in the IPRO experience. Because teamwork is essential in the workforce, IPROs have stressed its importance to better prepare students for what lies ahead.

The Teamwork Survey is an assessment tool designed to measure how students perceive their IPRO is functioning as a team. The tool was used to identify poorly functioning teams and partially diagnose particular causes of dysfunction.

The teamwork survey was created by adapting a brief Likert-response survey. Questions were designed to evaluate team functioning and perceived strengths and weaknesses. The seven dimensions observed in this tool were: 1) clear elevating goal, 2) results-driven structure, 3) competent team members, 4) unified commitment, 5) collaborative climate, 6) standards of excellence and 7) external support and recognition. The final items on the assessment sought to assess the performance of the team leader and faculty advisory.

## Findings of Teamwork Survey:

**Figure 3. Teamwork Survey Pretest Spring 2006**



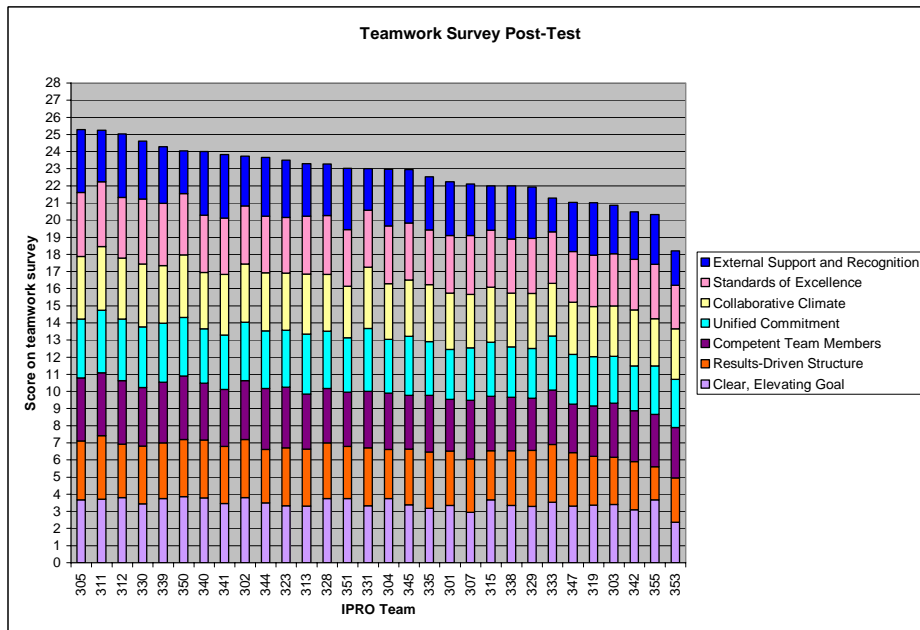
	D1*	D2	D3	D4	D5	D6	D7	Overall
All Teams	3.32	3.14	3.29	3.13	3.13	3.12	2.97	3.16

\*D1: clear elevating goal, D2: results-driven structure, D3: competent team members, D4: unified commitment, D5: collaborative climate, D6: standards of excellence and D7: external support and recognition.

	D1*	D2	D3	D4	D5	D6	D7	Overall
All Teams	3.27	3.05	3.13	3.09	3.11	3.05	2.91	3.09

Figure 4.

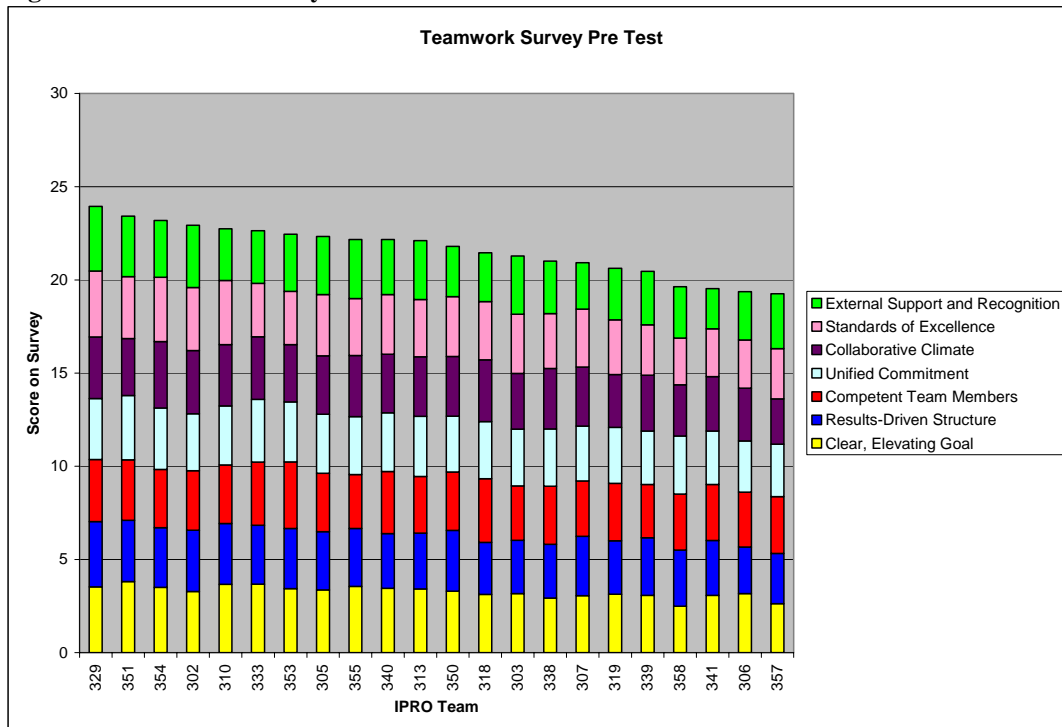
Teamwork Survey Posttest Spring 2006



	D1*	D2	D3	D4	D5	D6	D7	Overall
All Teams	3.46	3.15	3.27	3.20	3.29	3.31	3.05	3.25

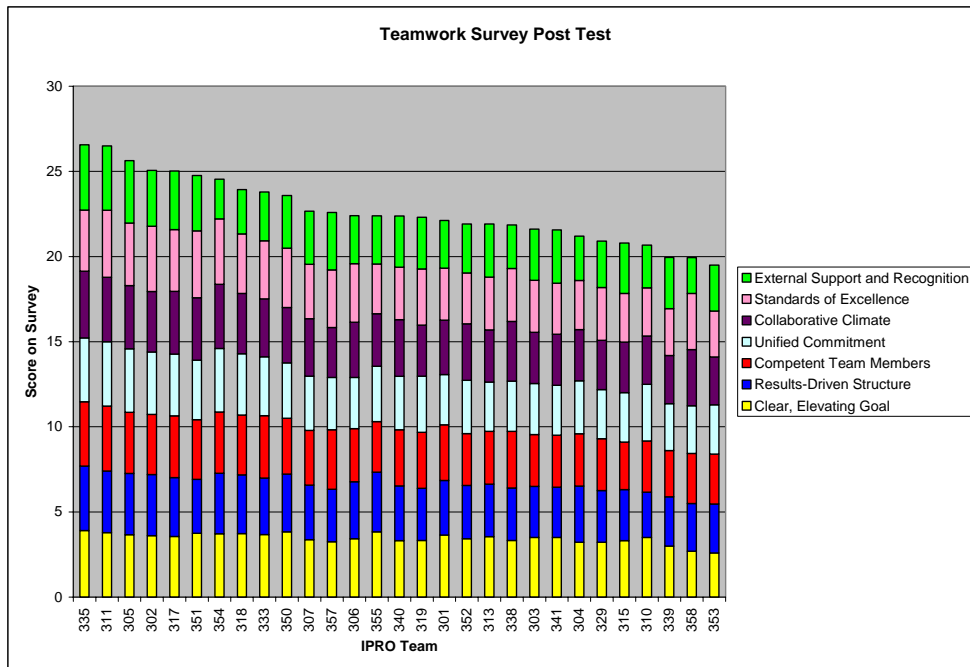
\*D1: clear elevating goal, D2: results-driven structure, D3: competent team members, D4: unified commitment, D5: collaborative climate, D6: standards of excellence and D7: external support and recognition.

Figure 5. Teamwork Survey Pretest Fall 2005



\*D1: clear elevating goal, D2: results-driven structure, D3: competent team members, D4: unified commitment, D5: collaborative climate, D6: standards of excellence and D7: external support and recognition.

**Figure 6. Teamwork Survey Posttest Fall 2005**



	D1	D2	D3	D4	D5	D6	D7	Overall
All Teams	3.46	3.21	3.26	3.22	3.27	3.27	2.97	3.24

\*D1: clear elevating goal, D2: results-driven structure, D3: competent team members, D4: unified commitment, D5: collaborative climate, D6: standards of excellence and D7: external support and recognition.