

# Development of Comprehensive Approach for Assessing General Education: A Case of Hong Kong

King CHONG; Dimple R. THADANI; Wing Leung  
WONG; Theresa KWONG; Eva WONG

Centre for Holistic Teaching and Learning

# Outline

- Contexts
- Assessment Framework
- GE PILOs Assessment at HKBU
- Direct and Indirect Assessment Methods
- Some Results of GE PILOs (AY2012-2013)

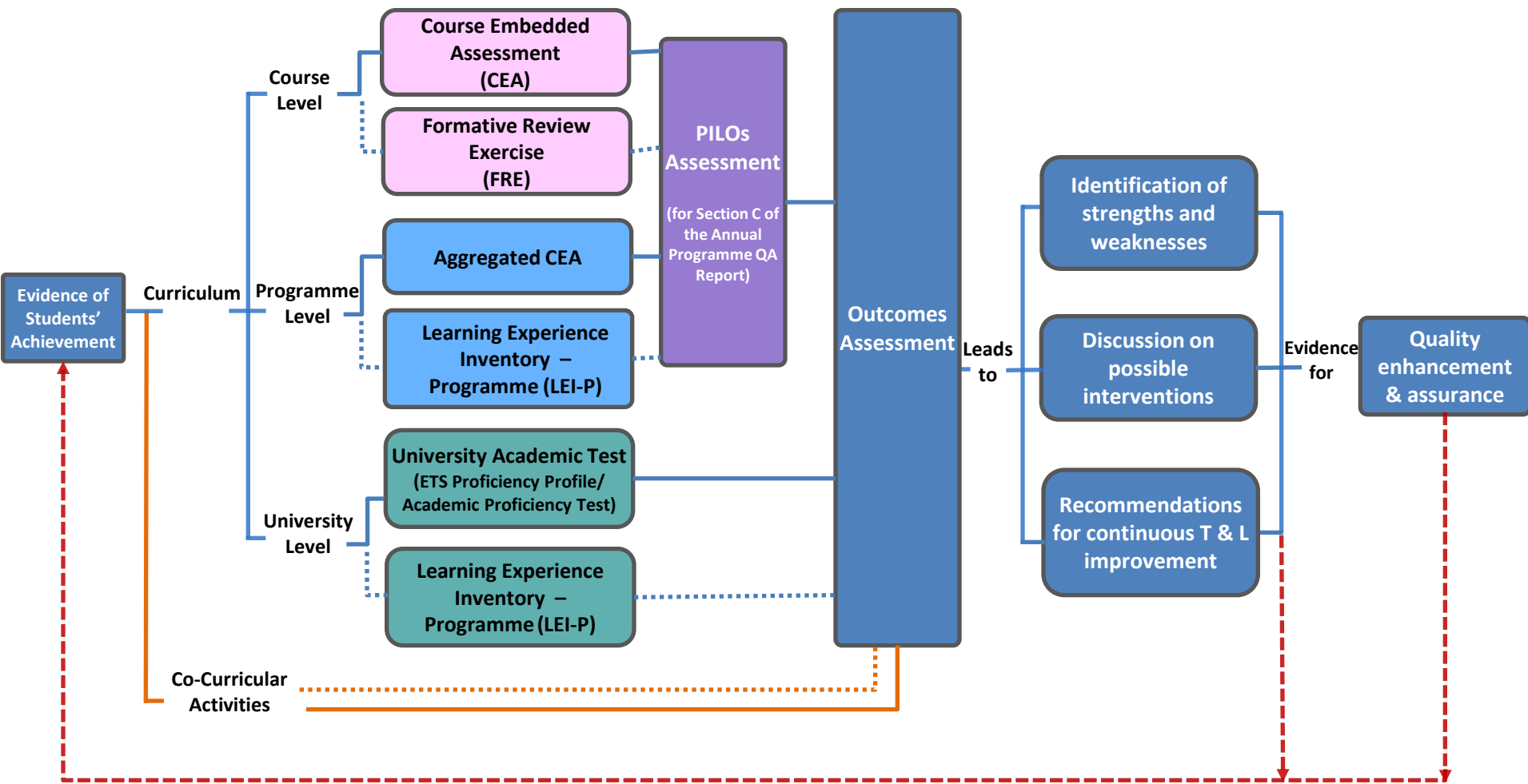
# Contexts

- Aiming at equipping students with series of generic and transferable knowledge, skills and attitudes on top of majors, General Education (GE) Programme plays an irreplaceable role in helping students attain the university-level learning outcomes that ultimately forge their competitiveness in globalized economy and help them become global citizens;
- However there is lack of a more comprehensive approach to assess the accomplishment of GE learning outcomes, including a systematic process, effective assessment criteria and holistic evidence (Bresciani, 2007; Judd & Keith, 2012);
- This showcase aims to present a more comprehensive assessment approach for GE.

# The Assessment Framework: Evidence Collection Initiative (ECI) for Outcome Assessment

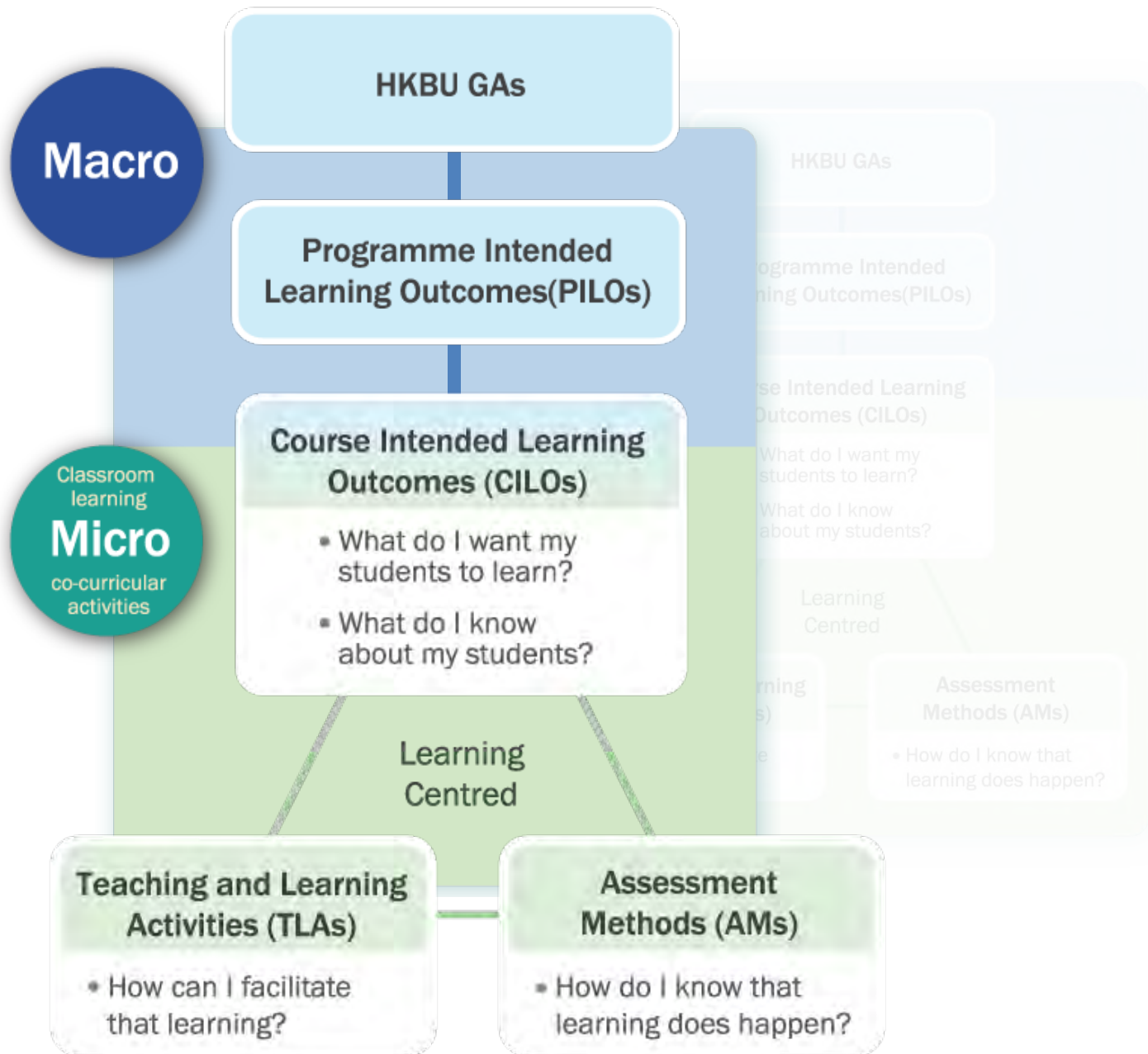
- To provide an aggregate set of evidence for Outcomes Assessment (OA)
  - i.e. to ascertain how well students have achieved the intended learning outcomes (ILOs) based on a three-tier data collection mechanism in systematically collecting holistic and multi-faceted evidence of learning and teaching at the course, programme and university levels.

# The Evidence Collection Initiative (ECI) for Outcomes Assessment



——— Direct Measurement     - - - - -> Feedback Loop  
..... Indirect Measurement

# Outcomes Assessment & OBTL Constructive Alignment





# Hong Kong Baptist University

## 7 Graduate Attributes

### 公民 Citizenship

Be responsible citizens with an international outlook and a sense of ethics and civility;

### 知識 Knowledge

Have up-to-date, in-depth knowledge of an academic specialty, as well as a broad range of cultural and general knowledge;

### 學習 Learning

Be independent, lifelong learners with an open mind and an inquiring spirit;

### 技能 Skills

Have the necessary information literacy and IT skills, as well as numerical and problem-solving skills, to function effectively in work and everyday life;

### 創意 Creativity

Be able to think critically and creatively;

### 溝通 Communication

Have trilingual and biliterate competence in English and Chinese, and the ability to articulate ideas clearly and coherently;

### 群體 Teamwork

Be ready to serve, lead and work in a team, and to pursue a healthy lifestyle.



凌大願景育全人 民知學技創通群

# 17 HKBU GAs Rubrics

HKBU GAs		Name of the rubric created
<b>CITIZENSHIP</b>	Be responsible citizens with an international outlook and a sense of ethics and civility.	Ethical Reasoning
		Social/Civic Responsibility
		Cross-cultural Competence
<b>KNOWLEDGE</b>	Have up-to-date, in-depth knowledge of an academic specialty, as well as a broad range of cultural and general knowledge.	Interdisciplinary knowledge
		Disciplinary Exposure
<b>LEARNING</b>	Be independent, lifelong learners with an open mind and an inquiring spirit	Lifelong Learning
		Self-Development/Spirituality
<b>SKILLS</b>	Have the necessary information literacy and IT skills, as well as numerical and problem-solving skills, to function effectively in work and everyday life.	Information Literacy
		Technological Literacy
		Problem-solving
		Quantitative Reasoning
<b>CREATIVITY</b>	Be able to think critically and creatively.	Critical Thinking
		Creative Thinking
<b>COMMUNICATION</b>	Have trilingual and biliterate competence in English and Chinese, and the ability to articulate ideas clearly and coherently.	Oral Communication
		Written Communication
<b>TEAMWORK</b>	Be ready to serve, lead and work in a team, and to pursue a healthy lifestyle.	Team Building
		Health Awareness



# GE PILOs Assessment at HKBU

- GE programme at HKBU aims to provide students with exposure to a range of transferable skills, guiding principles and attitude that are generic to their professional and personal development
- In absence of programme-level rubric, direct adoption of Graduate Attribute (GA) Rubrics is considered appropriate and applicable

# Mapping of GE PILOs with HKBU GAs

		Citizenship	Knowledge	Learning	Skills	Creativity	Communication	Teamwork
PILO1	Communicate effectively as speakers and writers in both English and Chinese					v	v	v
PILO2	Access and manage complex information and problems using technologically appropriate means				v	v	v	
PILO3	Apply appropriate mathematical reasoning to address problems in everyday life				v	v		
PILO4	Acquire an active and healthy lifestyle	v		v				v
PILO5	Use historical and cultural perspectives to gain insight into contemporary issues		v			v	v	
PILO6	Apply various value systems to decision-making in personal, professional, and social/political situations	v			v	v		v
PILO7	Make connections among a variety of disciplines to gain insight into contemporary personal, professional, and community situations	v	v	v		v		v



# 4 GE PILOs Selected for Assessment (AY2012-2013)

1. Communicate effectively as speakers and writers in both English and Chinese (assessed by Language courses);
2. Access and manage complex information and problems using technologically appropriate means;
3. Apply appropriate mathematical reasoning to address problems in everyday life (assessed by selected Numerical courses);
4. Acquire an active and healthy lifestyle (assessed by Health courses);
5. Use historical and cultural perspectives to gain insight into contemporary issues;
6. Apply various value systems to decision-making in personal, professional, and social/political situations (assessed by selected Ethics courses);
7. Make connections among a variety of disciplines to gain insight into contemporary personal, professional, and community situations.

# Direct and Indirect Assessment

- Direct Assessment

- Instrument: Aggregated Course Embedded Assessment (CEA)
- Tool: **Bb Learn and Outcomes System** (Bb Outcomes)

- Indirect Assessment

- Formative Review Exercise (FRE)
  - Study Process Questionnaire (SPQ): *conducted at the beginning (SPQ1) and the end (SPQ2) of the semester*
  - Learning Experience Inventory–Course (LEI-C): *conducted at the end of the semester*
- plus tailor-made questions for GE courses: *attached with LEI-C*

# Direct Assessment

- Instrument:
  - Aggregated Course Embedded Assessment
- Tool:
  - ***Bb Learn and Outcomes System*** (Bb Outcomes)

# Direct Assessment: Procedures

1. The representative GE courses selected by the assessment team
2. Select the **major assignment(s)** from each course that can best represent a PILO to be assessed
3. Decide which **Graduate Attribute (GA) Rubric(s)** should be used as assessment criteria;
4. the representative student works from each course were **pooled together** for assessment.
5. Assess the assignments by using the selected GA Rubric(s) and through sampling approach;
6. Discuss and conclude the Assessment Result

*Note: In each course, instructor still can use their course rubrics to grade, outcome assessment results will NOT affect their grading results.*

# Bb Outcomes

- Collecting and storing student assignments
- Sampling
- Enable instructors to use rubrics to assess directly in the system
- Automatically generating assessment report(s)



# Indirect Assessment

- Formative Review Exercise (FRE)
  - Since AY2010-11, the Formative Review Exercise (FRE) has been used to collect qualitative and quantitative data to provide perspectives on student learning experience at HKBU.

# Design of FRE

- **Quantitative:**

- Study Process Questionnaire (SPQ)

- Conducted at the beginning (SPQ1) and the end (SPQ2) of semester
- Examining students' change in their learning approaches

- Learning Experience Inventory–Course (LEI-C)

- Conducted at the end of the semester
- Examining students' learning experiences from courses under OBTL
- Alignment Index: 15 as highest
- Tailor made questions for GE

- **Qualitative:**

- Focus groups with students
- In-depth interviews with teachers

# GE PILOs Assessment - Highlights

*AY2012-2013*

# Breakdown of Sample Size

## Direct Assessment:

- **4 Selected Numerical courses**
  - 80 samples
- **2 Selected Ethics courses**
  - 36 samples
- **All 2 Language courses**
  - Course A: 90 samples
  - Course B: 100 samples
- **All 9 Health courses**
  - 720 samples (all students)

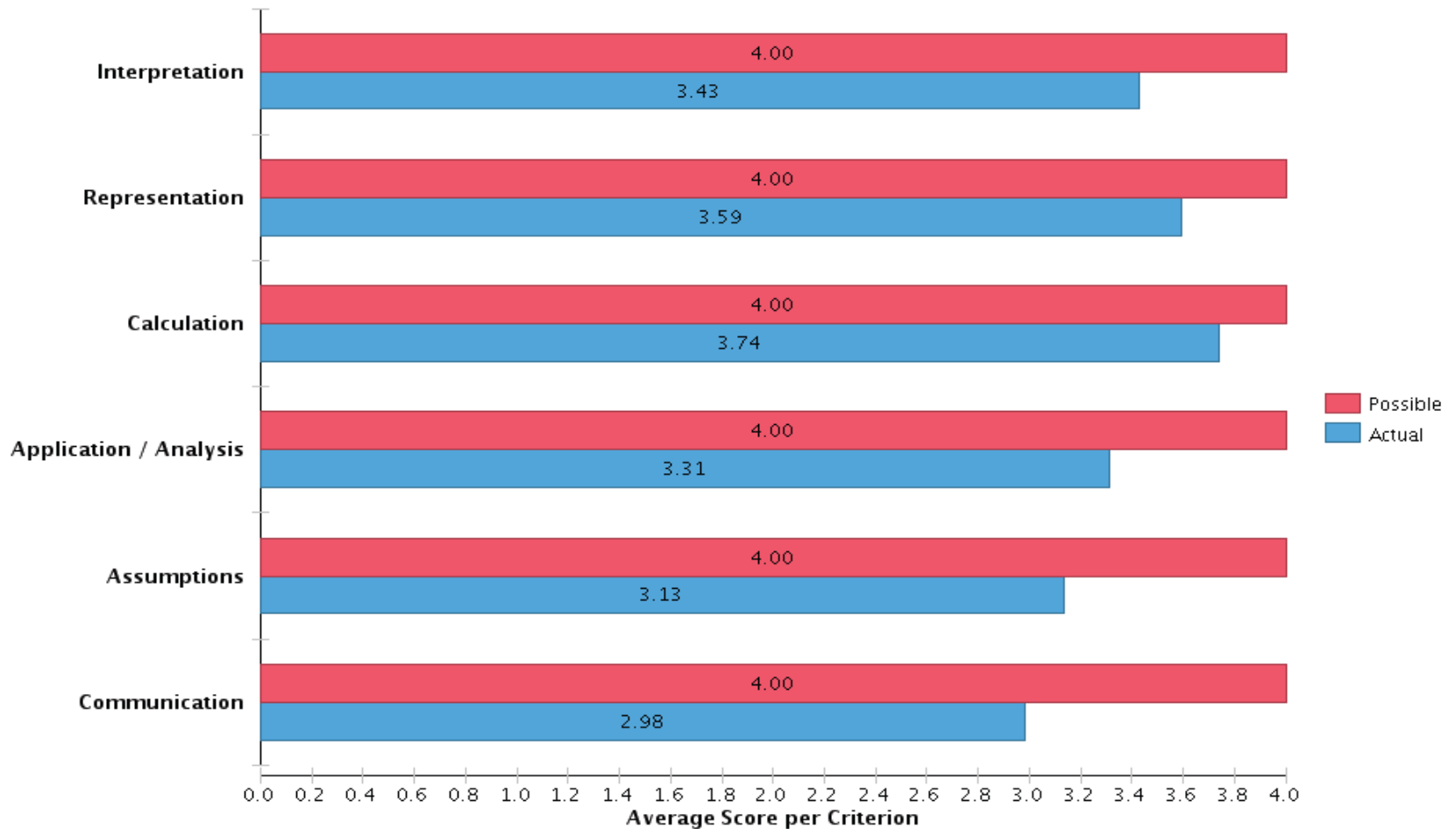
## Indirect Assessment:

- **All Numerical courses**
  - 15 course units;
  - 425 valid responses;
- **All Ethics courses**
  - 8 course units;
  - 168 valid responses;
- **All Language courses**
  - 5 course units;
  - 29 valid responses;
- **All Health courses**
  - 2 course units;
  - 21 valid responses;

# An Example - Result of Direct Measure (Bb Report) (*for PILO3*)

## Evidence Set Evaluation Roll-up

Rubric Analysis  
Quantitative Reasoning



# An example: Assessing GE PILO 3 using Quantitative Reasoning GA rubric

	4	3	2	1
Interpretation	Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.	Provides accurate explanations of information presented in mathematical forms. For instance, accurately explains the trend data shown in a graph.	Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line.	Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means. For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.
Representation	Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding.	Competently converts relevant information into an appropriate and desired mathematical portrayal.	Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate.	Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate.
Calculation	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.)	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem.	Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem.	Calculations are attempted but are both unsuccessful and are not comprehensive.
Application / Analysis	Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work.	Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work.
Assumptions	Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions.	Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate.	Explicitly describes assumptions.	Attempts to describe assumptions.
Communication	Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality.	Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven.	Uses quantitative information, but does not effectively connect it to the argument or purpose of the work.	Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.)

# *Indirect Measure - FRE*

## *(Course Unit Base)*

Academic Year and Semester	No. of Valid# Course Units*	Population (Enrollment Size of participating GE Courses)	Total Responses (% of population)	Valid# Responses (% of population)
AY 2012-13	30	4,373	2,067 <b>(48%)</b>	643 <b>(15%)</b>

**Notes:**

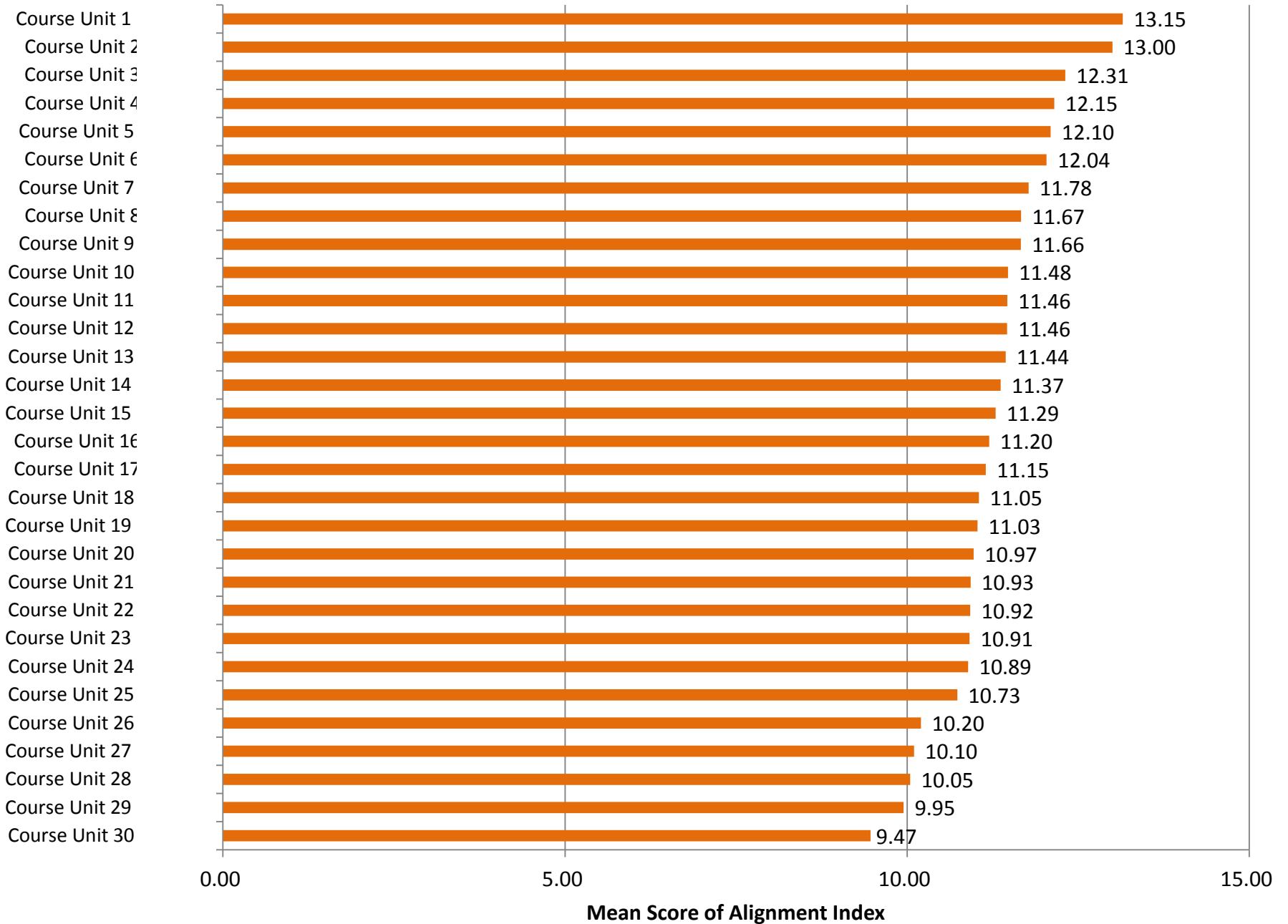
^ Original total number of participating GE courses was 19, but one course had been opted out.

# **Criteria of Valid:**

- Course unit with % of Population Responding > 20%
- A response was not answered in a particular pattern consistently
- A response with Student ID, Course Code, and Session Number

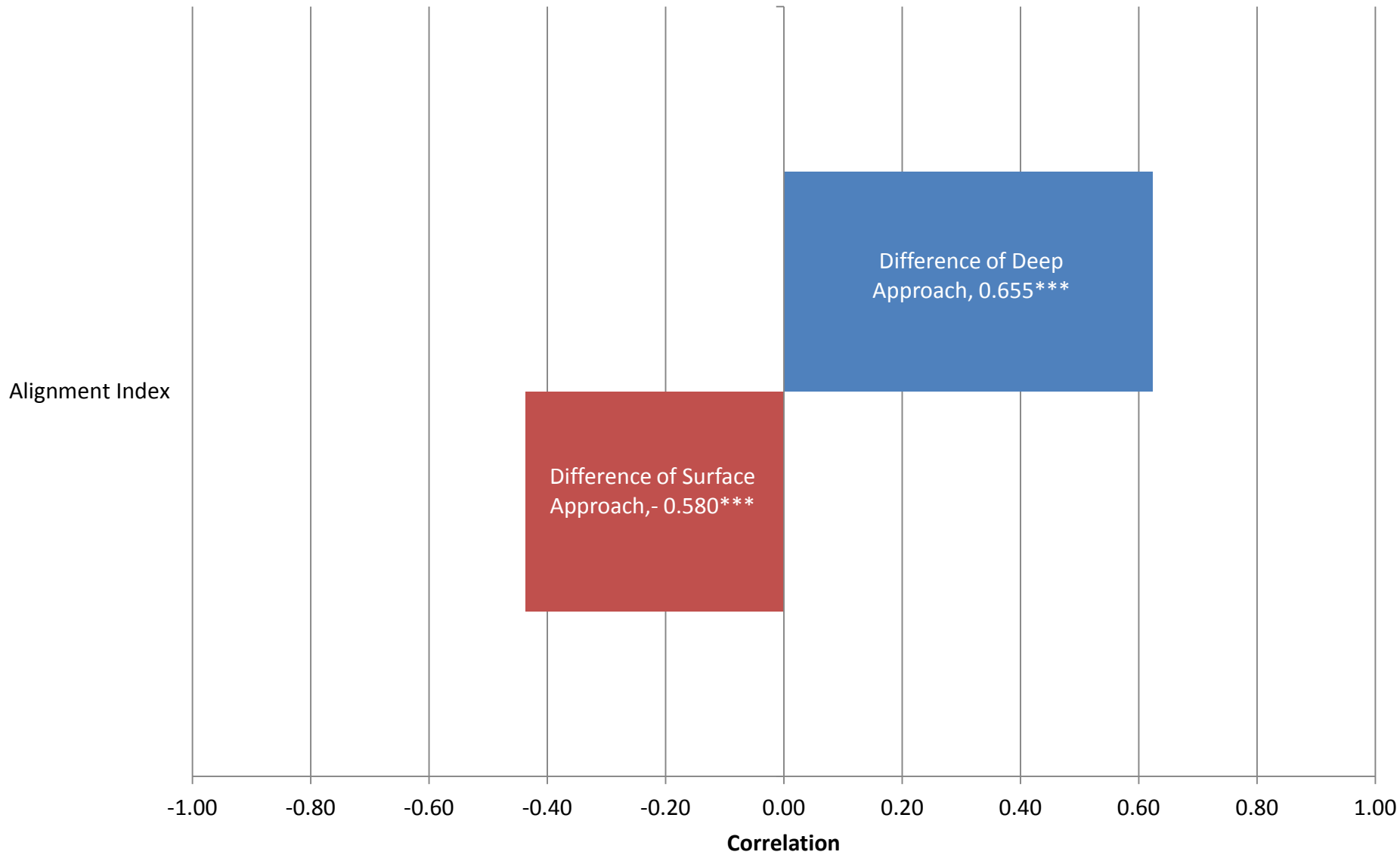
\***Course unit:** course with multiple sections taught by same instructor

## Alignment Index of 30 GE Course Units (AY2012-13)



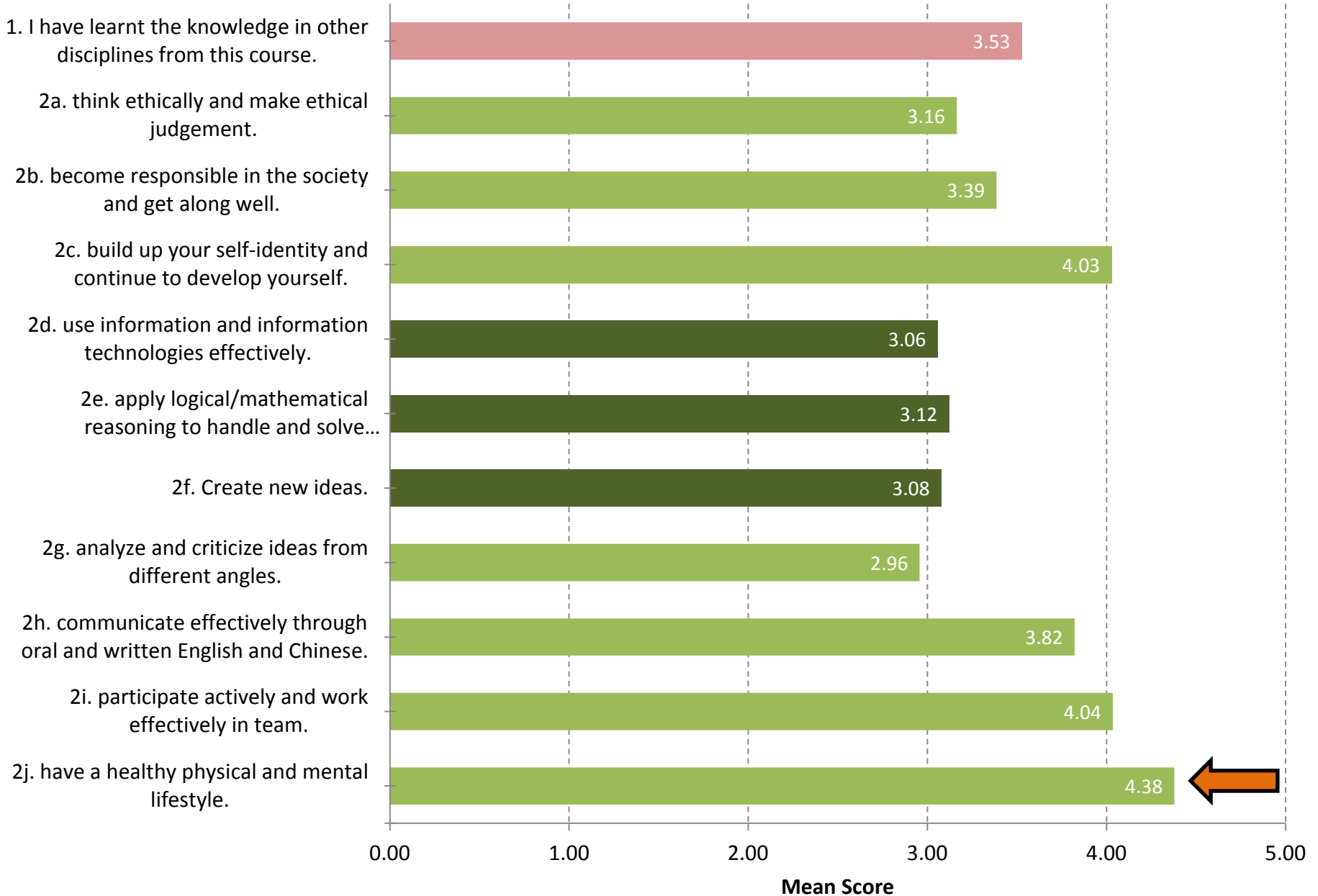


# Correlation: Alignment Index and Learning Approaches/Experience (n=30)



\*=p ≤0.05; \*\*p ≤0.01; \*\*\*p ≤0.001

# An example: Students' Perceptions with Self-Achievements in Health Courses (n=140)



# Aggregation of Direct & Indirect Assessment Results

- The four type of courses are the core requirements primarily for the respective PILOs assessed. Based on the results of the assessment done in 2012-2013, it can be suggested that students are on the right track in achieving the corresponding elements in *PILO1*, *PILO3*, *PILO4* and *PILO6*.
- Indirect assessment results also support students are on the right track in the achievement of PILOs
- Students found that they have achieved learning outcomes, reflected by high mean scores in self-perceived achievement of GAs or part of GAs aligned:
  - Numerical Courses: **4.12** (Quantitative Reasoning)
  - Ethic Courses: **3.97** (Ethical Reasoning)
  - Language Courses: **4.18** (Communication)
  - Heath Courses: **4.38** (Health Awareness)

# Reflections

- It is derived from this showcase that, the ideal GE assessment should:
  - be on top of each selected courses (not courses bound), and be not specific to individual instructors;
  - prefer not using course grades, as they align to various PILOs;
  - use Programme or GA Rubrics to assess;
  - utilize the existing assessment method(s) in selected course(s) that can best represent a particular PILO (i.e. *Course-Embedded Assessment*);
  - pool students' mature works together, if two or more courses selected;
  - use sampling, for sustainability purpose;
  - be better aided by a specialized IT system for maintaining efficiency and effectiveness

# References

- Bresciani, M.J. and Wolff, R.A. (2006). Outcomes-Based academic and Co-curricular program review: A compilation of Institutional good practices.
- Hong Kong Polytechnic University (HK PolyU) (2008) *Developing a Programme Learning Outcomes Assessment Plan*, Hong Kong: HK PolyU.
- Hernon, P., Dugan, R.E., Schwartz, C. (eds.) (2006 ) *Revisiting Outcomes Assessment in Higher Education*, Westport, Conn. : Libraries Unlimited.
- Judd, T. & Keith, B. (2012) 'Student Learning Outcomes Assessment at the Program and Institutional Levels', in C. Secolsky and D. B. Denison, D.B (eds.) *Handbook on Measurement, Assessment, and Evaluation in Higher Education*, New York: Routledge.
- Secolsky, C. and Denison, D.B (2012) *Handbook on Measurement, Assessment, and Evaluation in Higher Education*, New York: Routledge.

***Thank you!***