Spring 2015

Academic Unit Assessment Panel

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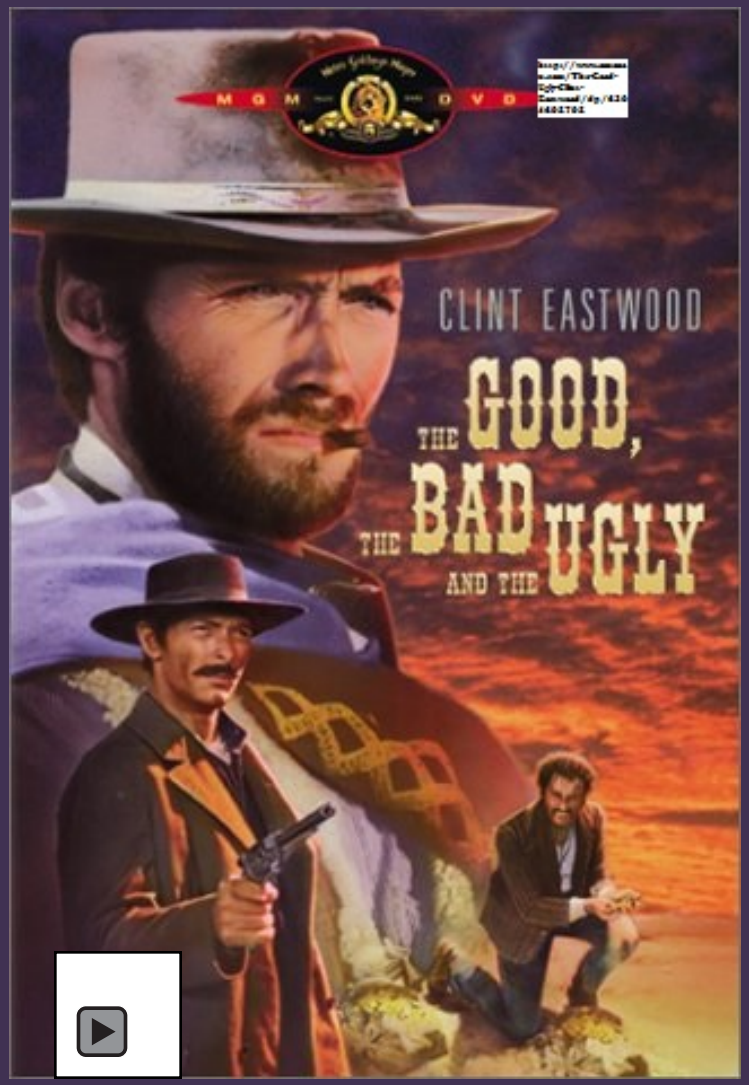


Assessing Professional Writing and Public Speaking in the Haworth College of Business

Barb Sagara, Learning Goal Champion for Communication Skills

Informal Quick-Draw poll

How many of you believe our students

- Express themselves professionally in writing
- Do not express themselves professionally
- Have acceptable oral presentation skills
- Do not have acceptable skills

Our Sheriff—the LAW!

Association to Advance Collegiate Schools of Business

Accreditation Requirements and Guidelines from AACSB:

1. Partner with stakeholders to develop learning goals
2. Create formal assessment plan for each goal
3. Design assessments
4. Administer assessments
5. Collect data
6. Collect anecdotal and indirect assessment data (exit surveys)

– then . . .

then . . .

7. Analyze data
8. Report problems in ANY area

   (AACSB “Sheriff” doesn’t trust too many “good” results)

9. Determine steps to “close the loop” for issues
10. Reassess process and product after changes made

HCoB has also:

- Selected “Assessment Champion” for each goal
- Created Assurance of Learning Council of champions

Our good, bad, and ugly story

Successes and changes so far

We've learned assessment done right can blast the way to even better programs, courses, goals, processes, and student outcomes!

We're providing more support for international students in MBA program

- Assessment data supported observations these students needed additional training in:
  - oral presentations
  - source citations
  - argument support
- New class created in partnership with CELSIS
- Entrance interview places students—conducted by three faculty members
- Course being offered for second time
- Students tracked to measure success in MBA program

We have a new Assurance of Learning Award

Honors faculty or staff members who assist ALC collecting data or implementing changes

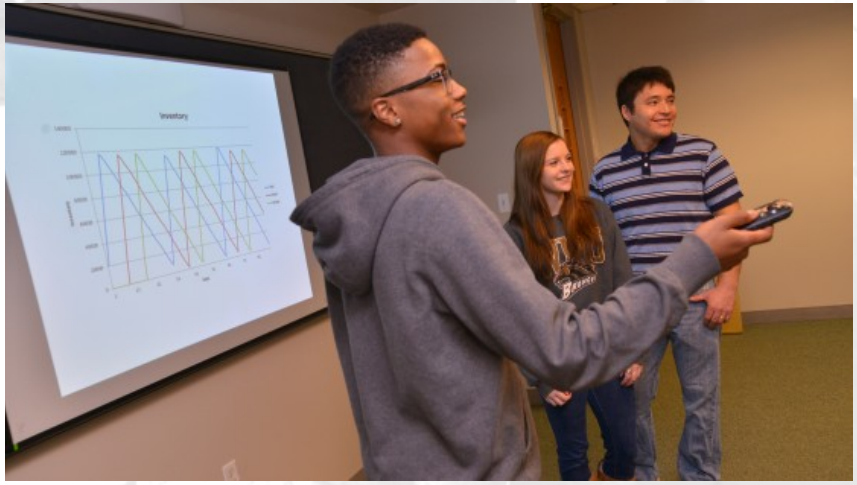
- First winner is Barbara Caras-Tomczak, Manager of the MBA Program Office
  - Developed new MBA entrance interview
  - Created class syllabus with CELSIS faculty
  - Championed class through Graduate Program Council and Curriculum Committee
  - Tracks students in program

We have a new Communication Center

Provides one-on-one help with writing or presentation assignments for any class

In third year, with use doubling every year

Many faculty require visits, especially for team presentations



We have a Professional Written and Oral Communication Standards Statement (for syllabi)

- Handout provided

We implemented a new assessment cycle

- Compiled lots of data
- STOP collecting data in every year
- START spending equal amount of time discussing and implementing needed changes
- Two year cycle now in place:
  - assess one year (2015),
  - work on findings and solutions other year (2016)

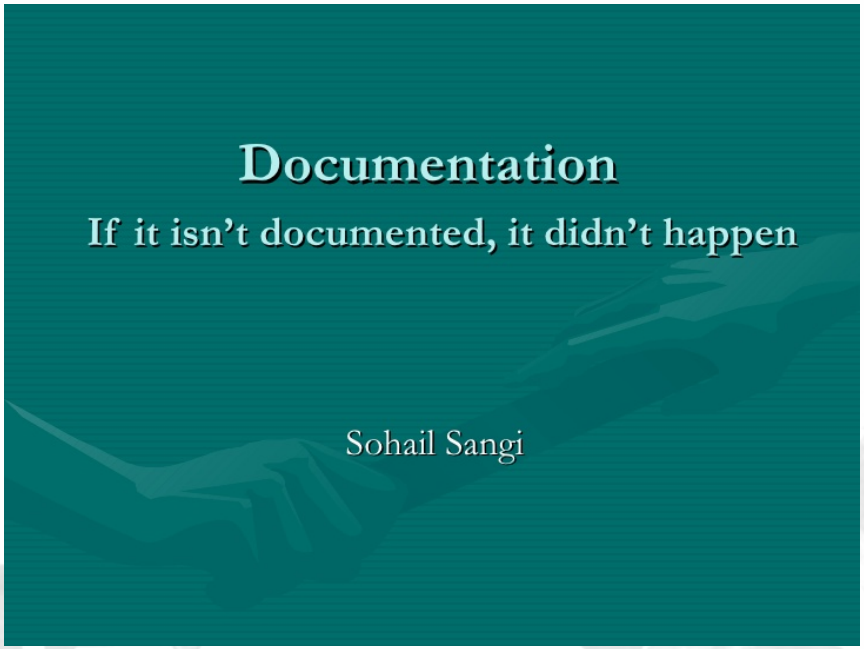
Cycle the wagons!

We learned to document everything

Create a living “history” for each learning goal

- Show initial ideas, implementation
- Discuss errors, problems
- Explain changes, new assessments and outcomes

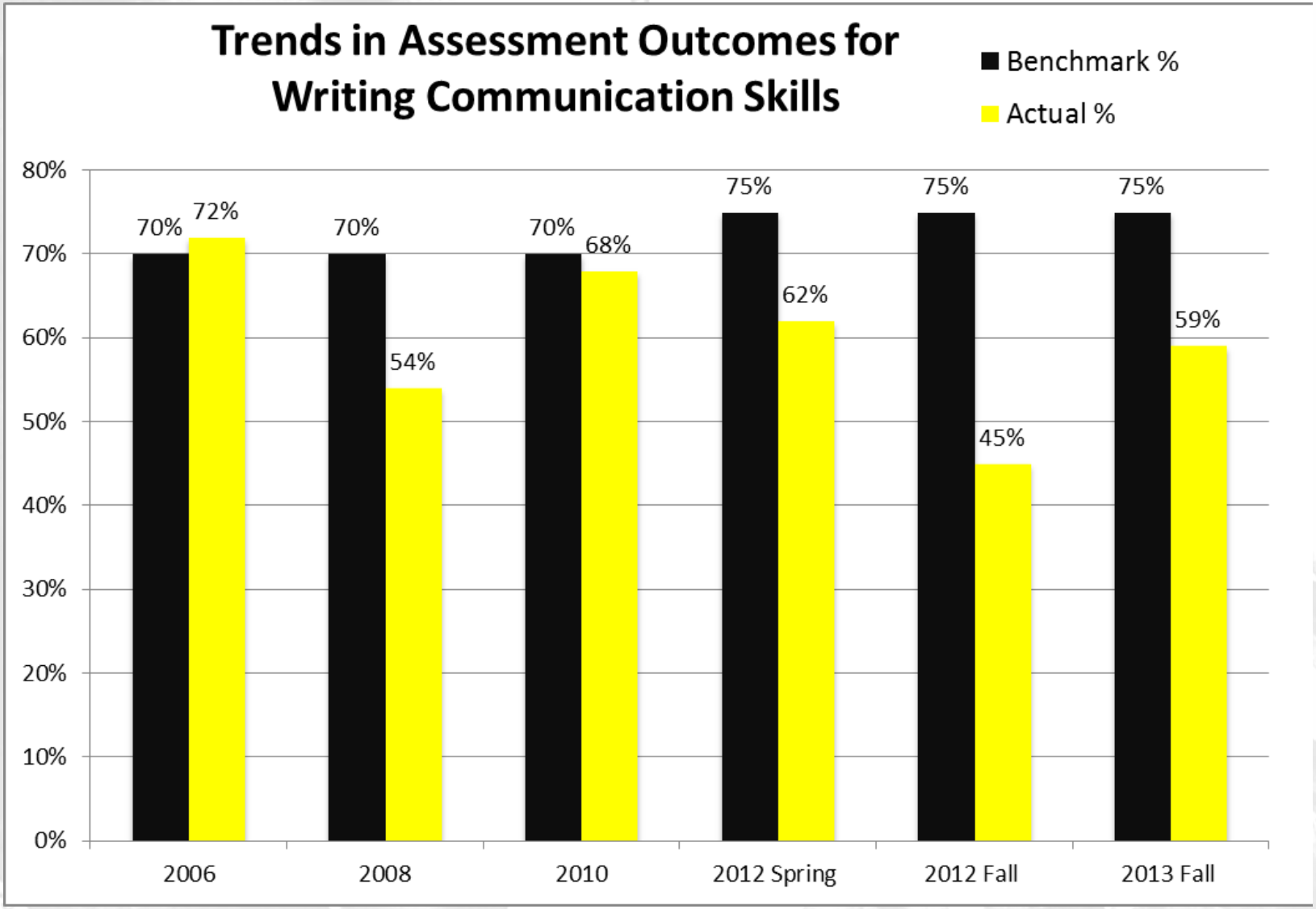
Show continuous improvement



Our good, bad, and ugly story

Baccalaureate writing assessment comes full circle

- BCM faculty developed assessment plan 2005, began 2006
- Common writing assignment given
- Submissions redacted of student/faculty information, combined, random sample of 20% pulled
- Team assessed samples
- First round met benchmark of 70%, none since have met the benchmark (benchmark raised to 75% in 2012)


Trends in Assessment Outcomes for Writing Communication Skills
Benchmark %
Actual %
80%
70%
60%
50%
40%
30%
20%
10%
0%
70%
72%
70%
54%
70%
68%
75%
62%
75%
45%
75%
59%
2006
2008
2010
2012 Spring
2012 Fall
2013 Fall

AACSB and faculty unhappy

- AACSB 2010 visit and assessment trainer:
  - Sample size too small—sample at least 40%
  - Rubric needed (excellent advice—made one with input from faculty in several departments)
- Faculty didn't like common case, so we modified process
  - Faculty chose own case in genre (2009-present)
  - Faculty assessed 100% of their own writing assignments
  - Sent rubrics to champion
- Champion combined data and reported to ALC
- Tried new process for 5 years

Solution created serious control issues

- Cases varied widely in complexity
- Prompts varied
- Administration varied :
  - some had students do case in class (lab),
  - others let students take case home,
  - others used peer review/second drafts for submission
- Everyone complained they were doing more work
- When results collected, intolerable variance reduced reliability

- BUT aggregated data still showed same poor results

Returning to original assessment plan

- With changes
  - More faculty discussion, input, and training
  - Group selects case
  - Training so consistent prompts will be given to all students
  - No coaching or peer reviews allowed
- 40% sample size using rubric
- Don’t anticipate outcome changes in aggregate, but compiling results will cause less aggravation!

Process failure is part of assessment

Budget issues stalling progress

Data prove need for MORE communication training

Changes proposed

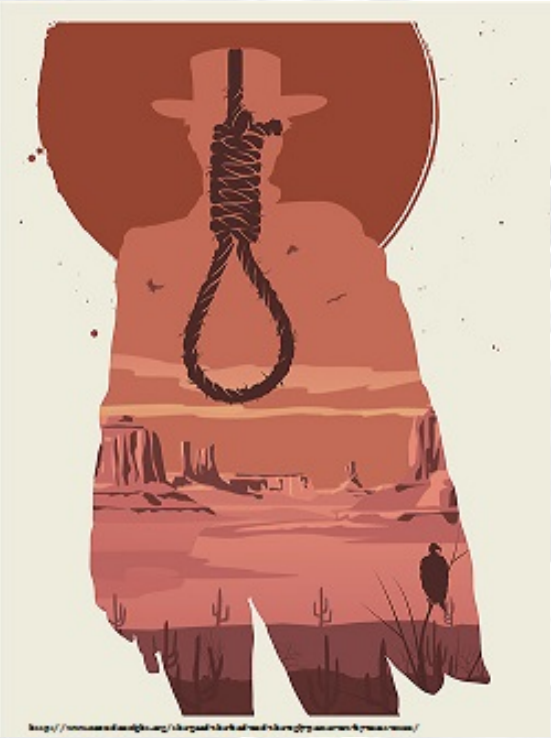
- Increase writing instruction in baccalaureate writing
- Move public speaking and career prep activities
- Create new class 2000-level class for those two topics

Currently pending approval for additional resources (faculty lines)

Really tough in our budget reality (on hold in UPC more than a year already)

Our good, bad, and ugly story

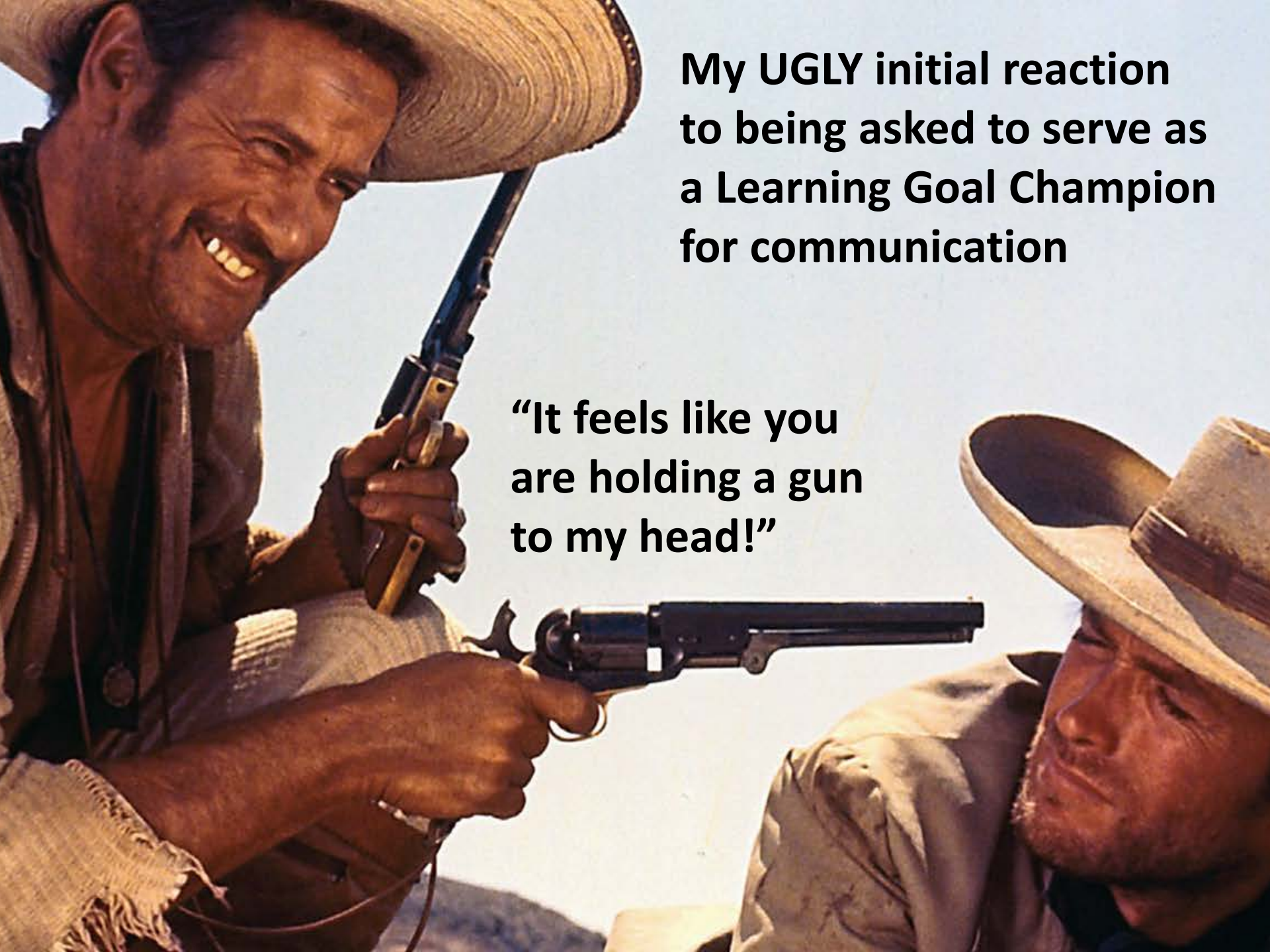
Non-tenured and non-promoted faculty worries are pretty ugly



- Fear assessment outcomes reflect on their teaching
- Worry results will affect their tenure and promotion trajectory
- May provide inappropriate help to boost students' scores

Ugly assessment champion stressors

- Some learning goal champions, not yet tenured, are in “untenable” position
- Must convince some faculty to participate against their wishes
- Those same faculty may sit on tenure/promotion committees in future


My UGLY initial reaction to being asked to serve as a Learning Goal Champion for communication
“It feels like you are holding a gun to my head!”

Was I surprised!! What I thought would be ugly turned out “Good”

- Met faculty in other departments
- Developed close relationships and friendships
- Find even our arguments stimulating

“I'll sleep better knowing my good friend is by my side to protect me.” Blondie quote from The Good, The Bad, and The Ugly

Our good, bad, and ugly story

Professional Written and Oral Communication Policy

Effective communication skills are critical to Haworth College of Business students' personal and professional success. In accordance with the College's learning goal that students must be effective communicators, business students must practice professional standards in written and oral communications. Students' assignments, therefore, must meet minimum standards to be acceptable. Standards for written work address errors in form including spelling, punctuation, format, and basic grammar, as well as technical English errors.

Standards for oral work include professional demeanor in dress, physical presentation delivery skills, quality of graphic support, and the above standards for written work. If these standards are not adhered to, the student's grade will be adjusted accordingly. Students are encouraged to seek assistance through the HCoB Communication Center.

Assessment for Accreditation

(among other things, of course….)

Betsy M. Aller, PhD, CAPM

Associate Professor

Dept. of Engineering Design, Manufacturing, and Management Systems

College of Engineering and Applied Sciences

Assessment in Action Day 2015

Western Michigan University

3 April 2015

GROUNDED IN MICHIGAN
REACHING FOR THE FUTURE

Assessment at the CEAS

- Engineering and engineering technology programs are accredited
- Accreditation Board for Engineering and Technology (ABET)
- Student learning outcomes (goals) are provided
- Visits every six years (or – *uh-oh* – more often)

What we start with….

General Criterion 3. Student Outcomes ***(commonly known as "A through K")***
The program must have documented student outcomes that prepare graduates to attain the program educational objectives.

(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.

What we start with…. *(it's not all about engineering)*

General Criterion 3. Student Outcomes ***(commonly known as "A through K")***
The program must have documented student outcomes that prepare graduates to attain the program educational objectives.

(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.

What we *used* to do with it….

- Identify where *A-K* took place

(“Who’s teaching writing?” “Who’s got experiments?” “Does anyone do ethics??” “I’m an engineer – I don’t teach writing!”)

- Assign responsibility to gather materials
- Listen to folks complain about gathering materials / jargon
- Gaze hopelessly at big piles of materials we didn’t know what to do with
- Wait for the visit, and hope for the best

IME Program Objectives

	1. Generating an understanding of concepts in engineering or engineering technology					2. To integrate state-of-the-art-knowledge and practice into the curricula						3. To prepare students to immediately enter professional careers in engineering or engineering technology		4. To instill an active awareness of engineering ethics and social responsibility		
ABET a-k (EAC / *tac*)	**K / *a***	**B / *c***	**K / *a***	**E / *f***	**C / *d***	**C / *d***	**K / *a***	**K / *a***	**C / *d***	***l k* (TAC only)**	**K / *a***	**G / *g***	**I / *h***	**F / *i***	**H / *j***	
Class	**a.** Ability to use electronic tools –CAD, office, research, communication, etc. – in an engineering or technical environment	**b.** Ability to apply scientific methods through experimentation	**c.** Ability to apply statistical techniques	**d.** Ability to apply logical decision-making techniques	**e.** Ability to define problems, design solutions, and compare alternatives to technical problems	**a.** Ability to critically analyze, evaluate, and improve manufac-turing pro-cesses using appropriate engineering materials / principles	**b.** Ability to use and modify computer-aided design and computer-aided analysis tools.	**c.** Ability to apply systems theory and management techniques to manufacturing and service industries.	**d.** Ability to design and/or model industrial systems to optimize the utilization of people and facilities.	**e.** A commit-ment to quality, timeliness, and con-tinuous improve-ment.	**f.** Ability to identify and use tools and tech-nologies in appropriate program-specific settings.	**a.** Demonstration of good oral, written, and graphical communi- cation	**c.** A recognition of the need for, and an ability to engage in, lifelong learning, including participation in professional societies, lectures, and maintaining currency in one's	**a.** Understandin g of ethical behavior in engineering and technology fields	**b.** Understanding of the professional, societal, and global impact of technology and engineering activities.	**Count**
IME 102	X											X	X	X	X	5
IME 122	X											X			X	3
IME 206				X						X		X				3
IME 281	X				X											2
IME 283	X				X											2
IME 284	X				X											2
IME 300																0
IME 305			X		X											2
IME 307	X					X				X		X				4
IME 352						X									X	2
IME 357												X				1
IME 387																0
IME 402				X				X		X	X	X		X	X	7
IME 416		X	X	X	X	X		X	X			X				8
IME 452						X										1
IME 491	**X**				**X**					**X**	**X**	**X**	**X**	**X**	**X**	**8**
IME 492	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**14**
IME 493																0
Pgm Obj/SLO	1a	1b	1c	1d	1e	2a	2b	2c	2d	2e	2f	3a	3c	4a	4b	
Counts	8	1	3	4	7	5	1	3	2	5	3	9	3	4	6	
Total-Pgm Obj	**23**					**19**						**12**		**10**		**64**

A-K, tied to program courses (most removed from this list), showing the *many* courses in which that criterion is evident. Materials used to be collected from *many* courses. *Not* a good system.

GROUNDED IN MICHIGAN
REACHING FOR THE FUTURE

What we've done with it now….

- Identify program educational objectives (PEOs)
- Tie *"A-K"* to program educational objectives
- Articulate performance criteria *(PCs)* for each *A-K*
- Identify courses in program where *A-K* are evident, can be assessed
- See where there's redundancy; remove it
- Assign course coordinators to assess
- Did all this in series of dept. / program retreats

Yikes. Here's what it looks like …..

UEM

Engineering Management Technology: Program Educational Objectives, Students Outcomes, and Performance Criteria, Mapped to Courses, 2010-2011

PEOs	1. Manage projects, people, and resources effectively				2. Engineer and improve manufacturing and service systems.		3. Build and use management tools to analyze and solve problems effectively and make decisions from a systems perspective		4. Communicate effectively in verbal, written, and graphical forms.	5. Pursue professional growth and interact effectively in work environments	
TAC Student Outcomes	**a. Ability to select and apply the knowledge, techniques, skills, and modern tools of their disciplines to broadly-defined engineering technology activities**	**j. Knowledge of the impact of engineering technology solutions in a societal and global context**	**i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity**	**k. Commitment to quality, timeliness, and continuous improvement**	**f. Ability to identify, analyze, and solve broadly-defined engineering technology problems**	**d. Ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives**	**b. Ability to select and apply a knowledge of mathematics, science, engineering, & technology to engineering technology problems that require the application of principles and applied procedures or methodologies**	**c. Ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes**	**g. Ability to communicate effectively regarding broadly-defined engineering technology activities**	**e. Ability to function effectively as a member or leader on a technical team**	**h. An understanding of the need for and an ability to engage in self-directed continuing professional development**
Performance Criteria	A1. Selects appropriate CAx tools throughout the design process.	J1. Evaluates material/product disposal and end-of-use alternatives.	I1. Evaluates the ethical dimensions of professional engineering and technological practices.	K1. Establishes measurable product quality definitions for improvement.	F1. Defines technical problems, compares alternative options, and designs a solution.	D1. Creates product designs using various computer-aided design tools.	B1. Selects and uses tools or technologies (DXF, IGES, STL) to transfer design information.	C1. Gathers and uses data to assess process and product quality.	G1. Provides content that is factually correct, supported with evidence, and properly documented.	E1. Demonstrates follow through on team commitments (peer reviews, meeting minutes).	H1. Seeks and responds to learning activities outside the classroom setting.
	A2. Demonstrates the use of one or more tools (CAD, Word, Excel, Power-Point, CAE) in presentation, analysis, research of a design.	J2. Applies knowledge that considers professional, societal, and/or global impact.	I2. Identifies ethical dilemmas and proposes solutions.	K2. Uses project management tools (task list, CPM, Gantt) to assist in the completion of projects in a timely fashion.	F2. Uses tools (CAx, simulation) to optimize product designs.	D2. Modifies CAx tools to enhance design.	B2. Applies appropriate statistical techniques.	C2. Uses experiments and their results to improve a process.	G2. Conveys technical information effectively in graphical form (posters, PPT, histograms, FEA outputs).	E2. Researches and gathers information for team project.	H2. Demonstrates an understanding of the current job market and job search process.
	A3. Applies systems tools (LP, MSM) to model and solve problems.	J3. Evaluates societal impact of proposed solutions.	I3. Demonstrates professional and ethical behavior (attendance, punctuality, professional work submitted).	K3. Considers the role of time in the design process, in decision making, and/or in manufacturing and service processes.	F3. Applies tools and modeling techniques suited to the problem (DFDs, inventory control, FEA, OR, NPV).	D3. Evaluates the performance of a system or process.	B3. Uses appropriate engineering, science, and mathematical tools for decision making (OR, statics, materials).	C3. Uses decision making tools to analyze or improve a process or system	G3. Presents information in writing that is well-organized, addresses objectives, and meets required standards of grammar and language rules. (Aller has rubrics)	E3. Supports team activities through professional behaviors.	H3. Articulates intention to pursue professional development (certification, advanced degrees).
		J4. ICES #189: This course broadened my perspective of working in a global/societal context.	I4. Demonstrates a knowledge of professional codes.		F4. ICES #176: Did you Improve your ability to solve real problems in this field?	D4. Develops appropriate design parameters (use, dimensions, economics, life cycle) considering identified constraints and criteria.	B4. Uses standard design information to determine appropriate application procedures.		G4. Presents information in oral format that is well-organized, useful, and effectively delivered. (Aller has rubrics)	E4. Contributes to team products.	
		J5. Demonstrate an understanding of technology in society.				D5. Identifies customer needs and performance criteria.			G5. ICES #175: Improve ability to communicate clearly about this subject?	E5. ICES #158: The group projects taught me valuable skills beyond just learning course content.	
									G6. ICES #187: This course improved my ability to speak in public effectively	E6. ICES #214: I have learned how to work better in groups as a result of this course.	
IME 4910 Aller				**K2 Mid-term Q#10 & 12; Gantt chart 100/80**		**D5 Project Objectives Statement 95/85**			**G3 Interim project report 90/80**	**E2 Technical research review 80/80**	**H2 Job-seeking sequence 90/85**
IME 4920 IME 4930 Aller			**I1 3-Week ethics sequence 85/85**		**F1 Sponsor approval of team process, deliverables 85/85**				**G2 Posters G4 SEDP presentation Both: 90/80**	**E4 Peer evaluation 85/85**	**H1 Lifelong learning assignment 90/ ≥4 activities, memos**

A-K, tied to the 5 PEOs *(above)* and 3 to 6 PCs for each *A-K (below)*

GROUNDED IN MICHIGAN
REACHING FOR THE FUTURE

Engineering Management Technology: Program Educational Objectives, Students Outcomes, and Performance Criteria, Mapped to Courses, 2010-2011

PEOs	1. Manage projects, people, and resources effectively				2. Engineer and improve manufacturing and service systems.	
A-K Student Outcomes	**a. Ability to select and apply the knowledge, techniques, skills, and modern tools of their disciplines to broadly-defined engineering technology activities**	**j. Knowledge of the impact of engineering technology solutions in a societal and global context**	**i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity**	**k. Commitment to quality, timeliness, and continuous improvement**	**f. Ability to identify, analyze, and solve broadly-defined engineering technology problems**	**d. Ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives**
Performance Criteria	**A1.** Selects appropriate CAx tools throughout the design process.	**J1.** Evaluates material/product disposal and end-of-use alternatives.	**I1.** Evaluates the ethical dimensions of professional engineering and technological practices.	**K1.** Establishes measurable product quality definitions for improvement.	**F1.** Defines technical problems, compares alternative options, and designs a solution.	**D1.** Creates product designs using various computer-aided design tools.
	A2. Demonstrates the use of one or more tools (CAD, Word, Excel, Power-Point, CAE) in presentation, analysis, research of a design.	J2. Applies knowledge that considers professional, societal, and/or global impact.	I2. Identifies ethical dilemmas and proposes solutions.	K2. Uses project management tools (task list, CPM, Gantt) to assist in the completion of projects in a timely fashion.	F2. Uses tools (CAx, simulation) to optimize product designs.	D2. Modifies CAx tools to enhance design.
	A3. Applies systems tools (LP, MSM) to model and solve problems.	J3. Evaluates societal impact of proposed solutions.	I3. Demonstrates professional and ethical behavior (attendance, punctuality, professional work submitted).	K3. Considers the role of time in the design process, in decision making, and/or in manufacturing and service processes.	F3. Applies tools and modeling techniques suited to the problem (DFDs, inventory control, FEA, OR, NPV).	D3. Evaluates the performance of a system or process.
		J4. ICES #189: This course broadened my perspective of working in a global/societal context.	I4. Demonstrates a knowledge of professional codes.		F4. ICES #176: Did you Improve your ability to solve real problems in this field?	D4. Develops appropriate design parameters (use, dimensions, economics, life cycle) considering identified constraints and criteria.
		J5. Demonstrate an understanding of technology in society.				D5. Identifies customer needs and performance criteria.
IME 4910 Aller				**K2 Mid-term Q#10 & 12; Gantt chart 100/80**		**D5 Project Objectives Statement 95/85**
IME 4920 IME 4930 Aller			**I1 3-Week ethics sequence 85/85**		**F1 Sponsor approval of team process, deliverables 85/85**	

Left half (first 2 of 5 PEOs) of previous slide

Aller: Performance criteria for collection and assessment

IME 4920 - Spring 2014				I-1	F-1	G-2	G-4	D-4	C-1
				Metric: **90% ≥ 4**	Metric: **85 / 85**	Metric: **90 / 80**	Metric: **90 / 80**	Metric: **85 / 85**	Metric: **85 / 85**
				Lifelong learning	Ethics sequence	Communication - written: Poster	Communication - oral: SEDP	Teams - Peer eval.	Design - Sponsor approval
	Name	**Major**	**Project**						
1		MFT	B Robot	5	85	91	90	95	A
2		MFT	Bs Robot	4	96	91	94	95	A
3		MFT	B Robot	6	90	91	91	95	A
4		UEM	Stryker I	3	65	82	85	80	B+
5		UEM	Stryker I	4	65	82	85	85	B+
6		EDT	FabriKal	4	75	88	91	90	B
7		UEM	FabriKal	4	90	88	89	90	B
8		EDT	FabriKal	5	90	88	90	94	B
9		UEM	Hydro Dam	6	100	96	96	98	A+
10		UEM	Hydro Dam	5	95	96	96	97	A+
▪		▪	•	▪	•	•	•	•	•
▪		▪	•	▪	•	•	•	•	•
22		MFT	RayCe	4	91	95	90	93	A
23		EDT	RayCe	5	99	95	94	96	A
			Ave. score	4.6	87	90	91	92	A-
			% achieving PC req'd. score	91	74	96	100	91	96

Summary of assessment activity:

Actions for continuous improvement: See individual report for each performance criterion.

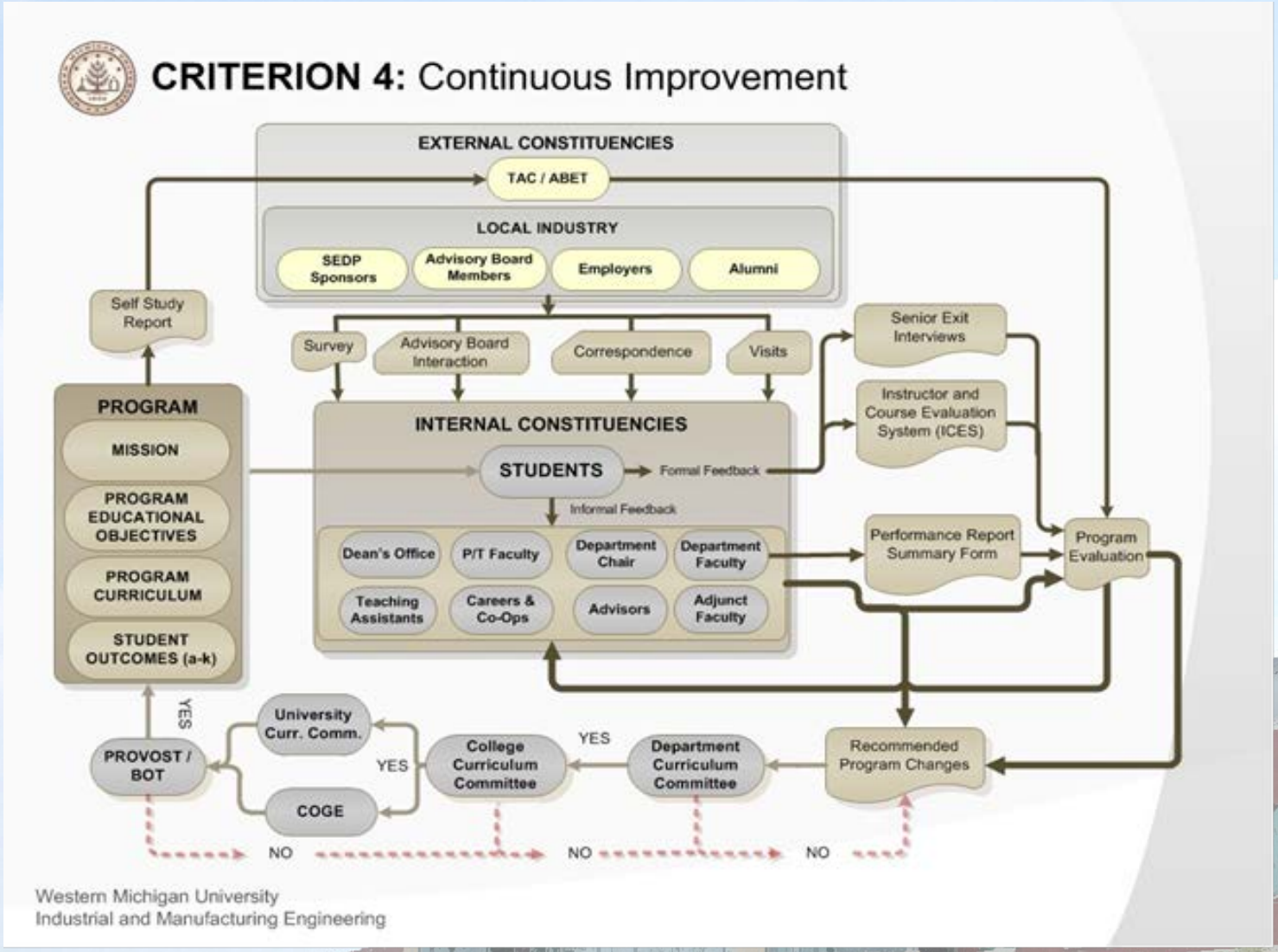
How this works….

- Started from “big picture”
- Tied *ABET’s* learning outcomes to *our* situation, needs
- Looked for redundancy; eliminated it
- Established three-year cycle (important!)
- Created templates to help reluctant colleagues
- Set up prominent, visual space in dept. office
- Support our assessment champions

Helpful points….

- Make assessing easier, more authentic (not about grades)
- Locate rubrics for genuine evaluation
- Examples: WeB*AL* website for communication and teamwork: http://www.wmich.edu/engineer/webal/webal.htm
- Find fellow champions (dept., college, etc.) and share best practices
- Work toward seamless integration

Close the Loop



Summary

- Focus on performance criteria which define and support student learning outcomes.
- Close the loop. Visually, close the loop.
- Make it possible for all to contribute.
- *Don't* let it become a huge roadblock.
- Make it work for you (your students, faculty, program, etc.)
- Celebrate your (and your colleagues') successes!

Thank you,
and please feel free to contact me:

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