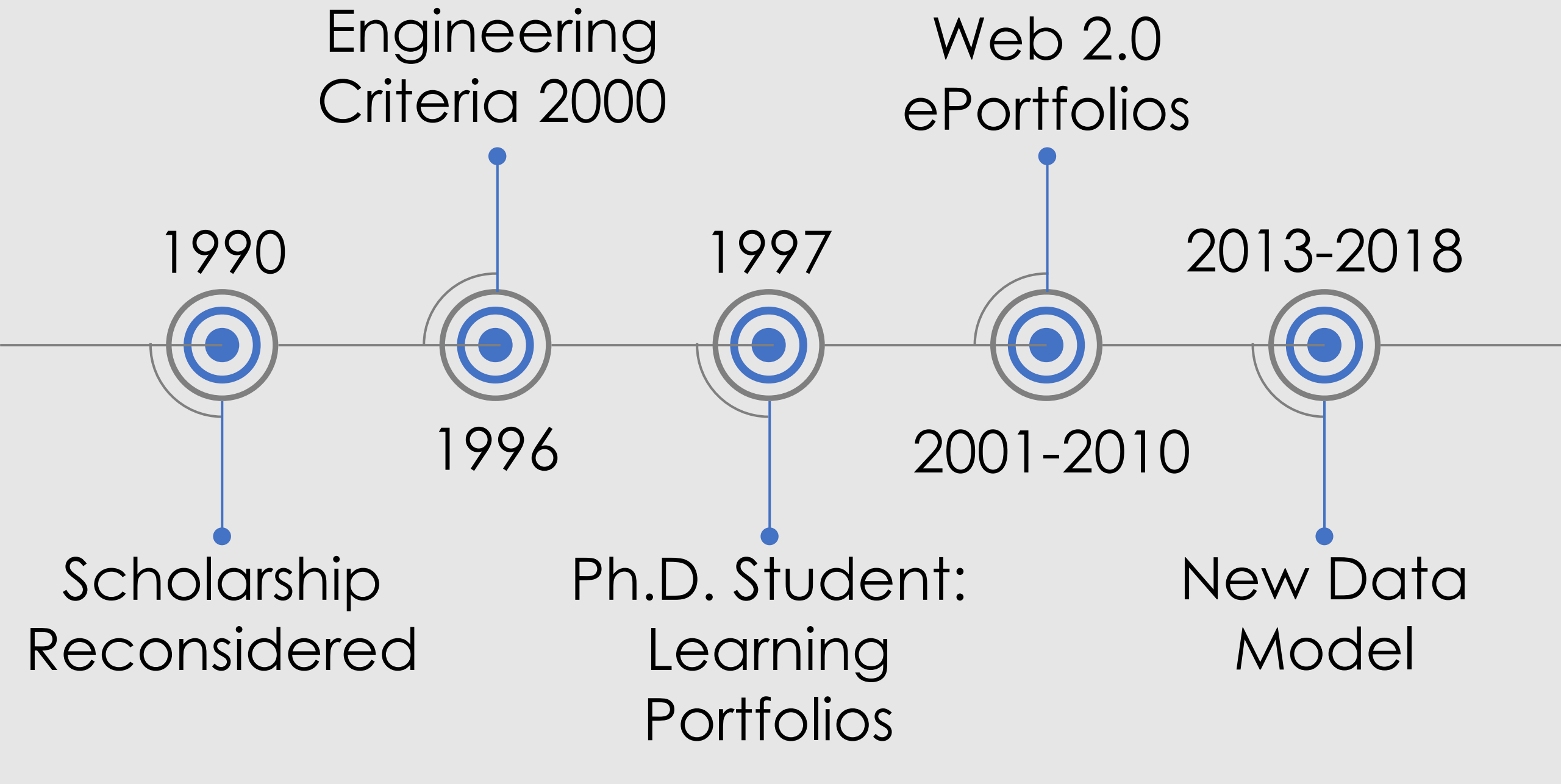
A Coherent Data Model for Learning Assessment

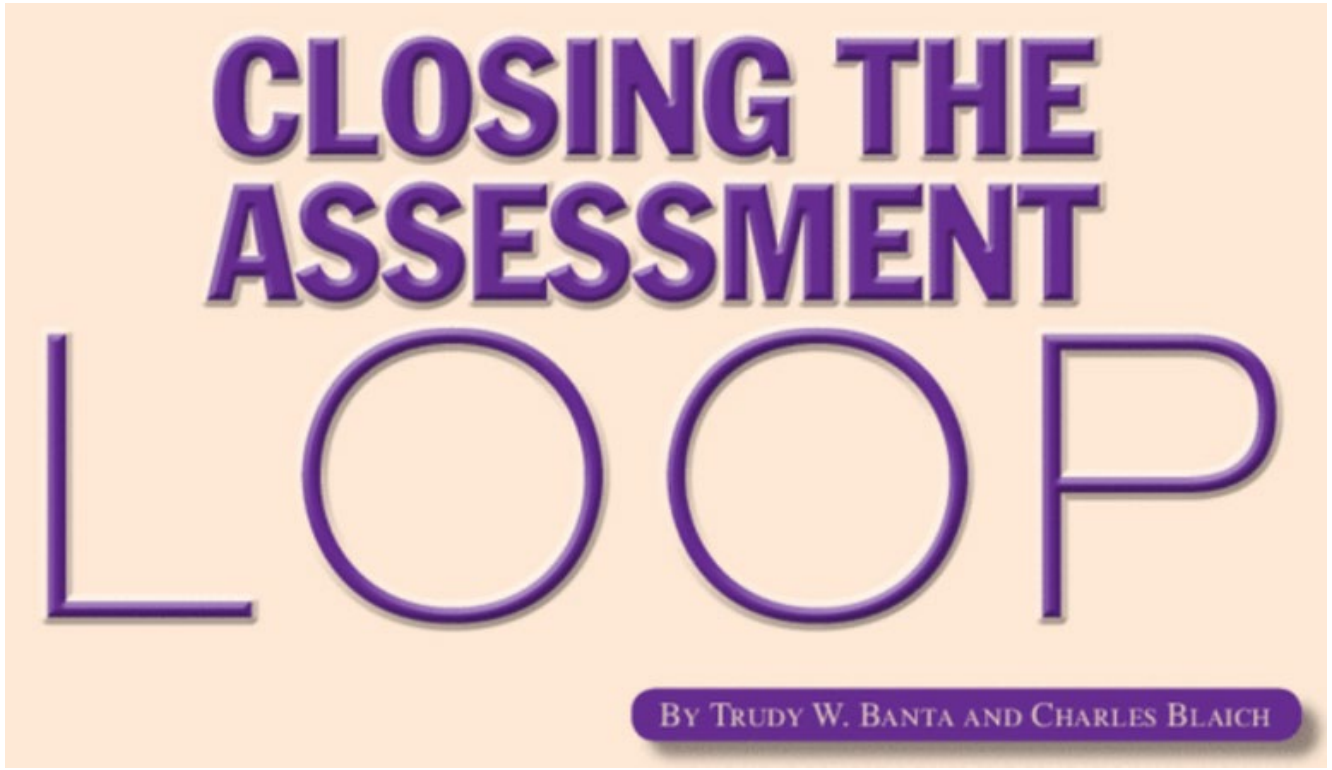
By: Douglas Walcerz Ph.D., Provost

Lee College, Baytown, TX

TAIR Conference 2025

Thursday, Feb 27 11:30am


Engineering Criteria 2000
Web 2.0 ePortfolios
1990
1997
2013-2018
1996
2001-2010
Scholarship Reconsidered
Ph.D. Student: Learning Portfolios
New Data Model



Change Magazine January/February 2011

- Among 146 profiles of good practice submitted by colleagues at campuses from across the country for possible inclusion in a new book, [we] found that only 6 percent of the profiles contained any evidence that student learning had improved, no matter what measure had been used.

The New York Times

SundayReview | Contributing Op-Ed Writer

The Misguided Drive to Measure 'Learning Outcomes'

Molly Worthen FEB. 23, 2018

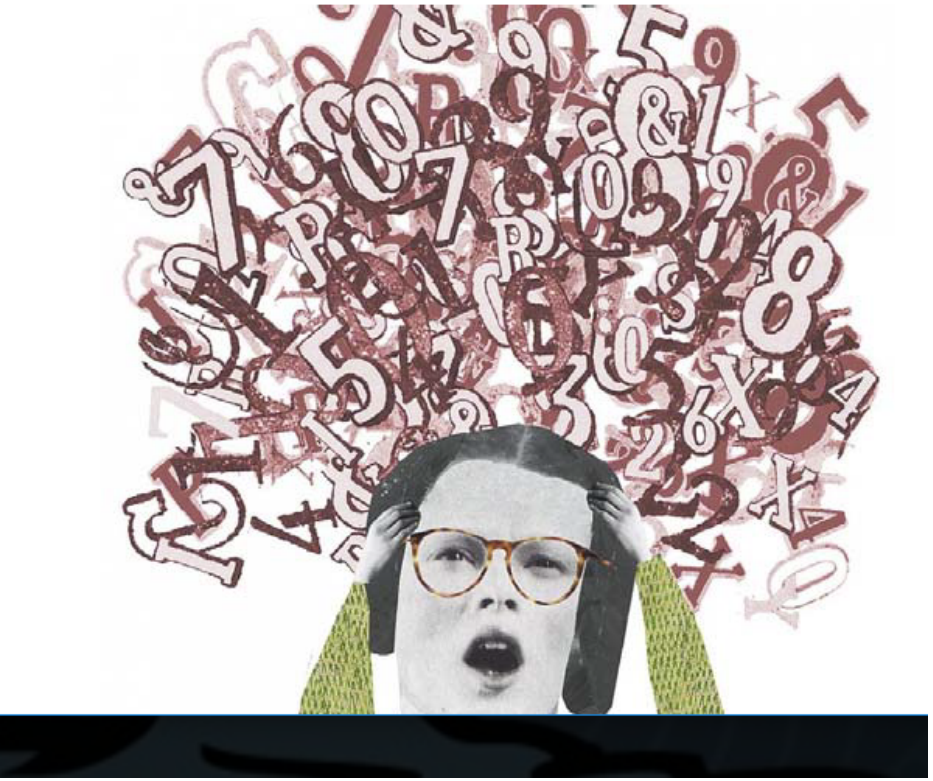
- Assessment devours a lot of money for meager results.
- Even proponents of assessment struggle to produce evidence that it improves student learning.
- Assessment forces academic departments to use data that's not very good, and the process of getting this data can be very painful.

THE CHRONICLE
of Higher Education

COMMENTARY

An Insider's Take on Assessment: It May Be Worse Than You Thought

By Erik Gilbert | JANUARY 12, 2018



[Describing how faculty "analyze" their data]: However, you may find that upon close examination the data don't seem to be saying anything at all to you. You may even be tempted to just make something up. If you do go that route, it's probably because you have concluded that assessment data do not tell you anything useful about your program, so there is no harm in fudging your analysis of the data.

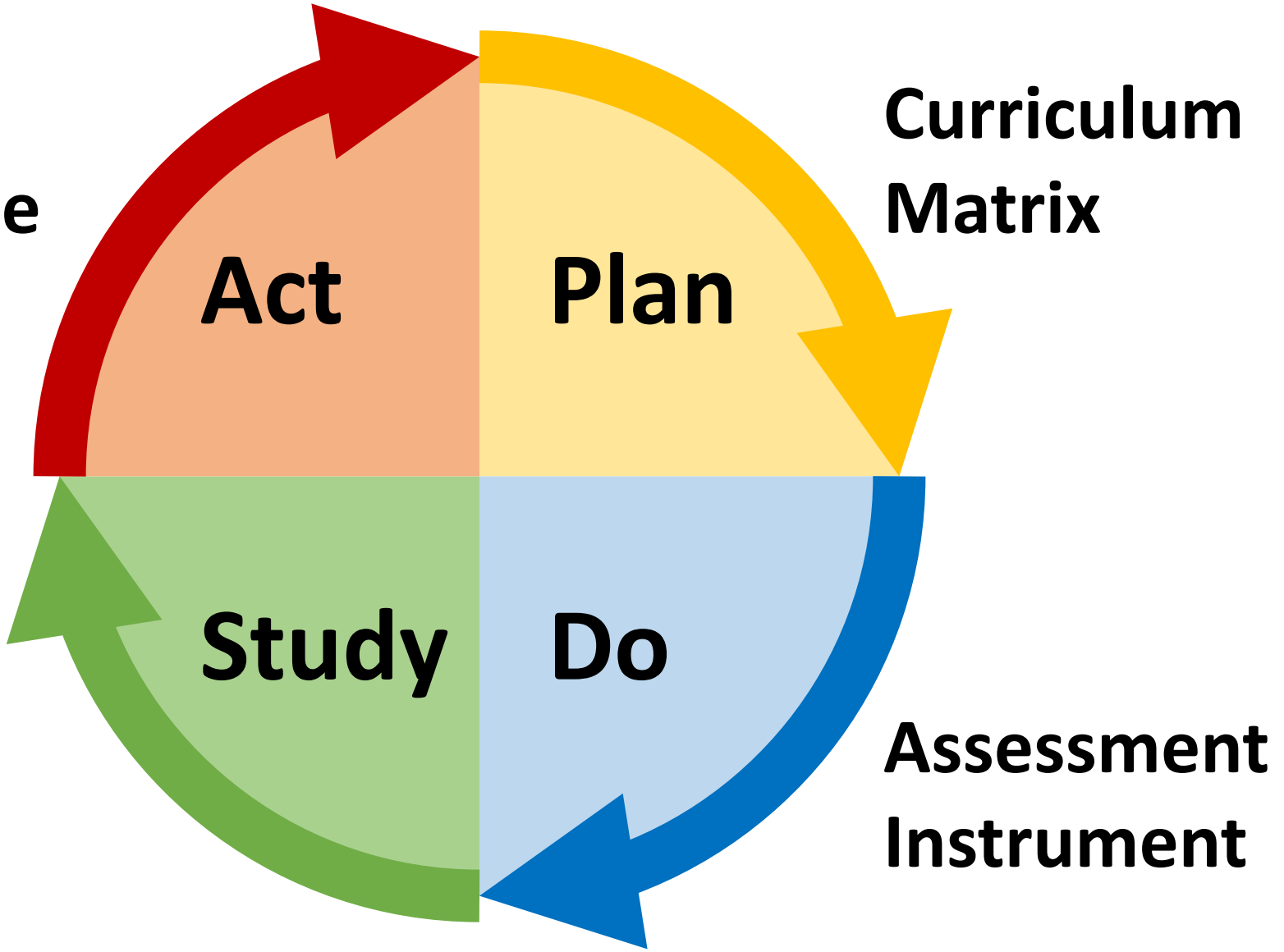
NACIQI Recommendations (2023)

- As a result of the statutory mess, each institution can create its own student achievement measures, and produce an improvement plan that may or may not lead to improvement.
- This is failing the core requirement to be a “reliable authority regarding the quality of the education or training.”
- (The previous bullets are paraphrased.)

The Problems

- Data collection is too burdensome
- The quality of the data and analysis is questionable
- Little evidence that the process improves student learning
- Assessment has lost credibility with faculty and policy makers

The Standard Model of Outcomes Assessment



The Curriculum Matrix

Program Learning Outcomes (PLOs) For the BA in Business Administration	ENGL 1301	PSYC 2311	EDUC 1300	MATH 1413	BMGT 1345	BMGT 1321
Critical Thinking	I	R	I	I	R	R
Communication Skills	I **A**	R	I	R	R	R
Empirical and Quantitative Reasoning		R		R **A**	I	R
Teamwork	R	R	I		R	R
Information Technology		R	I		R	R
Cultural Competence	R	I **A**	I			R

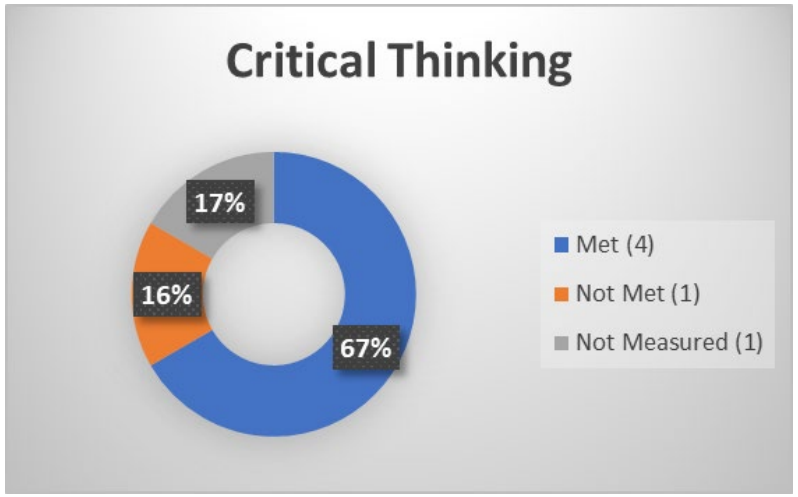
The Assessment Instrument

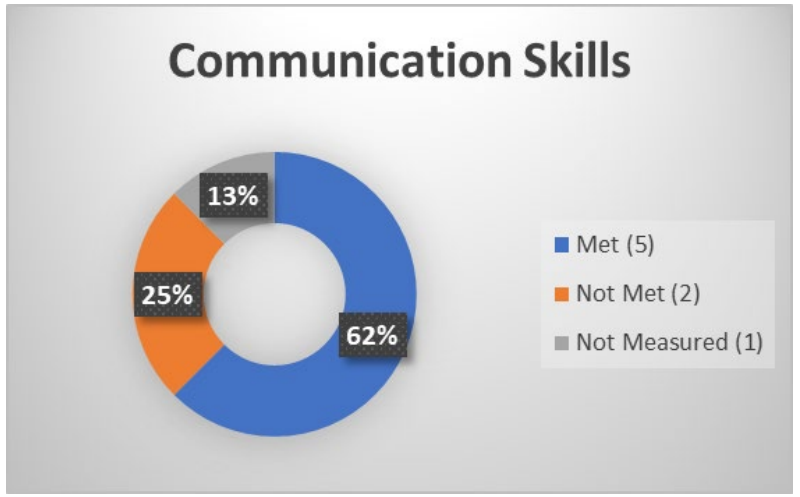
	Exceeds Expectations (90-100)	Meets Expectations (80-89)	Approaches Expectations (70-79)	Below Expectations (0-69)
Organization, Clarity, Development				
Syntax, Diction & Mechanics				

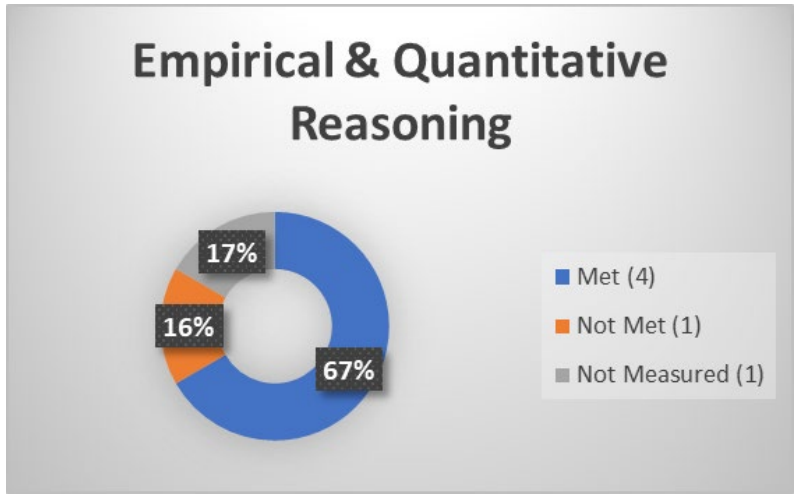
The Analysis

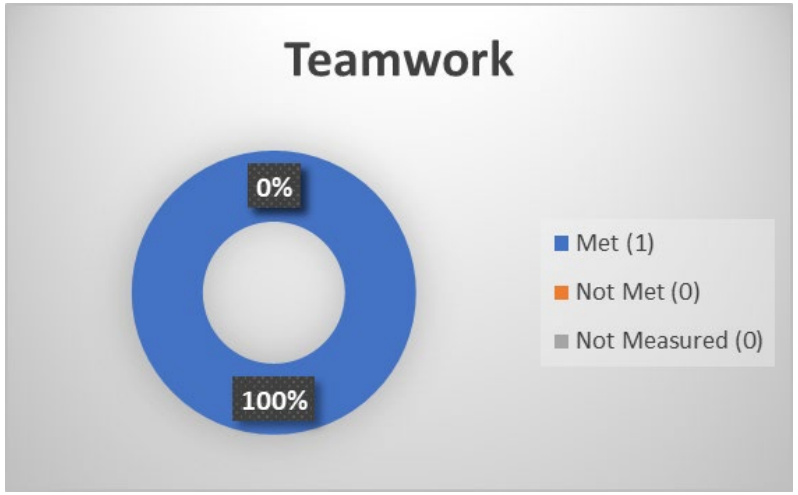
Program Learning Outcomes (PLOs) For the BA in Business Administration	Communication (ENGL 1301)	Cultural Comp (PSYC 2311)	Empirical & Quant (MATH 1413)		
# of students assessed	65	125	0		
# who met score threshold	52	106	0		
% who met score threshold	80%	85%	-		
Benchmark	80%	80%	80%		
Met Benchmark	TRUE	TRUE	NA		

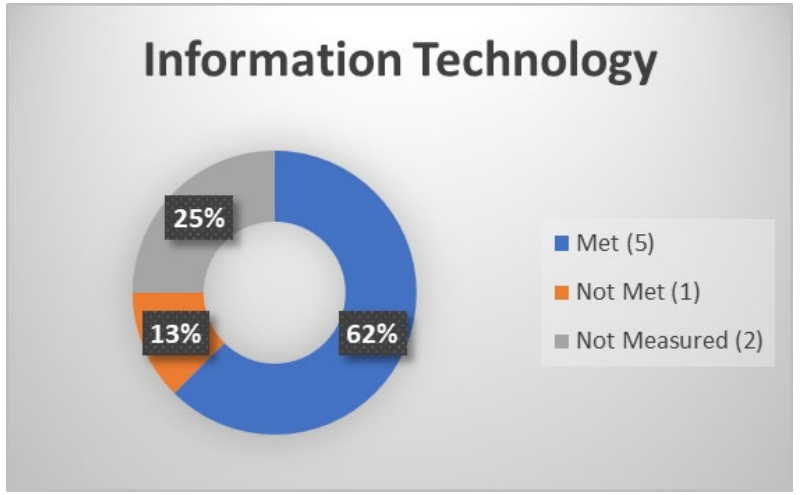
The Report

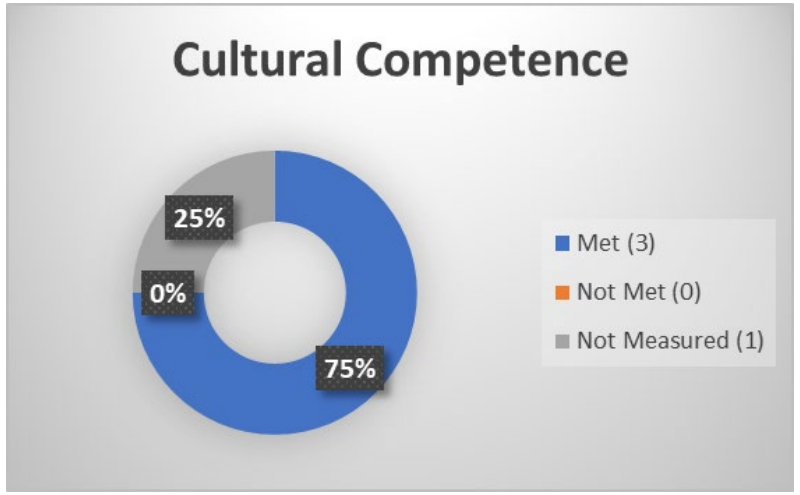

Critical Thinking
17%
16%
67%
Met (4)
Not Met (1)
Not Measured (1)


Communication Skills
13%
25%
62%
Met (5)
Not Met (2)
Not Measured (1)


Empirical & Quantitative Reasoning
17%
16%
67%
Met (4)
Not Met (1)
Not Measured (1)


Teamwork
0%
100%
Met (1)
Not Met (0)
Not Measured (0)

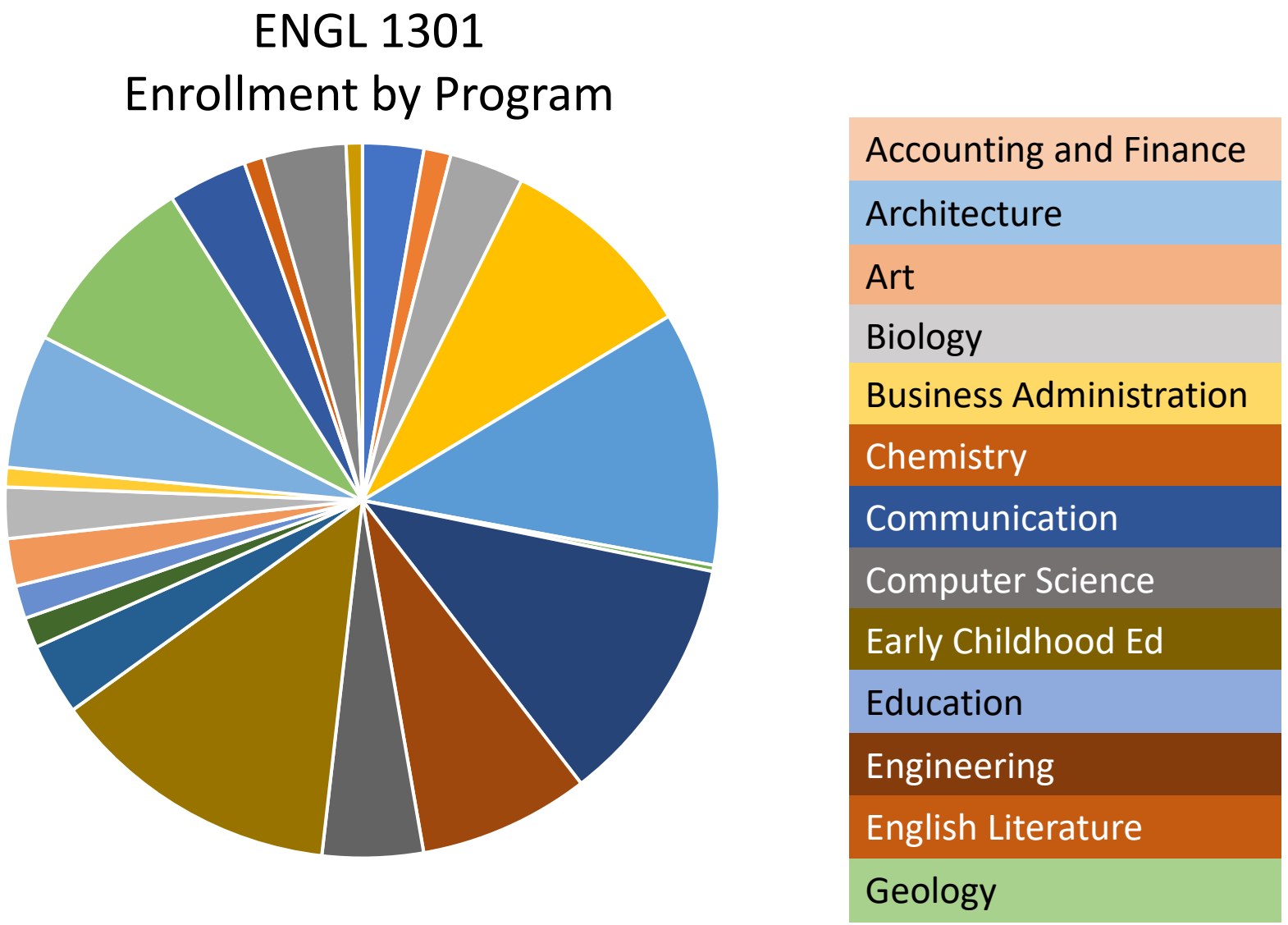

Information Technology
25%
13%
62%
Met (5)
Not Met (1)
Not Measured (2)


Cultural Competence
25%
0%
75%
Met (3)
Not Met (0)
Not Measured (1)

The Curriculum Matrix

Program Learning Outcomes (PLOs) For the BA in Business Administration	ENGL 1301 - CORE	PSYC 2311 - ELECTIVE	EDUC 1300 - CORE	MATH 1413- CORE	BMGT 1345 - MAJOR	BMGT 1321 - MAJOR
Critical Thinking	I	R	I	I	R	R
Communication Skills	I **A**	R	I	R	R	R
Empirical and Quantitative Reasoning		R		R **A**	I	R
Teamwork	R	R	I		R	R
Information Technology		R	I		R	R
Cultural Competence	R	I **A**	I			R

Problems With Core Classes



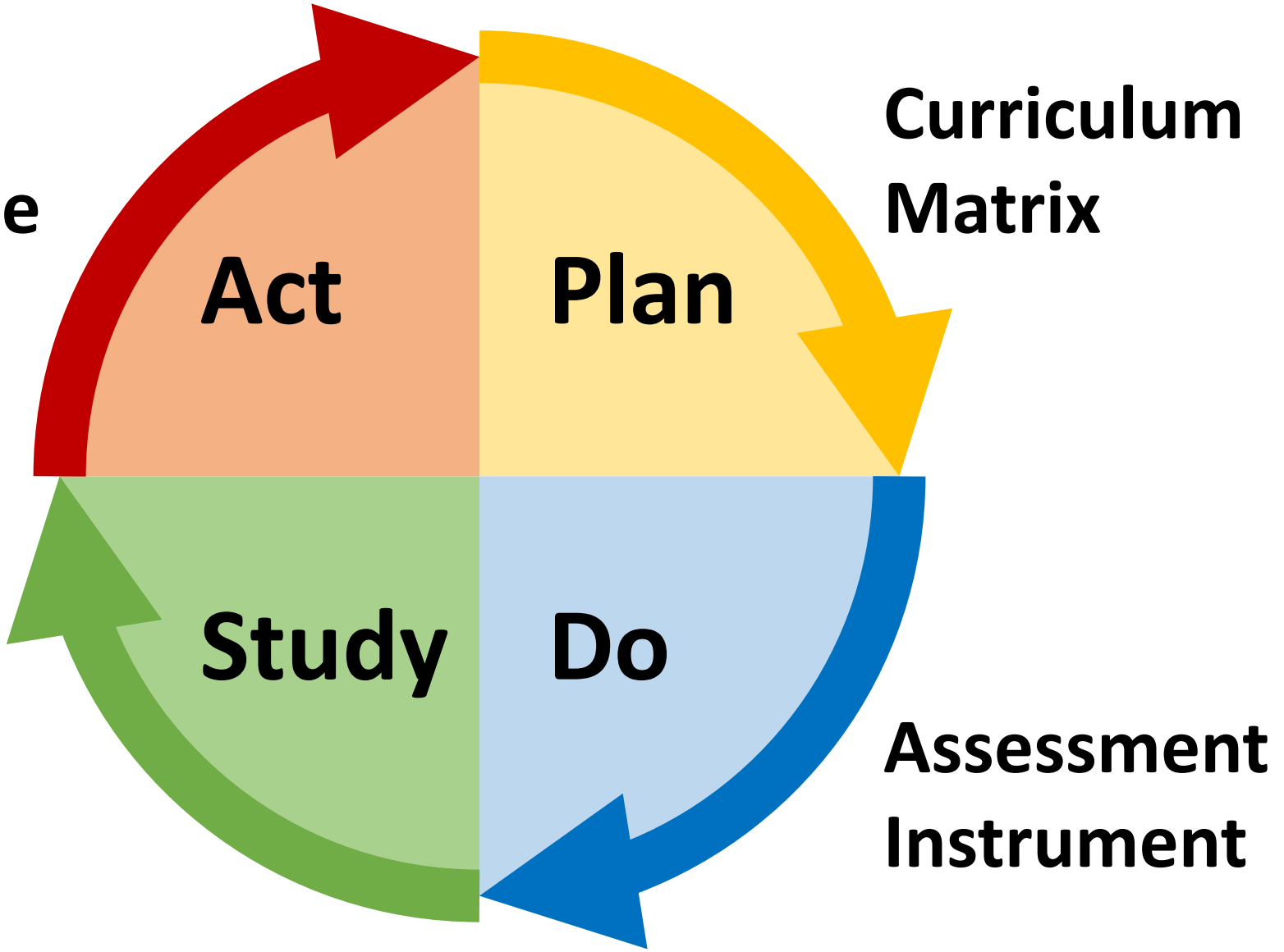
Problems With Electives

Life and Physical Sciences (6 SCH)		
BIOL 1308 – Biology for Non-Science Majors I	BIOL 2416 – Genetics	GEOL 1405 – Environmental Science
BIOL 1309 – Biology for Non-Science Majors II	BIOL 2421 – Microbiology	GEOL 1447 – Meteorology
BIOL 1322 – Nutrition	CHEM 1405 – Introductory Chemistry	PHYS 1317 – Physical Science II
BIOL 1406 – General Biology I	CHEM 1411 – General Chemistry I	PHYS 1401 – College Physics I: Mechanics
BIOL 1407 – General Biology II	CHEM 1412 – General Chemistry II	PHYS 1402 – College Physics II: Electricity
BIOL 1408 – Biology I for Non-Science Majors	CHEM 2423 – Organic Chemistry I	PHYS 1403 – Stars and Galaxies
BIOL 1409 – Biology II for Non-Science Majors	CHEM 2425 – Organic Chemistry II	PHYS 1404 – The Solar System
BIOL 1411 – General Botany	ENVR 1401 – Environmental Science I	PHYS 1405 – Conceptual Physics I
BIOL 1413 – General Zoology	ENVR 1402 – Environmental Science II	PHYS 1407 – Conceptual Physics II
BIOL 2401 – Human Anatomy and Physiology I	GEOL 1347 – Meteorology	PHYS 1415 – Physical Science I
BIOL 2402 – Human Anatomy and Physiology II	GEOL 1403 – Physical Geology	PHYS 1417 – Physical Science II
BIOL 2404 – The Human Body	GEOL 1404 – Historical Geology	PHYS 2425 – University Physics I

Problems with Major Courses

- Major courses are narrowly focused
- Two-year Institutions
  - Associate transfer degrees: two thirds of the degree is core or electives
  - Associate workforce degree: most of the learning outcomes are in the core curriculum
- SACSCOC Interpretation of Standard 8.2.a (Student outcomes: educational programs)

The Standard Model of Outcomes Assessment



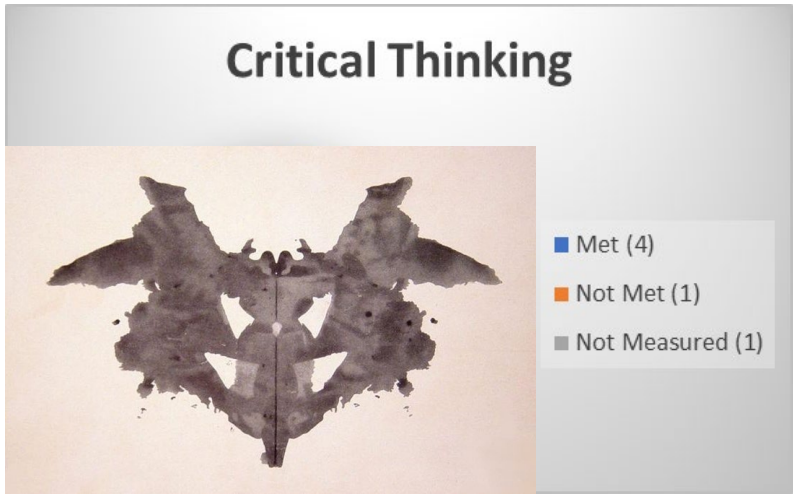
Problems with Assessments

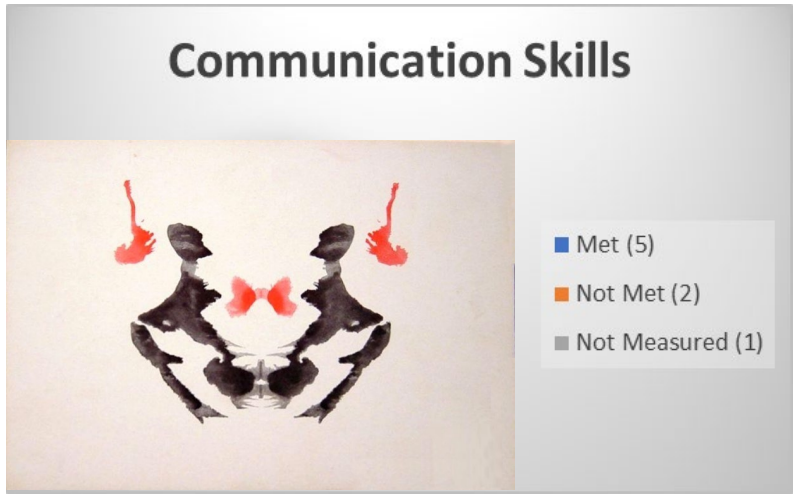
- What's so special about 80%?
- Reliability and Validity of the assessment instrument

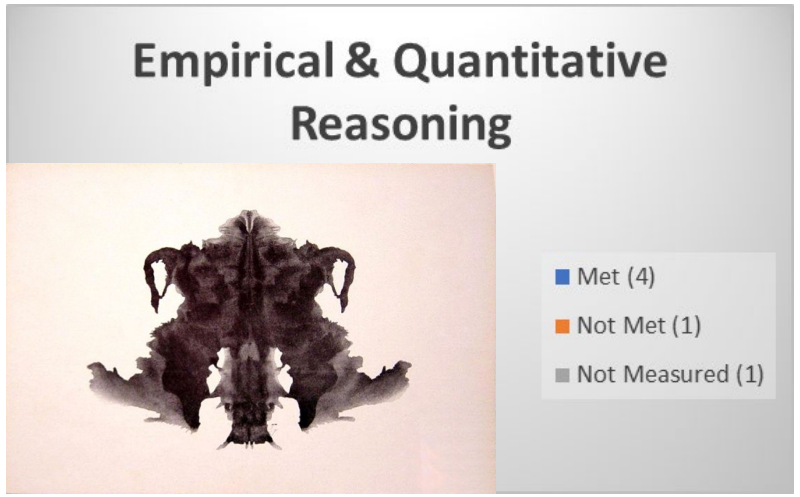
Problems with Analysis

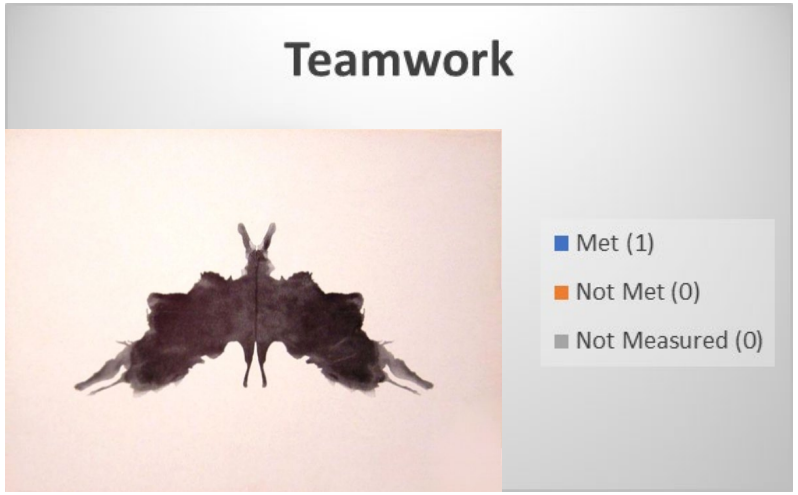
- What's so special about 80%?
- The performance of the class as a whole doesn't represent the performance of students in a specific academic program.

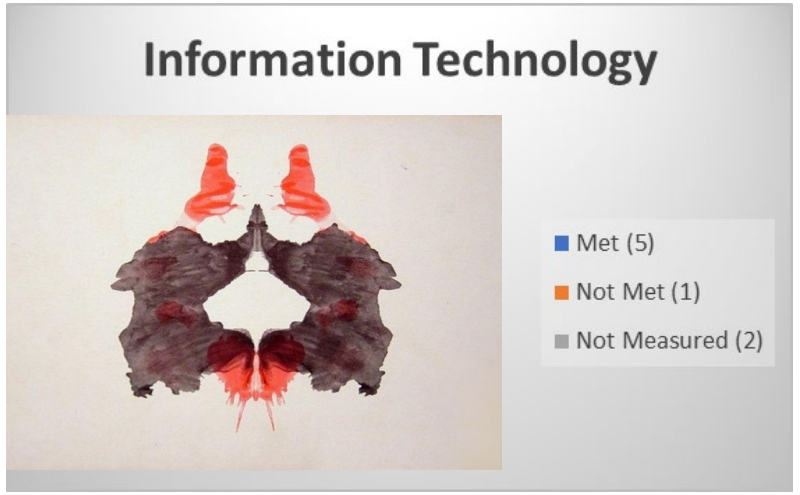
Problems with Reports and Closing the Loop





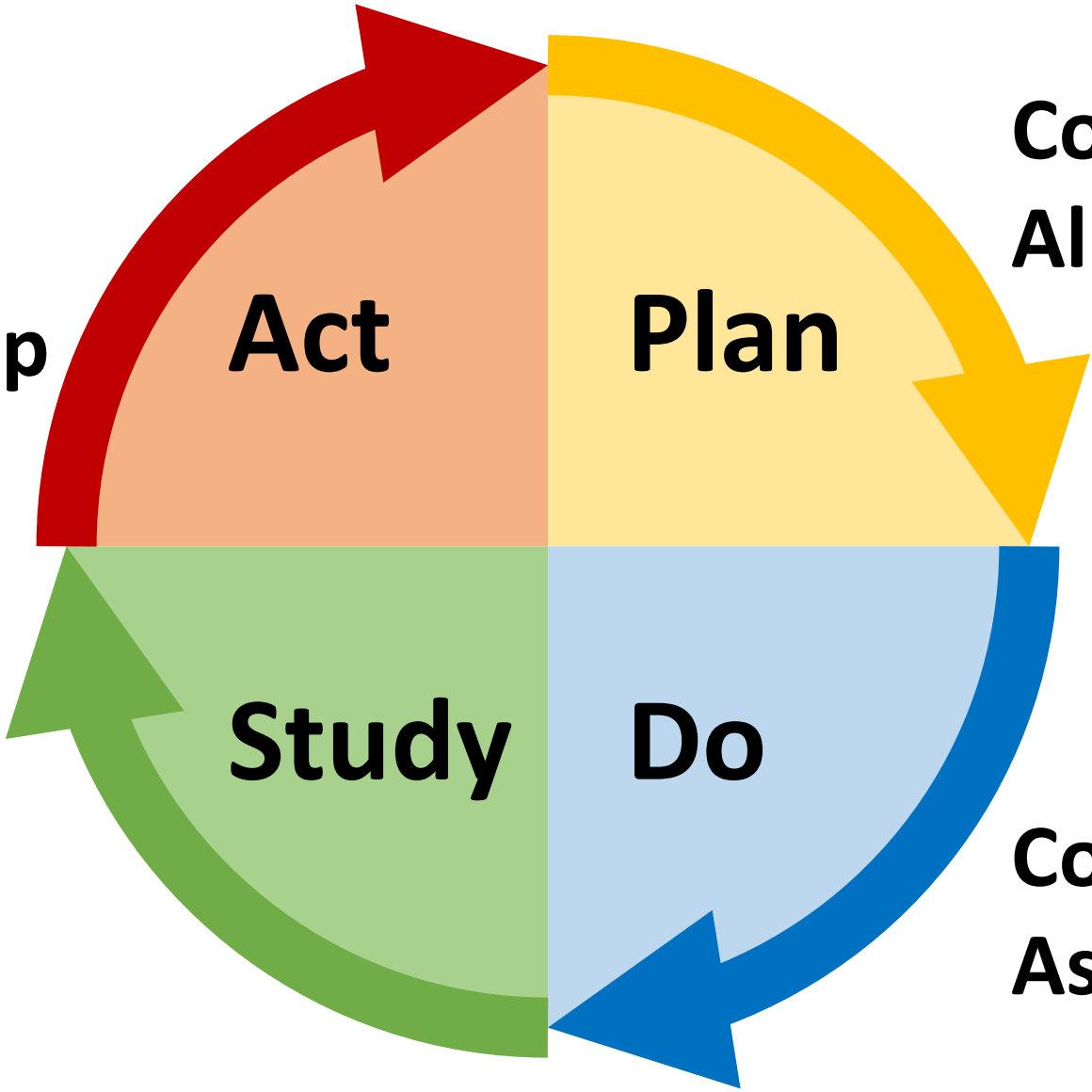






The New Model of Outcomes Assessment

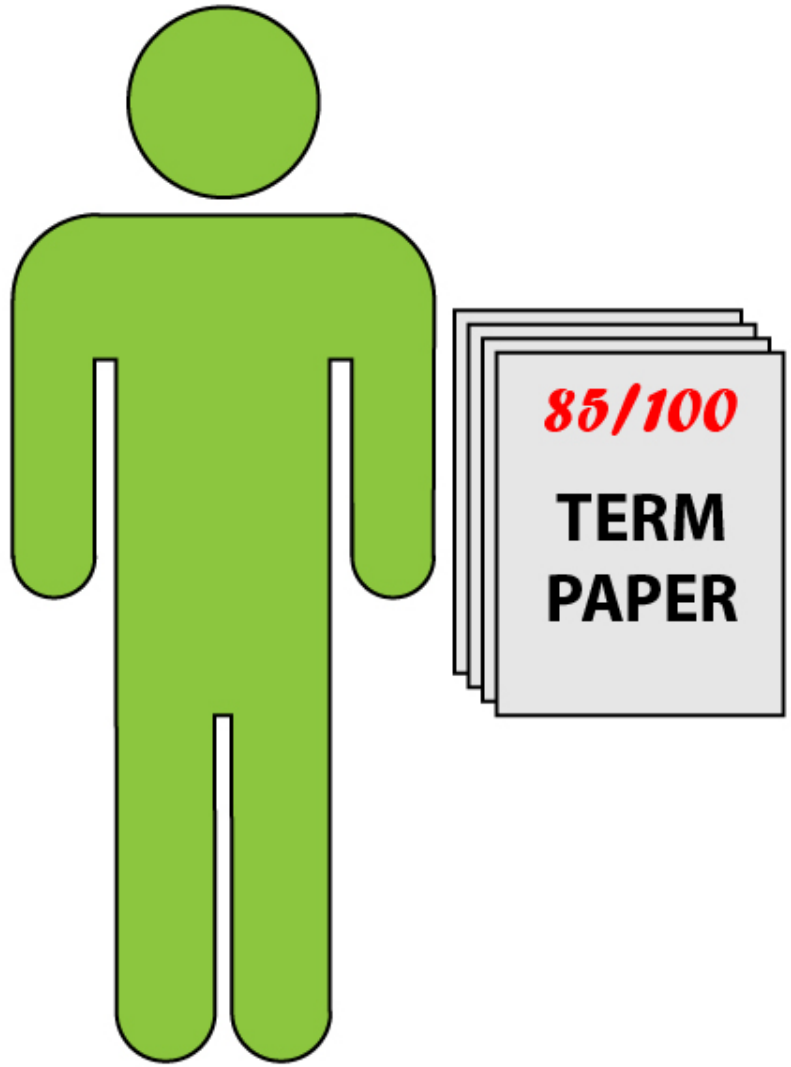
Curriculum Map, Report & Closing the Loop

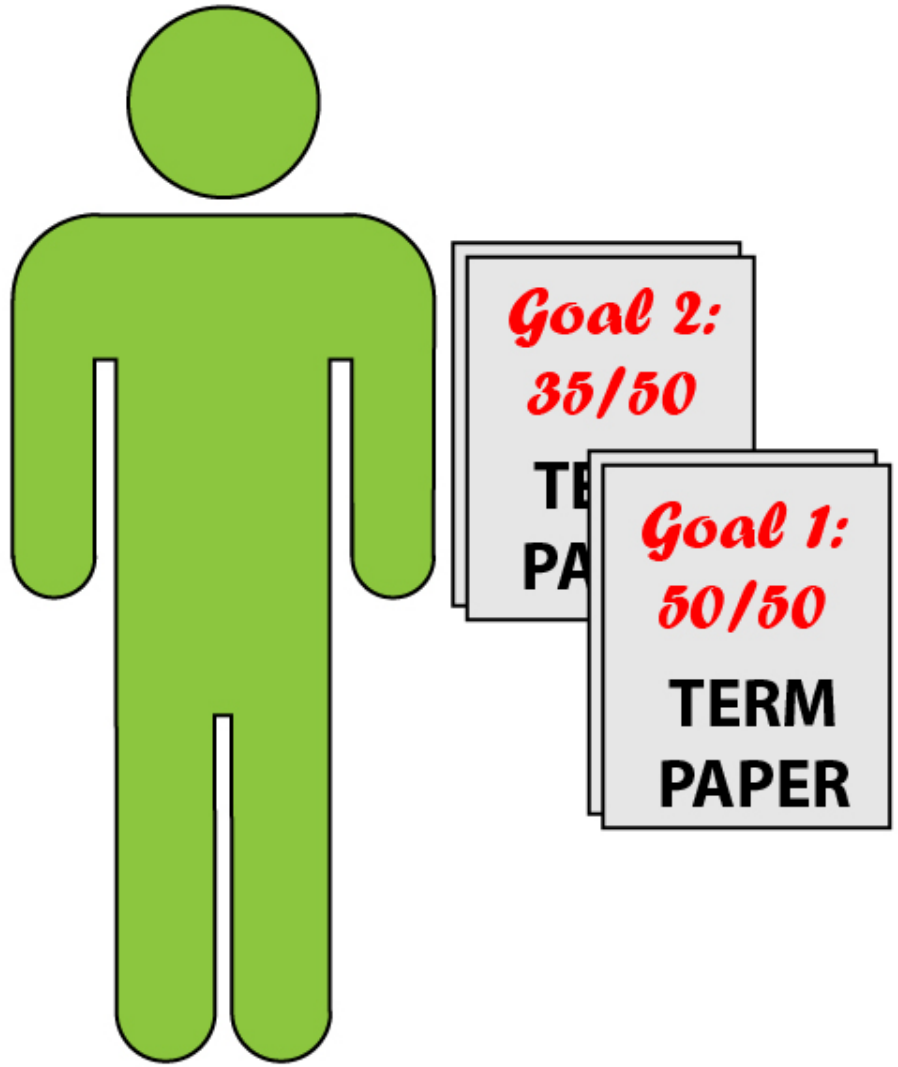


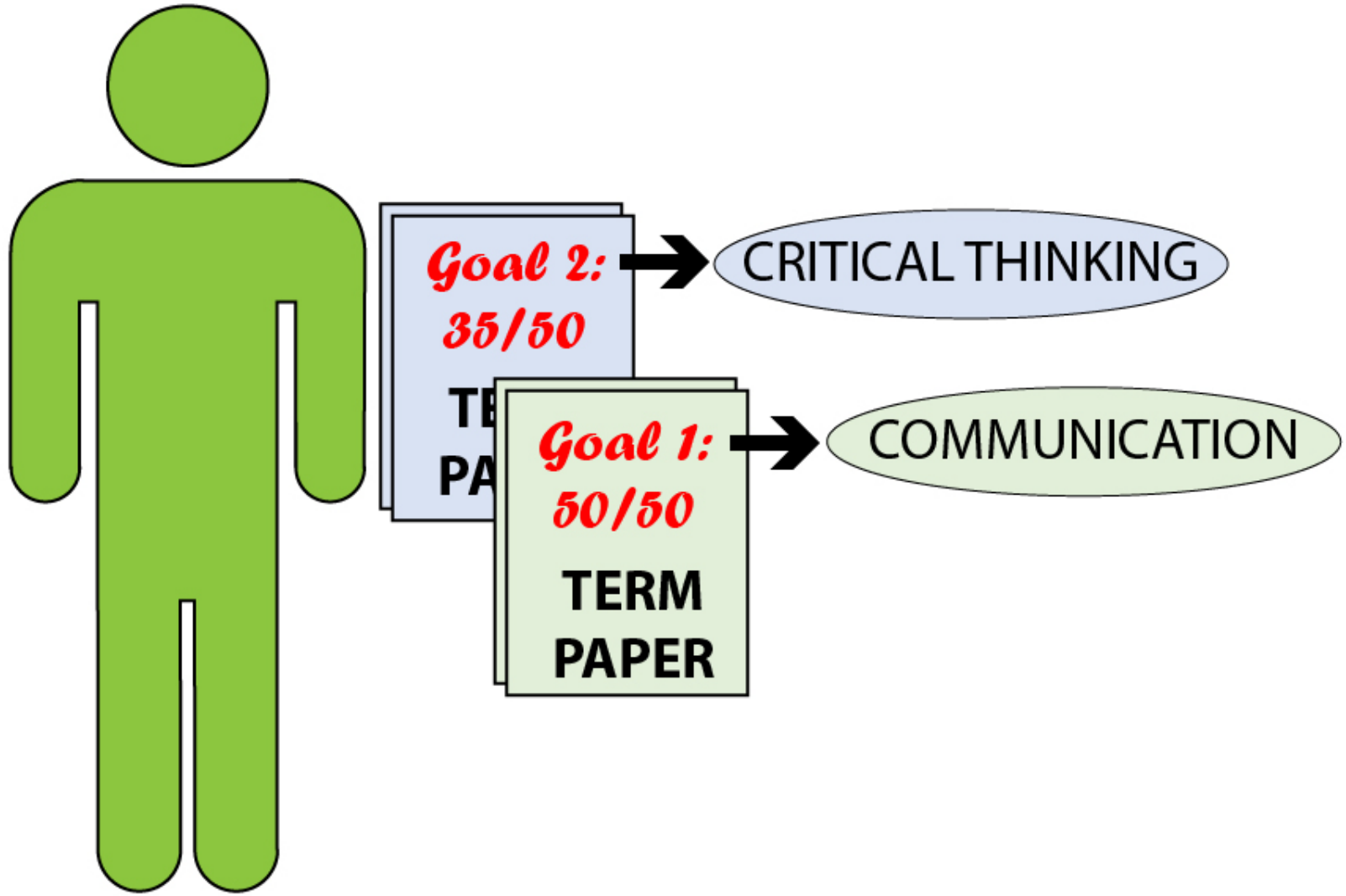
Course Goal Alignment

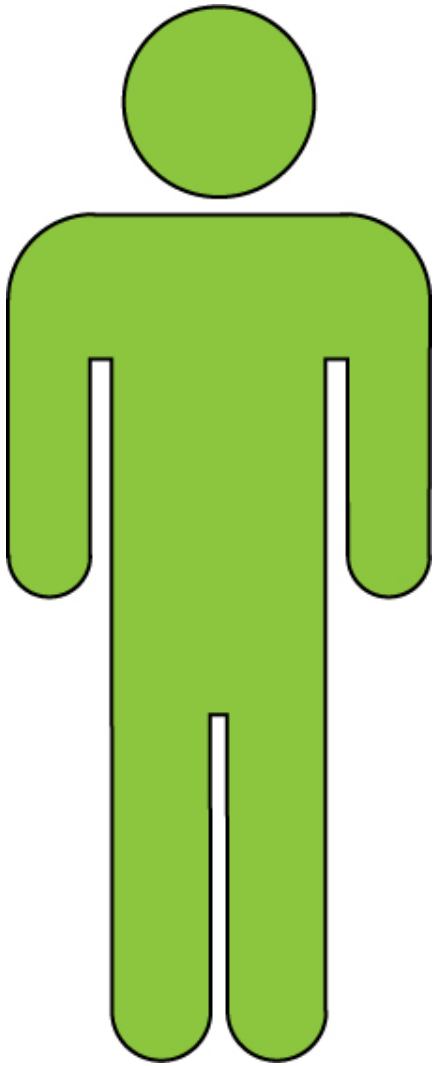
Analysis

Course-Level Assessment


85/100
TERM
PAPER


Goal 2:
35/50
Goal 1:
50/50
TERM
PAPER


Goal 2:
35/50
CRITICAL THINKING
Goal 1:
50/50
TERM
PAPER
COMMUNICATION



ENGL 1301

Goal 2:
3
T
P

Goal 1:
50/50
TERM
PAPER

HIST 2301 5/100

Goal 2:
4
FI
PR

Goal 1:
92/100
FINAL
PROJECT

MATH 1332

Goal 3:
3
F
E

Goal 2:
40
FI
EX

Goal 1:
47/50
FINAL
EXAM

EXAM

PSYC 1300)0

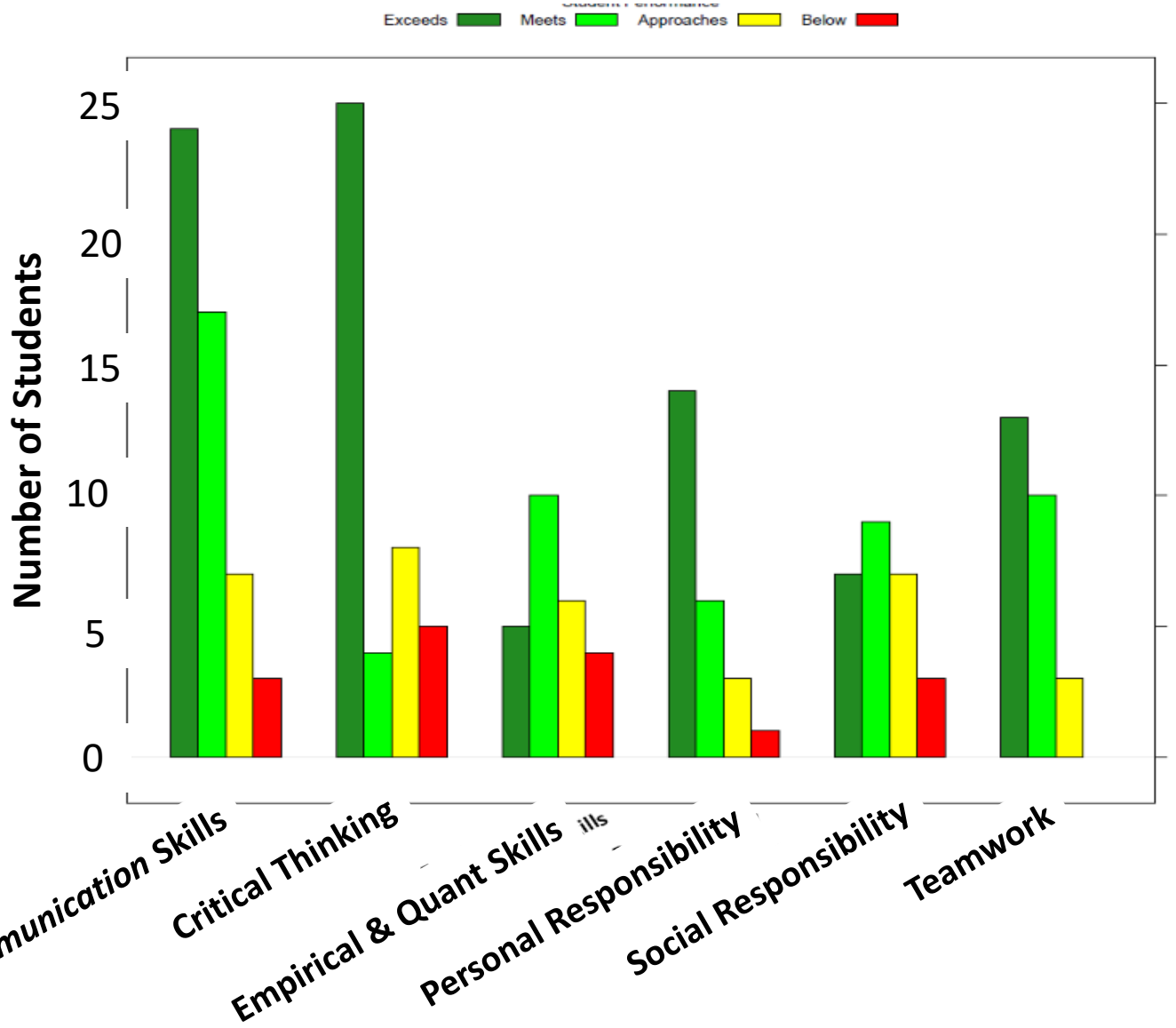
Goal 2:
1
T
P

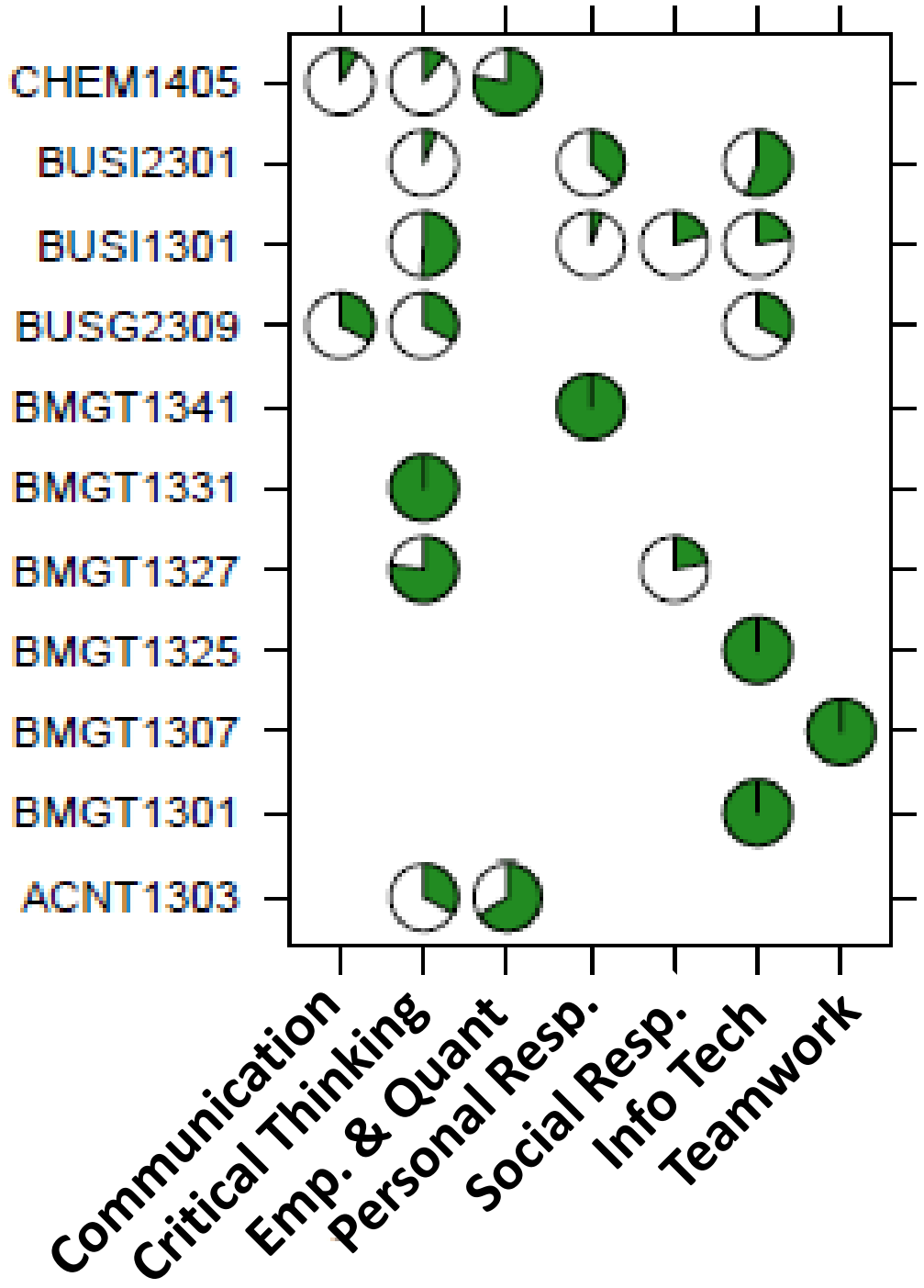
Goal 1:
68/75
TERM
PAPER

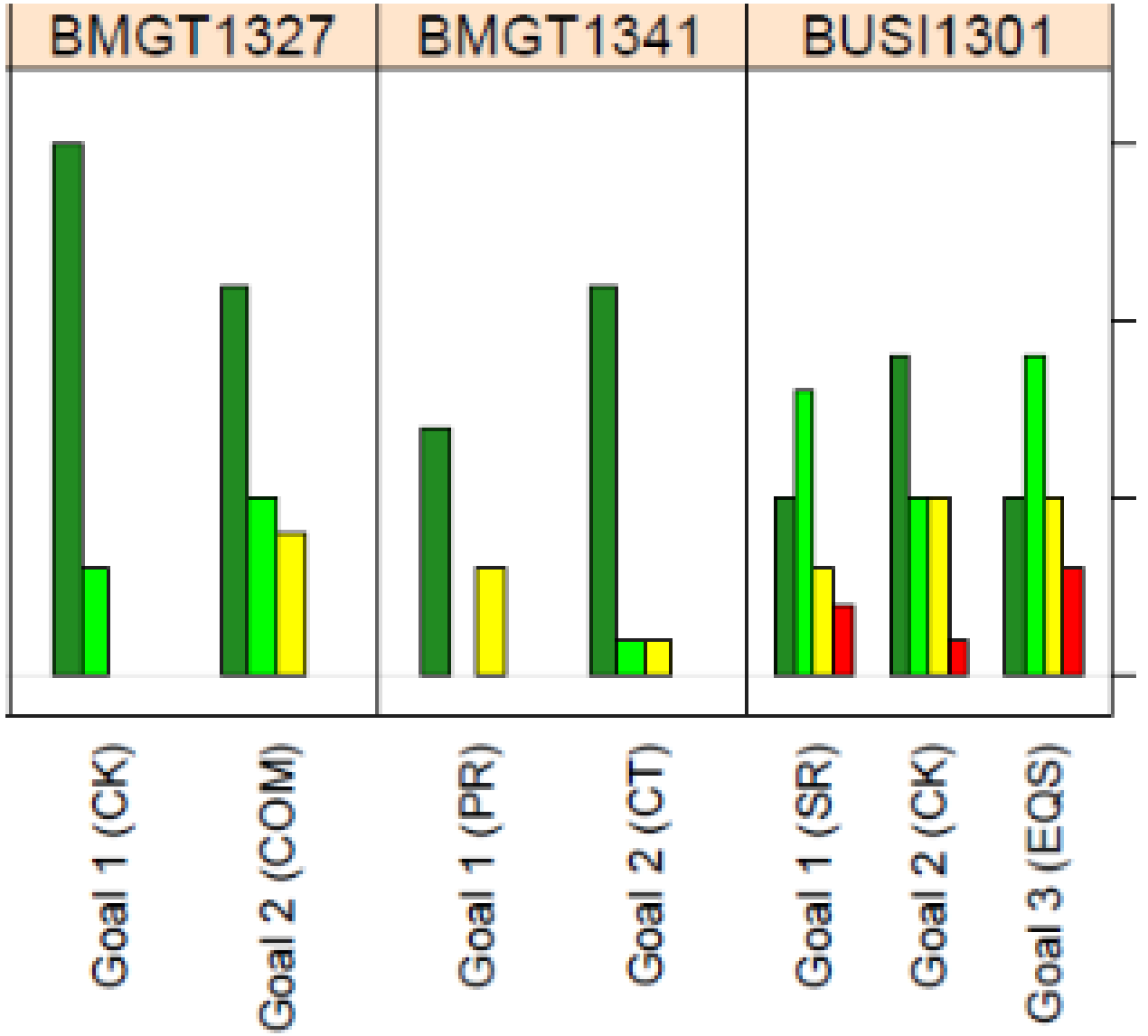
Degree Program “Grade Book” for Student Learning

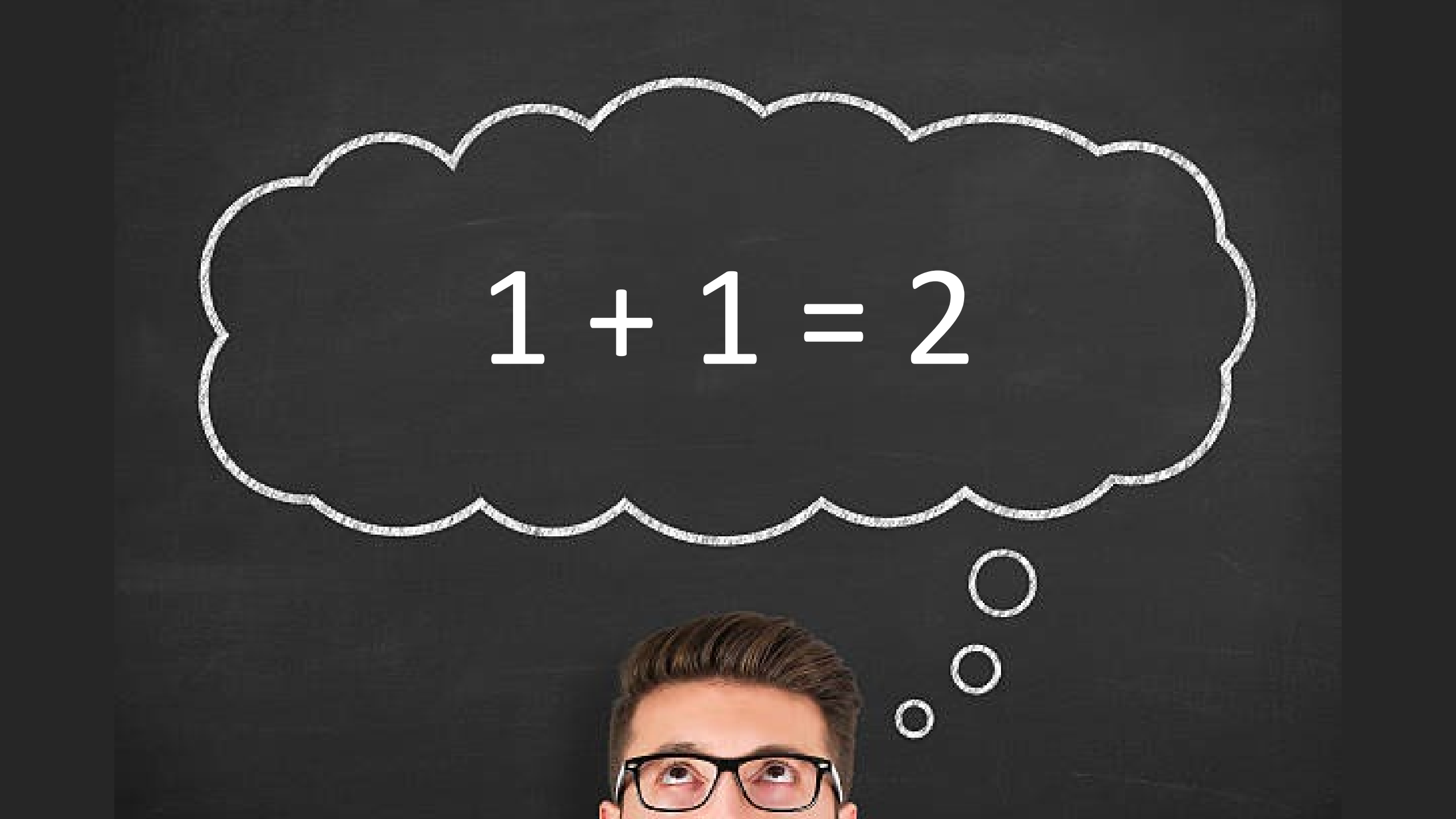
Business Xfer Students	Critical Thinking	Social Responsibility	Empirical & Quantitative	Communication
Student #1	78	85	71	100
Student #2	71	76	70	93
Student #3	76	94	92	98

Student Performance: Business Transfer (AA)




CHEM1405
BUSI2301
BUSI1301
BUSG2309
BMGT1341
BMGT1331
BMGT1327
BMGT1325
BMGT1307
BMGT1301
ACNT1303
Communication
Critical Thinking
Emp. & Quant
Personal Resp.
Social Resp.
Info Tech
Teamwork


BMGT1327
BMGT1341
BUSI1301
Goal 1 (CK)
Goal 2 (COM)
Goal 1 (PR)
Goal 2 (CT)
Goal 1 (SR)
Goal 2 (CK)
Goal 3 (EQS)

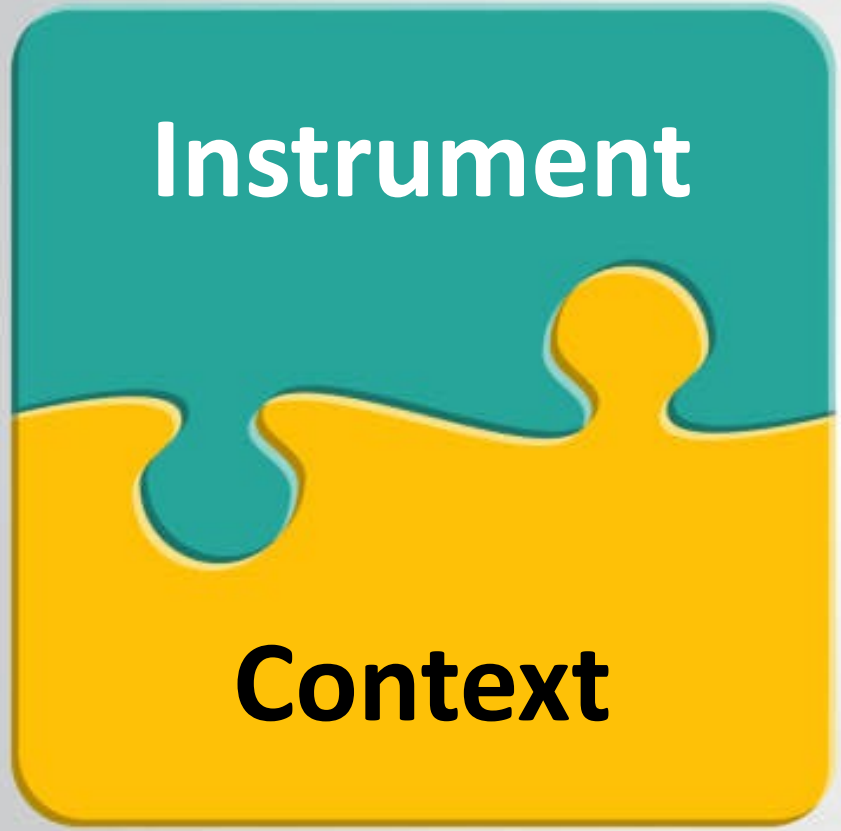

1 + 1 = 2

Implementation

- One-Time Tasks for Faculty
  - Define course goals
  - Define PLOs
  - Align course goals with PLOs
  - Identify one or more assignments to measure each course goal
- Recurring Tasks for Faculty
  - At the end of the semester, submit one or more scores for each student on each course goal in every course
  - Once a year, review assessment data and make decisions about program improvements

Student ID	Quiz #1 25 points Goal 1	Final Project 100 points Goal 2	Quiz 5 25 points Goal 3	Quiz 6 25 points Goal 3
0025684	23	91	22	24
0065284	21	85	18	25
0251961	15	72	21	16
0602581	0	0	0	0
0655661	20	90	19	16
0313233	20	93	25	24
0005284	18	70	22	24

Validity and Reliability



Problems with the Standard Model

- The problem of core classes
- The problem of elective classes
- The problem of major classes
- The problem of reliability and validity
- The problem of overburdening the faculty
- The problem of faculty who no longer take assessment seriously
- The problem of the efficacy of assessment

Demo

dwalcerz@lee.edu

Scan the QR code to complete the session survey.

Texas Association for Institutional Research

Annual Conference: February 25-28, 2025
Omni Hotel in Corpus Christi, TX