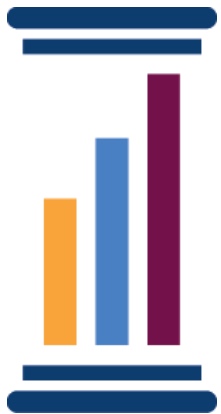


Student Engagement as a Means for Measuring Quality in Teaching and Learning



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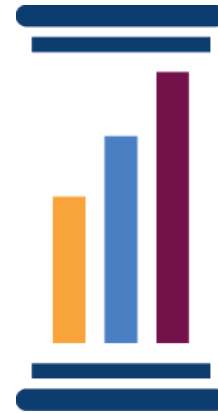
Berlin – 30 October 2012



Overview

- **Context: U.S. higher education**
- **The National Survey of Student Engagement (NSSE)**
- **Using NSSE data**
- **A look at findings for engineering**
- **Discussion**

Context



Higher education in the USA

Poor understanding of quality

Student engagement as a new approach

Higher Education in the USA

- **No national system of higher education**
- **Autonomy of institutions**
- **Diversity of institutions**
 - ◆ 4,600 colleges and universities
 - ◆ Public and private
 - ◆ Universities
 - ◆ Colleges (undergraduate only)
 - 4-year bachelor's degree
 - 2-year associate's degree (community colleges)

What Do We Really Know About University Quality?



Quality Assessment in US Higher Education

▪ Accreditation

- ♦ Limited public understanding
- ♦ Traditional emphasis on capacity and resources
- ♦ Limited attention to teaching & learning (changing)

▪ Newsmagazine rankings

- ♦ Emphasize reputation, resources, other inputs

▪ Research rankings

- ♦ Blind to undergraduate education



National Survey of Student Engagement (NSSE): Founding Assumptions

1. The conventional discourse on quality is unacceptably narrow
2. Any serious discussion of quality must include an explicit focus on *teaching and learning*



NSSE's Key Aims

Enrich the impoverished discourse about **university quality**

- ◆ Shift the focus to teaching & learning, through the lens of effective practices

Provide **diagnostic information** that can be used to improve undergraduate education

- ◆ Actionable information based on valid & reliable measures
- ◆ Meaningful comparisons

The Big Idea



- Ask students about their experience
- Focus on *behavior*: empirically confirmed effective practices

What is Student Engagement?

The extent to which students engage in and are exposed to effective educational practices

- Activities and practices known to be related to desired outcomes



OK, but what *is* Engagement?

- **Challenging academic work**

- ♦ Time on task
- ♦ High expectations
- ♦ Deep approaches to learning



In a context
that promotes
and supports
success

- **Quality involvement with instructors**

- **Enriching learning activities**

- ♦ Examples: Service-learning, internships


Conceptual & Empirical Foundations



Time on task	(Tyler, 1930s)
Quality of effort	(Pace, 1960s & 70s)
Student involvement	(Astin, 1984)
Academic & social integration	(Tinto, 1975 & 1987)
Good practices in undergraduate education	(Chickering & Gamson, 1987)
College impact	(Pascarella, 1985)
Student engagement	(Kuh, 1991, 2005)

How NSSE Works

- Web-based survey financed by institutional fees
- First- & final-year undergraduates
- Uniform, centralized survey administration
- Institutions receive detailed reports and student data
- Customizable comparison groups
- Results are confidential

 National Survey of Student Engagement 2011
The College Student Report

1 In your experience at your institution during the current school year, about how often have you done each of the following? Mark your answers in the boxes. Examples: ☒ or ☐

	Very often	Often	Some- times	Never
a. Asked questions in class or contributed to class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Made a class presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Prepared two or more drafts of a paper or assignment before turning it in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Worked on a paper or project that required integrating ideas or information from various sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Came to class without completing readings or assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Worked with other students on projects during class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Worked with classmates outside of class to prepare class assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Put together ideas or concepts from different courses when completing assignments or during class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Tutored or taught other students (paid or voluntary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Participated in a community-based project (e.g., service learning) as part of a regular course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Used e-mail to communicate with an instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Discussed grades or assignments with an instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Talked about career plans with a faculty member or advisor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Discussed ideas from your readings or classes with faculty members outside of class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Received prompt written or oral feedback from faculty on your academic performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r. Worked harder than you thought you could to meet an instructor's standards or expectations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s. Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t. Discussed ideas from your readings or classes with others outside of class (students, family members, coworkers, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u. Had serious conversations with students of a different race or ethnicity than your own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2 During the current school year, how much has your coursework emphasized the following mental activities?

	Very much	Quite a bit	Some	Very little
a. Memorizing facts, ideas, or methods from your course and readings so you can repeat them in pretty much the same form	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Applying theories or concepts to practical problems or in new situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



What Do We Ask?

Survey Content

- **Academic activities & experiences**
 - Academic challenge
 - Reading and writing
 - Active learning
 - Cognitive tasks in courses
 - Enriching educational experiences
- **Time use**
 - Study, work, socializing...
- **Co-curricular activities**
- **Institutional emphases**
- **Quality of campus relationships**
- **Cognitive and noncognitive gains**
- **Satisfaction**
- **Demographic & enrollment characteristics**

Sample Questions

In your experience at your institution during the current school year, about how often have you...

- **Asked questions in class or contributed to class discussions?**
- **Made a class presentation?**
- **Prepared two or more drafts of a paper or assignment before turning it in?**

Sample Questions

In your experience at your institution during the current school year, about how often have you...

- **Received prompt written or oral feedback from faculty on your academic performance?**
- **Worked harder than you thought you could to meet an instructor's standards or expectations?**

Sample Questions

During the current school year, how much has your coursework emphasized the following mental activities?

- **Memorizing** facts, ideas, or methods...
- **Analyzing** the basic elements of an idea...
- **Synthesizing** and organizing ideas, information...
- **Making judgments** about the value of information...
- **Applying** theories or concepts...

Sample Questions

During the current school year, about how often have you done each of the following?

- **Examined the strengths or weaknesses of your own views on a topic or issue?**
- **Learned something that changed the way you understand an issue or concept?**

NSSE Products

- **Institutional Report**
 - ◆ Comparison reports
 - Respondent characteristics
 - Means and distributions
 - Benchmarks of Effective Educational Practice
- **User resources**
 - ◆ Using NSSE Data
 - ◆ Facilitator's Guide
 - ◆ Accreditation Toolkit
- **Student data file**



A Lot of Information!!



NSSE 2010 Engagement Item Frequency Distributions^a NSSEville State University

national survey of student engagement			First-Year Students								Seniors								
			NSSEville State		Mid East Public		Carnegie Class		NSSE 2010		NSSEville State		Mid East Public		Carnegie Class		NSSE 2010		
	Variable	Response Options	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	
1a.	Asked questions in class or contributed to class discussions	CLQUEST (ACL)	Never	15	2%	211	2%	1,248	3%	4,922	3%	9	1%	124	1%	901	2%	3,538	2%
			Sometimes	300	32%	2,905	34%	14,781	35%	57,335	35%	203	19%	2,088	22%	12,633	23%	46,587	25%
			Often	333	37%	2,967	35%	15,134	36%	57,083	35%	321	32%	3,048	33%	17,608	33%	60,869	32%
			Very often	263	29%	2,079	29%	11,163	26%	44,027	27%	487	49%	4,058	44%	23,086	42%	81,914	41%
		Total	911	100%	8,162	100%	42,326	100%	163,367	100%	1,020	100%	9,318	100%	54,228	100%	192,908	100%	
1b.	Made a class presentation	CLPRESEN (ACL)	Never	80	9%	775	9%	5,215	13%	21,742	14%	24	2%	277	3%	2,779	5%	10,865	6%
			Sometimes	541	59%	4,202	50%	21,727	50%	85,258	51%	310	30%	2,761	30%	16,041	30%	62,084	33%
			Often	240	27%	2,406	30%	11,642	28%	42,552	26%	438	43%	3,688	39%	20,570	37%	71,247	36%
			Very often	47	5%	802	11%	3,780	9%	13,872	9%	255	24%	2,638	28%	15,083	27%	49,267	25%
		Total	908	100%	8,185	100%	42,364	100%	163,424	100%	1,027	100%	9,364	100%	54,473	100%	193,463	100%	
1c.	Prepared two or more drafts of a paper or assignment before turning it in	REWROPAP	Never	137	15%	960	11%	4,445	11%	20,566	13%	199	20%	1,624	16%	7,821	14%	30,644	16%
			Sometimes	346	39%	2,658	32%	12,162	29%	49,181	30%	384	38%	3,644	38%	19,675	36%	72,374	37%
			Often	282	31%	2,709	33%	14,262	34%	52,973	33%	268	26%	2,451	27%	15,467	29%	52,575	28%
			Very often	145	15%	1,803	25%	11,341	27%	40,180	25%	176	17%	1,628	18%	11,403	21%	37,522	20%
		Total	910	100%	8,130	100%	42,210	100%	162,900	100%	1,027	100%	9,347	100%	54,366	100%	193,115	100%	
1d.	Worked on a paper or project that required integrating ideas or information from various sources	INTEGRAT	Never	12	1%	133	2%	805	2%	3,275	2%	4	0%	88	1%	584	1%	2,004	1%
			Sometimes	189	21%	1,558	19%	7,790	19%	30,757	19%	79	8%	1,045	12%	5,944	11%	22,154	12%
			Often	438	48%	3,796	46%	18,693	44%	71,661	43%	388	38%	3,565	38%	20,389	38%	71,169	37%
			Very often	272	29%	2,696	33%	15,110	35%	57,856	35%	551	54%	4,669	49%	27,625	50%	98,358	50%
		Total	911	100%	8,183	100%	42,398	100%	163,549	100%	1,022	100%	9,367	100%	54,542	100%	193,685	100%	
1e.	Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments	DIVCLASS	Never	66	7%	516	6%	2,614	7%	10,590	7%	52	5%	542	6%	3,288	7%	12,973	7%
			Sometimes	319	35%	2,548	30%	12,747	30%	50,123	31%	306	30%	2,780	29%	15,326	28%	56,316	29%
			Often	359	40%	3,248	39%	16,448	38%	62,783	38%	360	34%	3,253	35%	18,995	35%	66,376	34%
			Very often	160	17%	1,865	25%	10,544	25%	39,804	24%	308	30%	2,780	30%	16,844	30%	57,710	29%
		Total	904	100%	8,177	100%	42,353	100%	163,300	100%	1,026	100%	9,355	100%	54,453	100%	193,375	100%	
1f.	Come to class without completing readings or assignments	CLUNPREP	Never	223	24%	2,275	28%	11,395	27%	41,122	25%	195	18%	2,238	24%	12,504	23%	40,802	21%
			Sometimes	540	60%	4,556	56%	23,934	56%	93,087	56%	618	60%	5,403	58%	31,301	57%	110,256	56%
			Often	101	11%	939	11%	4,941	12%	20,547	13%	146	15%	1,141	12%	7,259	13%	28,749	15%
			Very often	44	5%	402	5%	2,111	5%	8,725	6%	69	7%	576	6%	3,421	6%	13,796	7%
		Total	908	100%	8,172	100%	42,381	100%	163,481	100%	1,028	100%	9,358	100%	54,485	100%	193,603	100%	

Benchmarks of Effective Educational Practice



Level of Academic Challenge

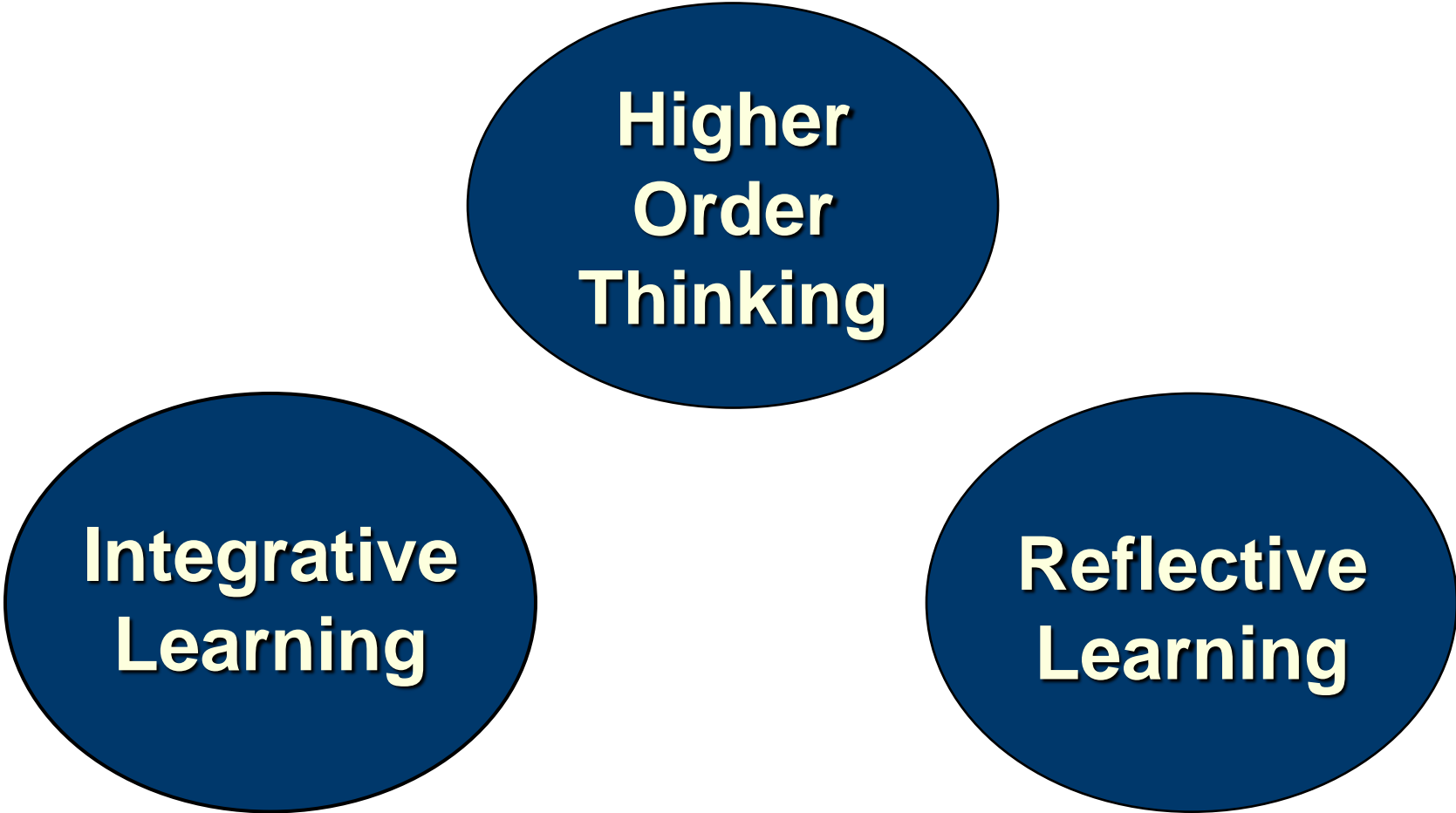
Active & Collaborative Learning

Student-Faculty Interaction

Enriching Educational Experiences

Supportive Campus Environment

Deep Approaches to Learning

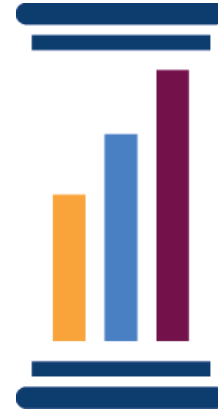


**Higher
Order
Thinking**

**Integrative
Learning**

**Reflective
Learning**

Using NSSE Results



How are we doing?

How can we improve?

Many Ways to Use Results

What to look at and how to look at it

Peer comparisons

- How do we measure up to others?

Self comparison

- Are we improving?

Absolute standard

- Do we measure up to our ideals?

Internal variation

- Who is least engaged?



A Look at Engineering Relative to Other Fields

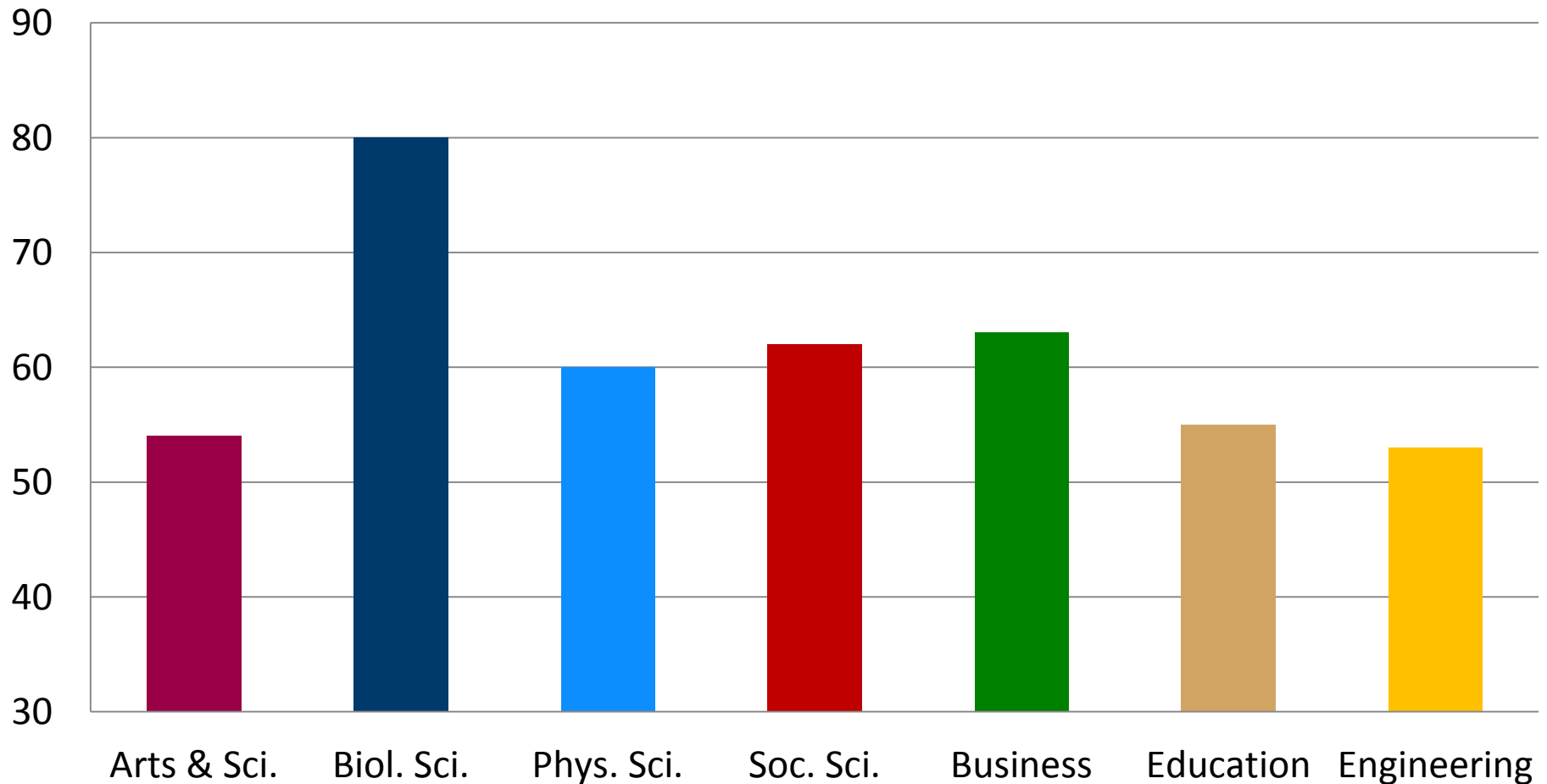
~140,000 final-year students
at ~540 U.S. institutions



Cognitive Tasks in Courses

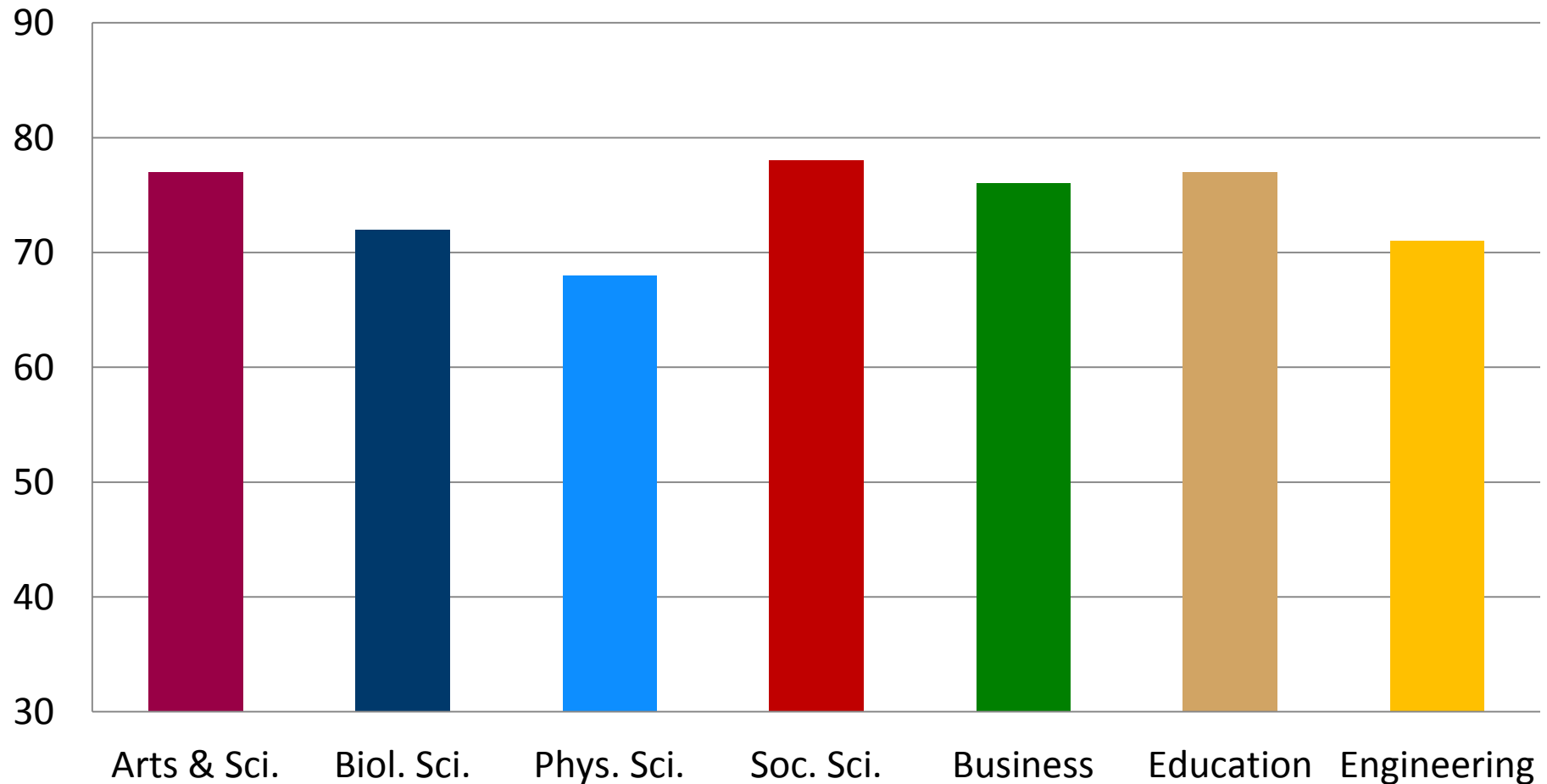
Coursework Emphasis: Memorization

Final Year Students (Quite a Bit + Very Much)



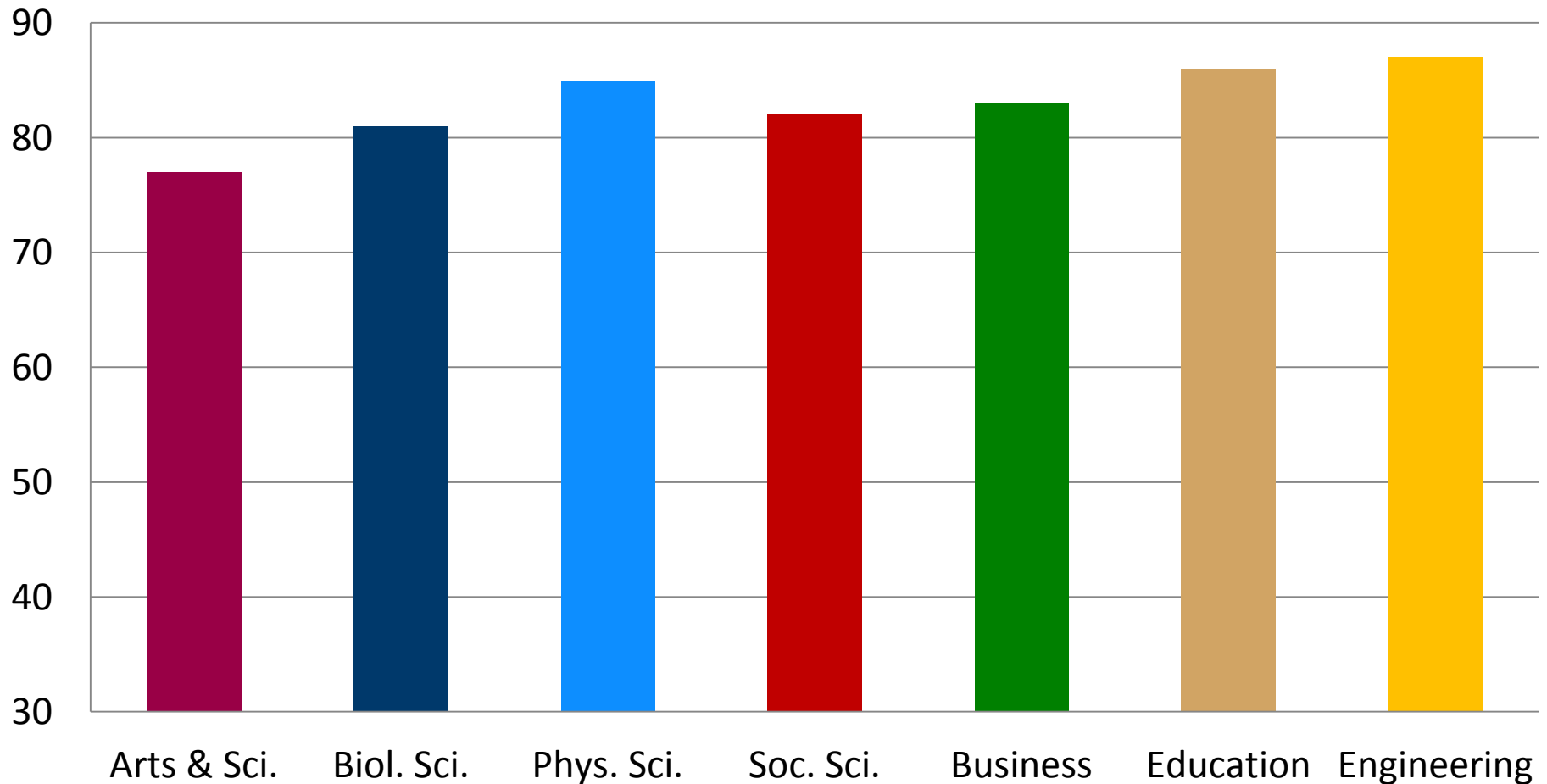
Coursework Emphasis: Judgment

Final Year Students (Quite a Bit + Very Much)



Coursework Emphasis: Application

Final Year Students (Quite a Bit + Very Much)

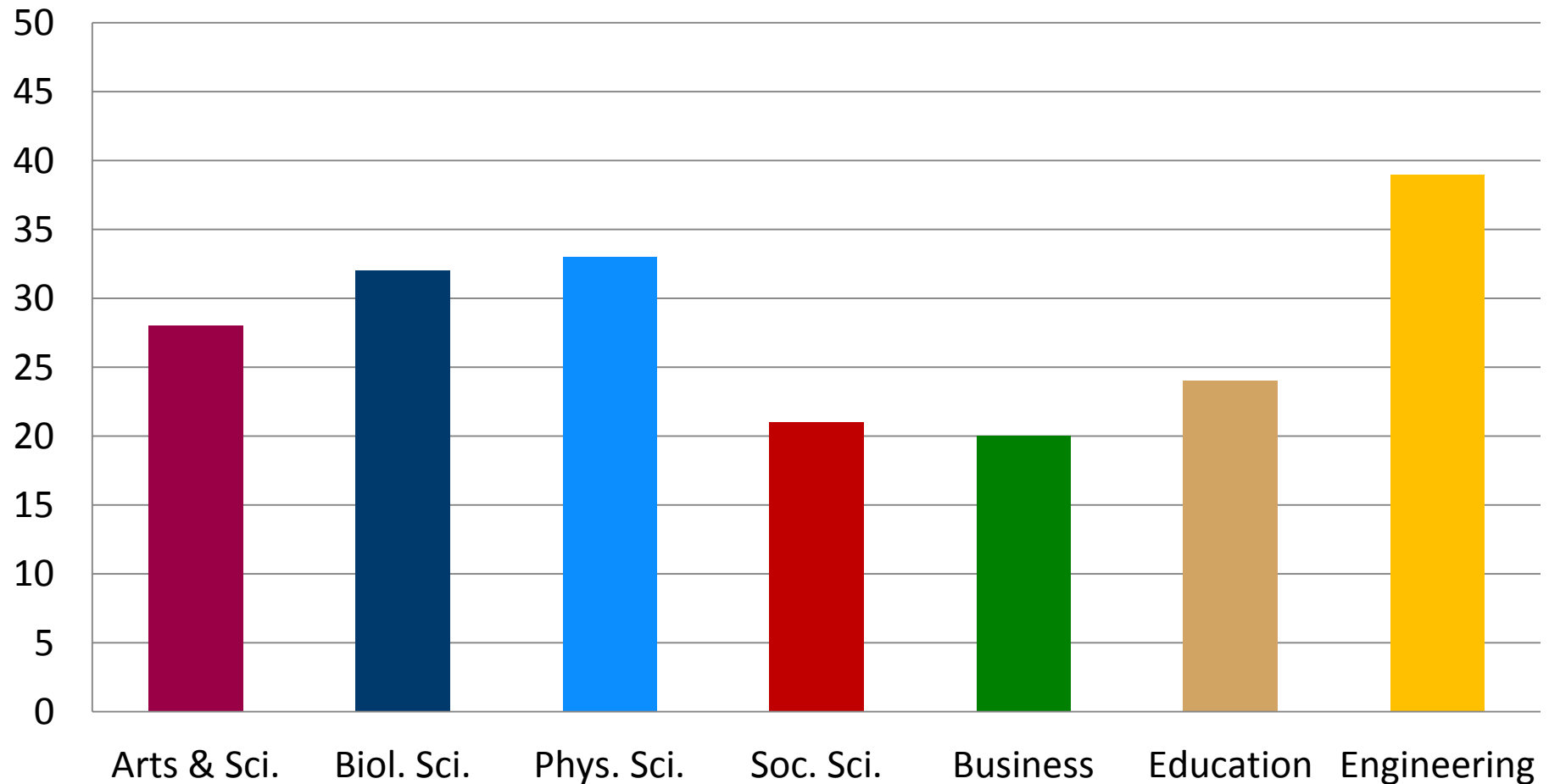




Study Time & Challenge

Weekly Class Preparation Time

Final Year Students (Percentage > 20 hrs/wk)



High Expectations

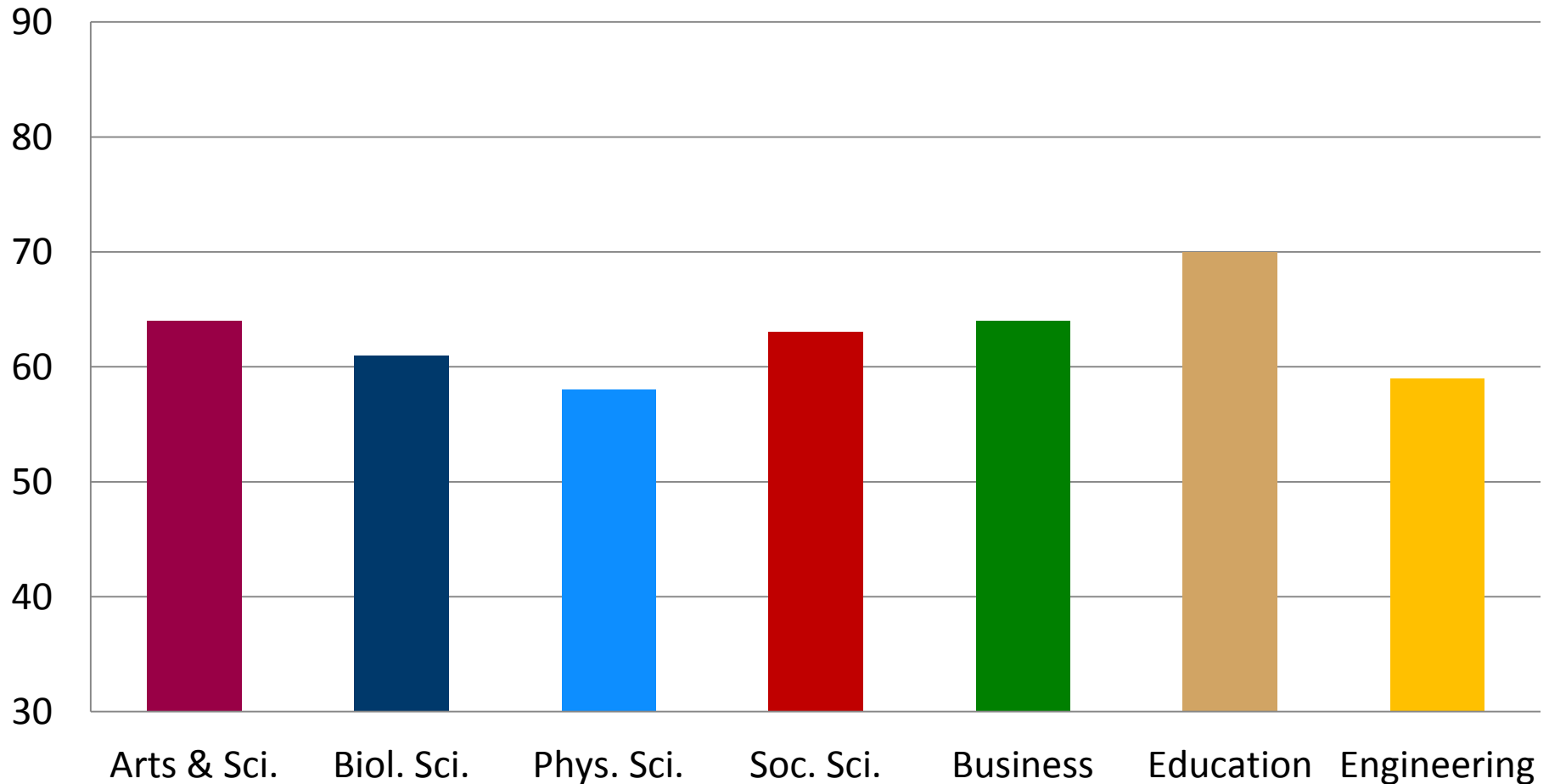
During the current school year, about how often have you...

- **Worked harder than you thought you could to meet an instructor's standards or expectations?**

Very often / Often / Sometimes / Never

Worked Harder than Thought One Could

Final Year Students (Often + Very Often)





Reflective Learning

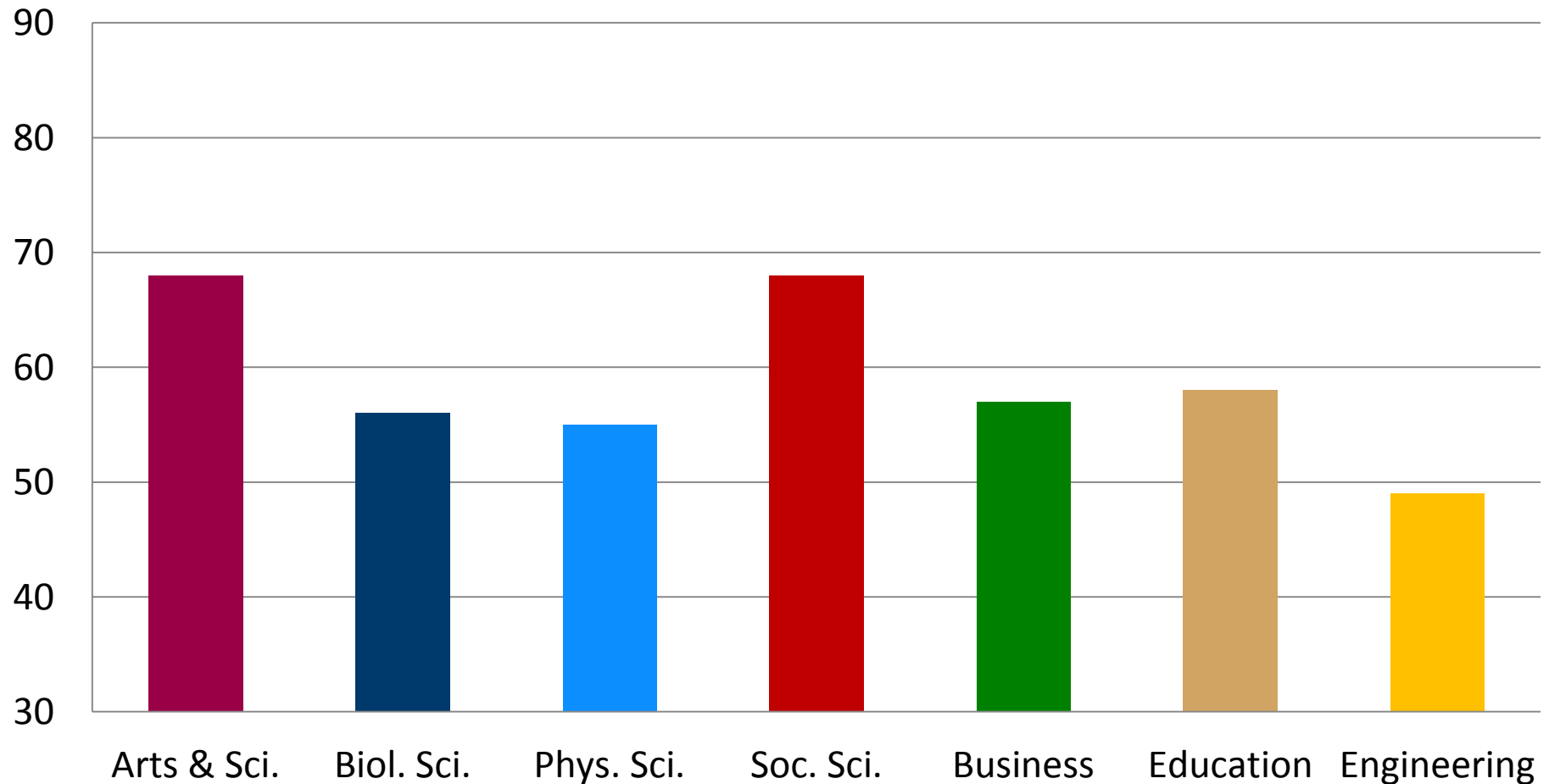
Reflective Learning

During the current school year, about how often have you...

- Examined the strengths and weaknesses of your views on a topic or issue?**
- Tried to better understand someone else's views by imagining how an issue looks from his or her perspective?**
- Learned something that changed the way you understand an issue or concept?**

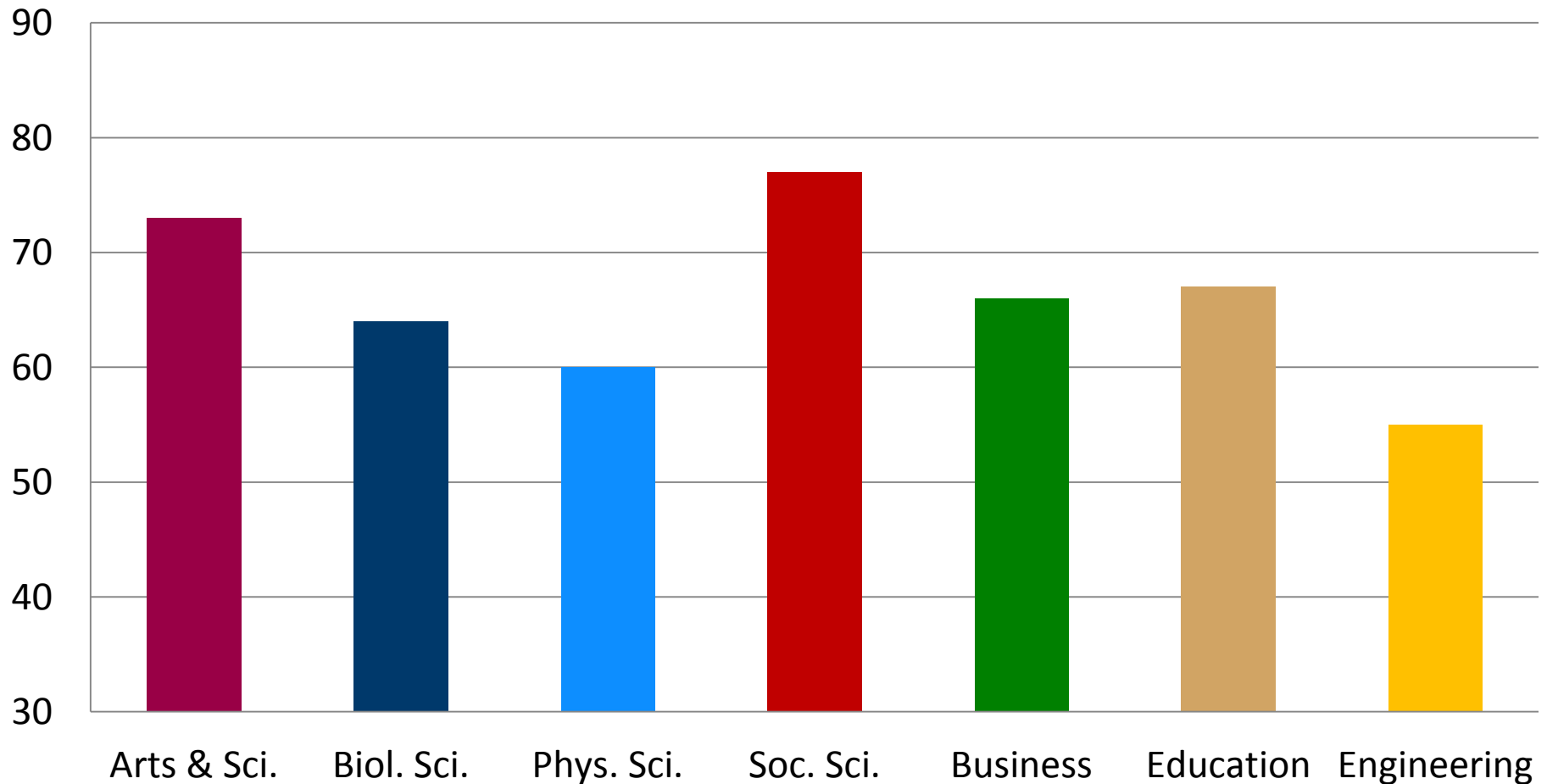
Examined Own Views

Final Year Students (Often + Very Often)



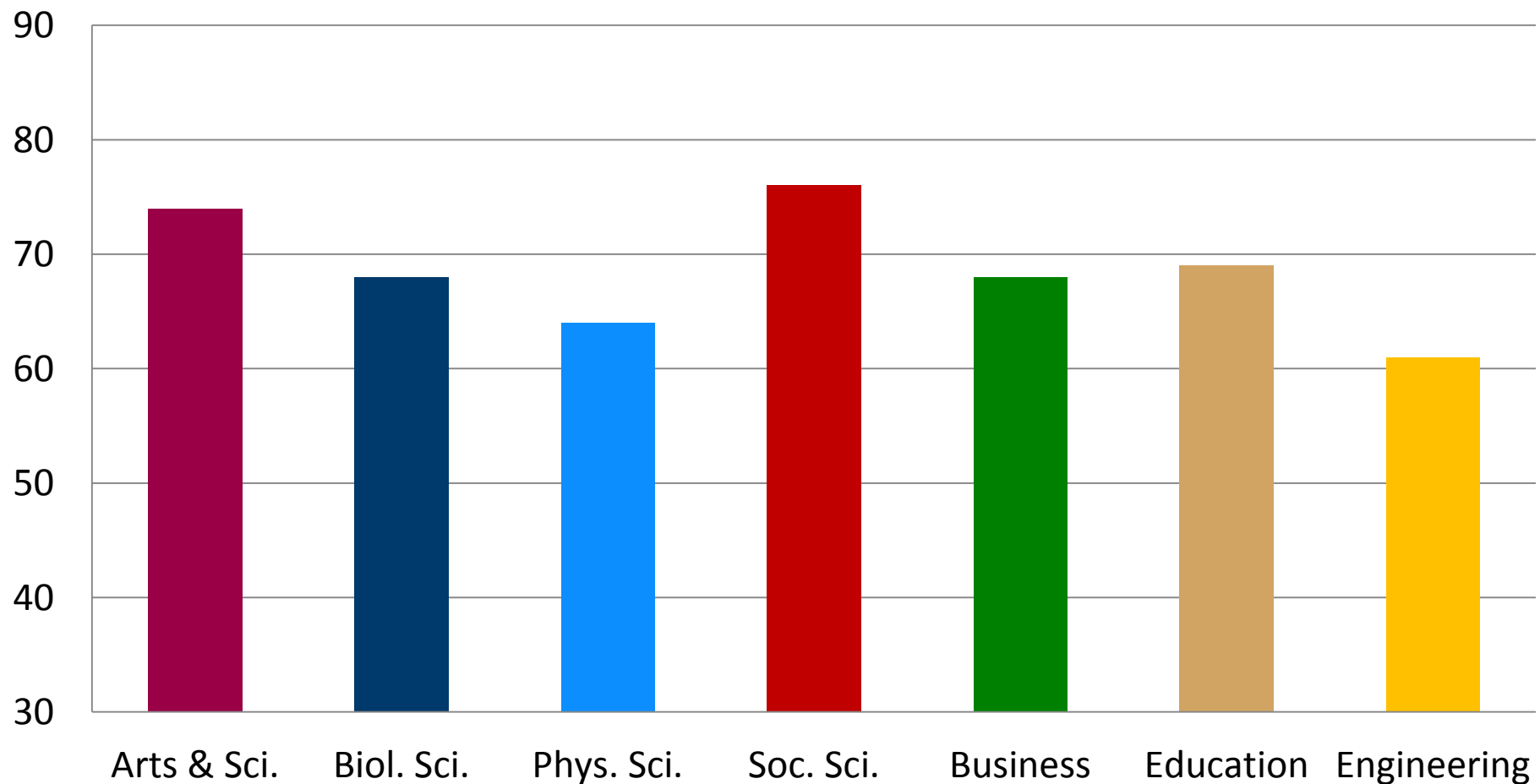
Considered Another's Views

Final Year Students (Often + Very Often)



Revised Own Views

Final Year Students (Often + Very Often)

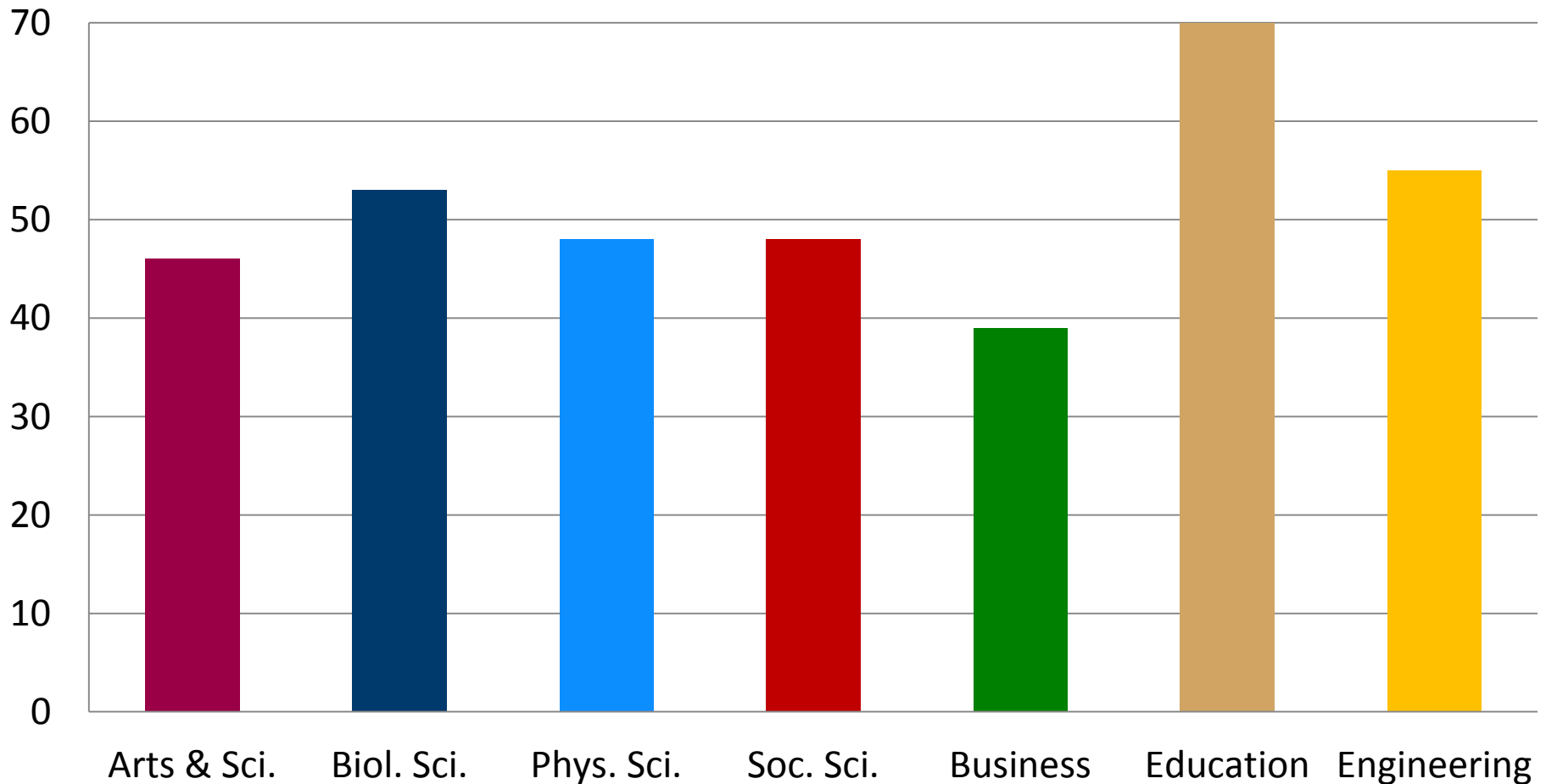




High-Impact Practices

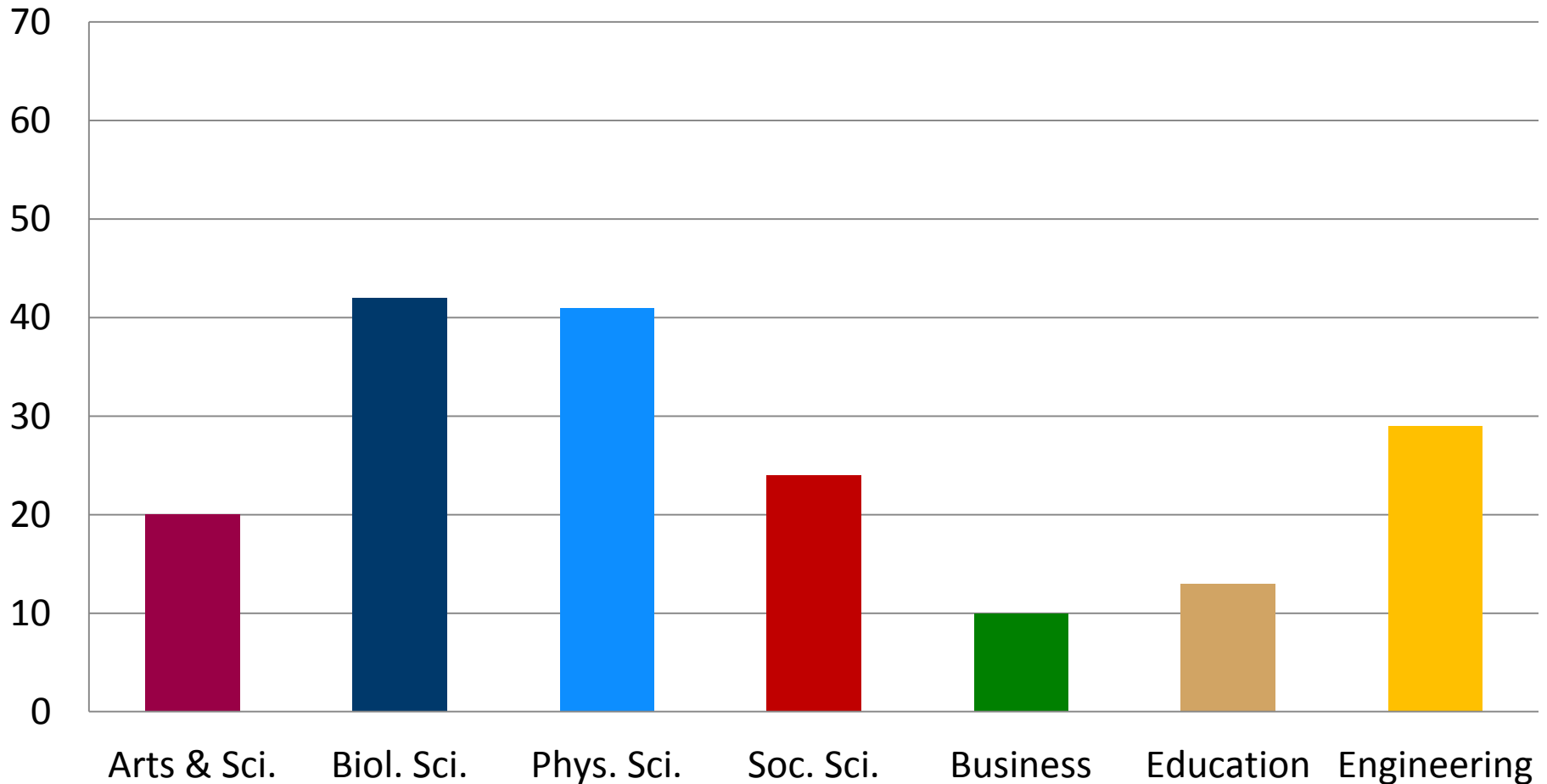
High Impact Practices: Internship

Final Year Students (Percent “Done”)



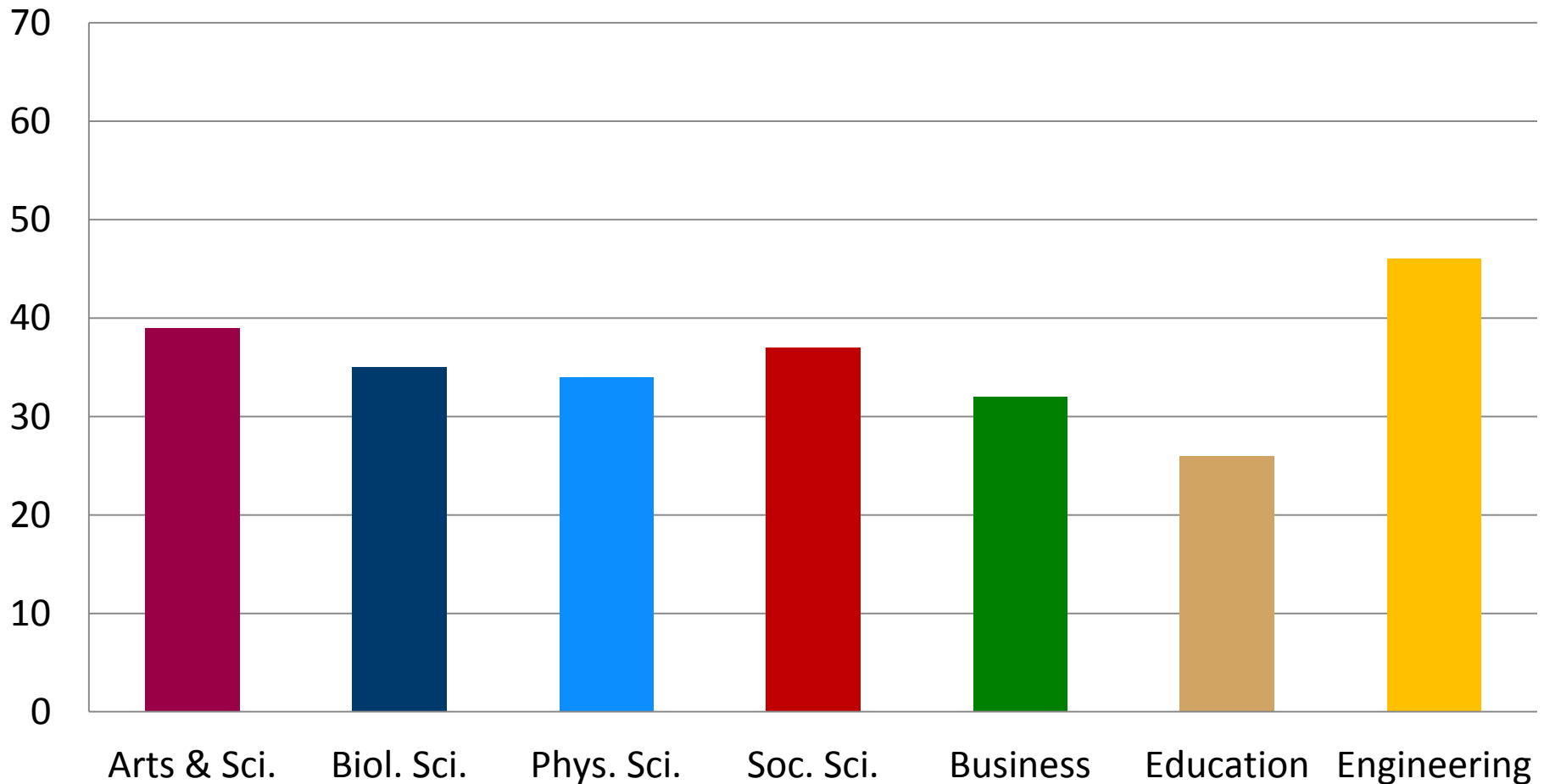
High Impact Practices: Research with Faculty

Final Year Students (Percent “Done”)



High Impact Practices: Culminating Senior Experience

Final Year Students (Percent “Done”)



Discussion



Questions?

Comments?



Thank You!

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