

Evaluation of innovation attributes in order to meet the challenges of global knowledge economy

Presented by:

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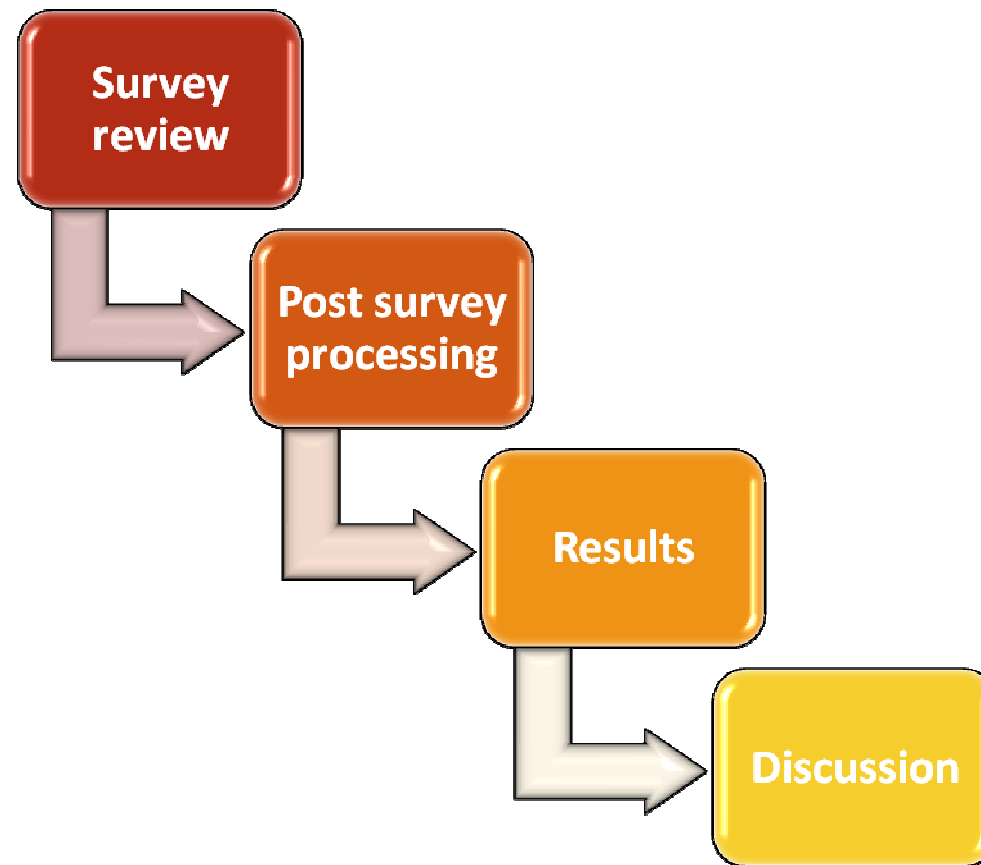
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YANG, CHIA-HSUAN

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Agenda



Research questions

Which are the most important innovation characteristics and skills that university students need to develop?

and

Which are the most powerful educational elements that promote the innovation skills?

Survey setup

Mode of administration

- Web-based, self-administered (Survey Monkey)

Target population

- Master and PhD students of CMU whose area of research or curriculum is relative to engineering, industrial design or business administration

Sampling frame

- Students in the target population that either have past job experience or they have been in CMU long enough to be able to have an opinion.

Sample design

- SRS on people with specific characteristics that fit to the target population based on the CMU directory.

Data collection



Post processing

Data cleaning

Hot-deck imputation for missing data

Post survey stratification based on

• ~~Gender~~

No one in the Female-Master-Engineering stratum

• College

• Academic level

} 0.11% to 2.20% change in the average of each question's answers

Results

- We had 77 persons contributing in our survey which 9 of them failed to fulfill the requirements which means we had 68 participants.

So our real margin of error is ± 0.095 and our response rate is 21%.

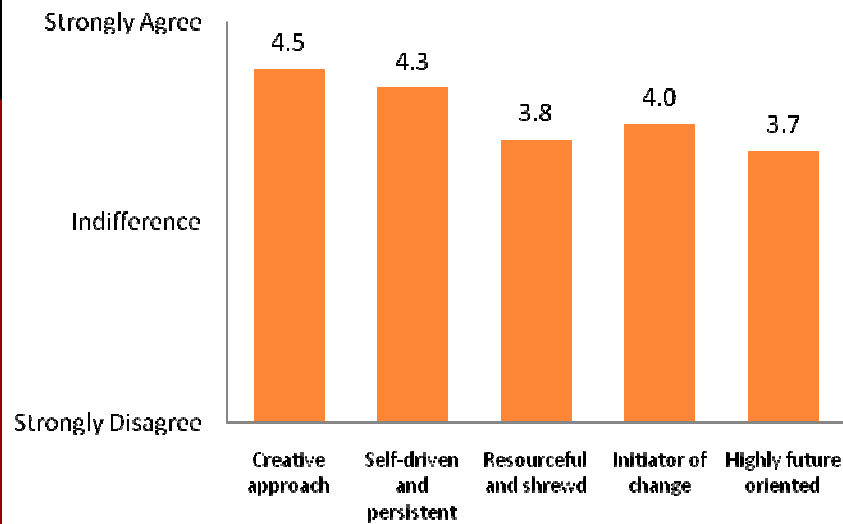
- Looking at the answers of the 68 respondents for the demographic questions, we have this information:
 1. 60% are male and 40% are female;
 2. The nationalities are divided into four regions, 54% American, 27% Australian-Asian, 8% European and 11% Indian;
 3. 27% have an age of 20-25, 36% have an age of 25-30, 12% have an age of 30-35, 10% have an age of 35-40, and 15% have an age of 41 and more;
 4. 6% are in the Industrial Design program, 29% are in Engineering and 65% are in the Business program;
 5. 8% have an previous degree in Design, 43% were in Engineering, 33% were in Business and 24% were in other programs;

Results (continued)

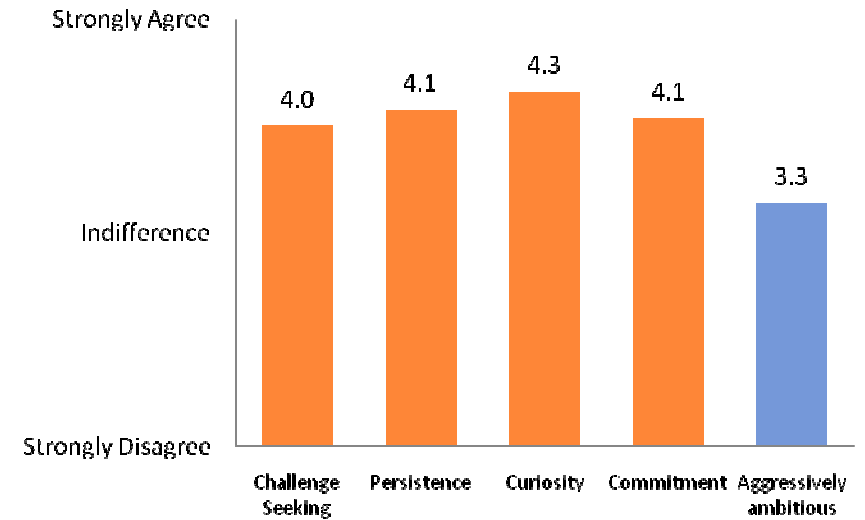
6. 59% are Master students and 41% are PhD students;
7. Out of the 41% that are PhD students, 79% have taken their qualification exam;
8. 51% are graduating within this year;
9. Out of the 69% that have work experience, 47% have 1-5 years of work experience, 30% have 5-10 years, 13% have 11-15 years, and 10% have 16 years or more of work experience;
10. Out of the 71% that have attended an internship, 15% have done 1-2 month, 60% have done 3-4 months, 10% have done 5-6 months, and 15% have done 7 months or more.

Results (continued)

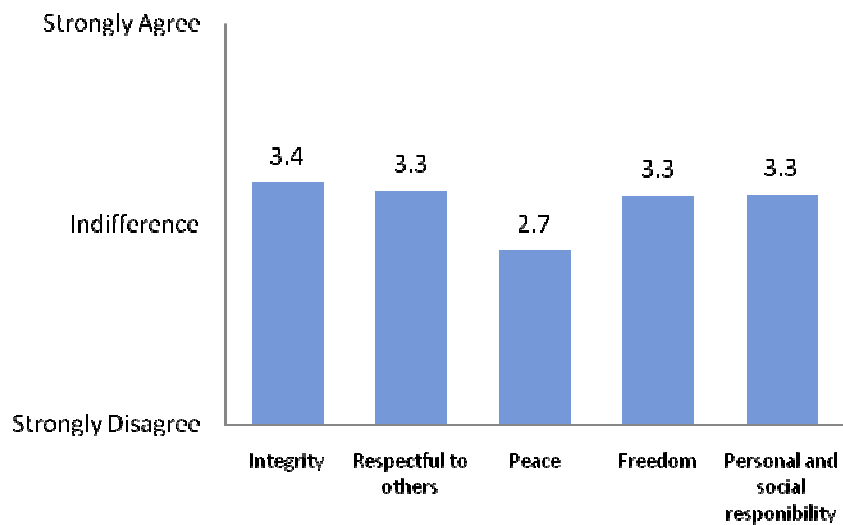
Characteristics



Attributes



Values

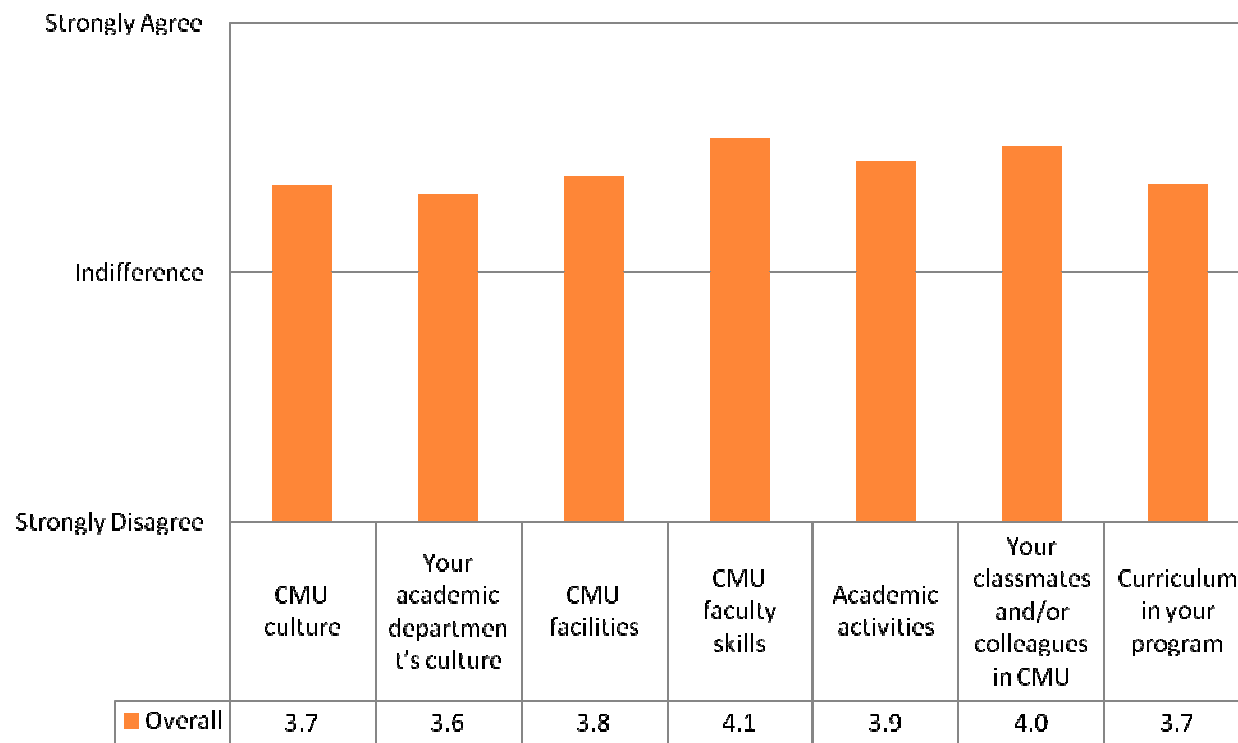


Type of knowledge

	Knowledge			
	Business	Technical	Design	Law or legal
Overall	3	1	2	4

Results (continued)

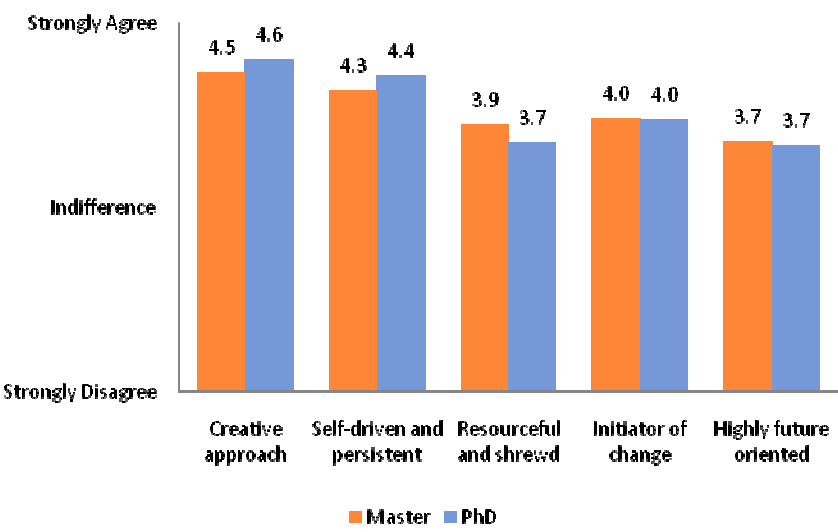
CMU elements



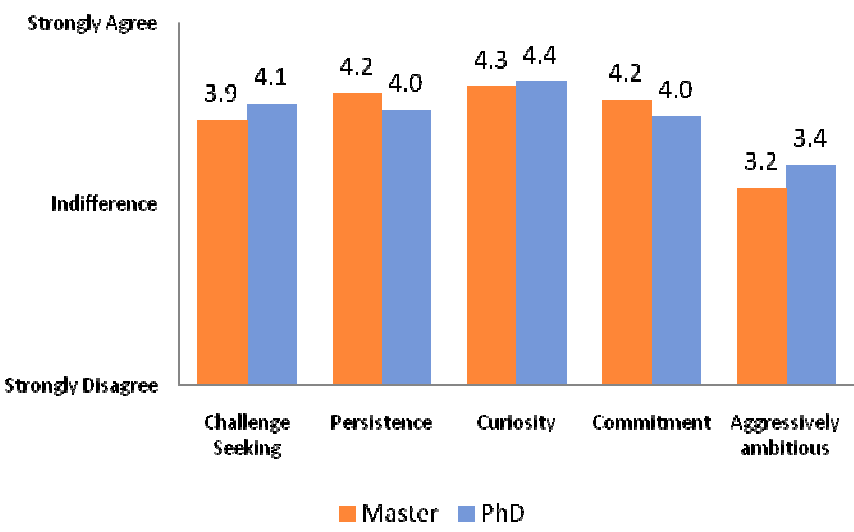
Inferences

Academic Level (Master: 40 and PhD: 28)

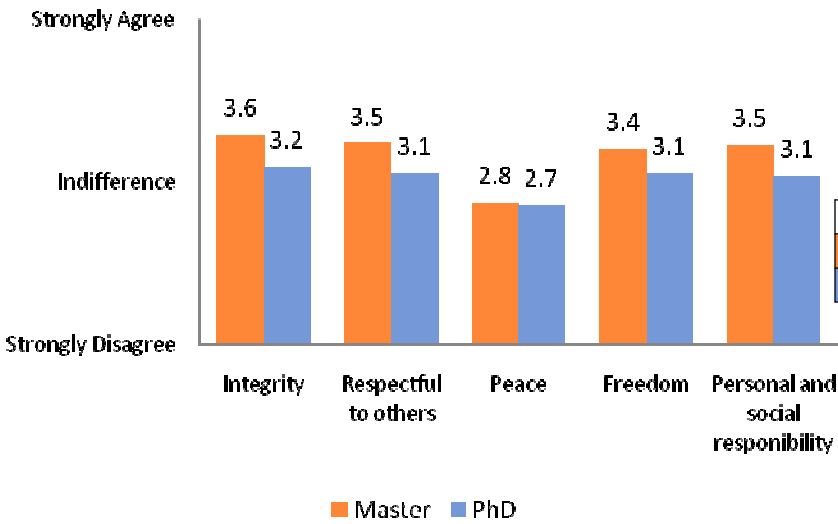
Characteristics



Attributes



Values



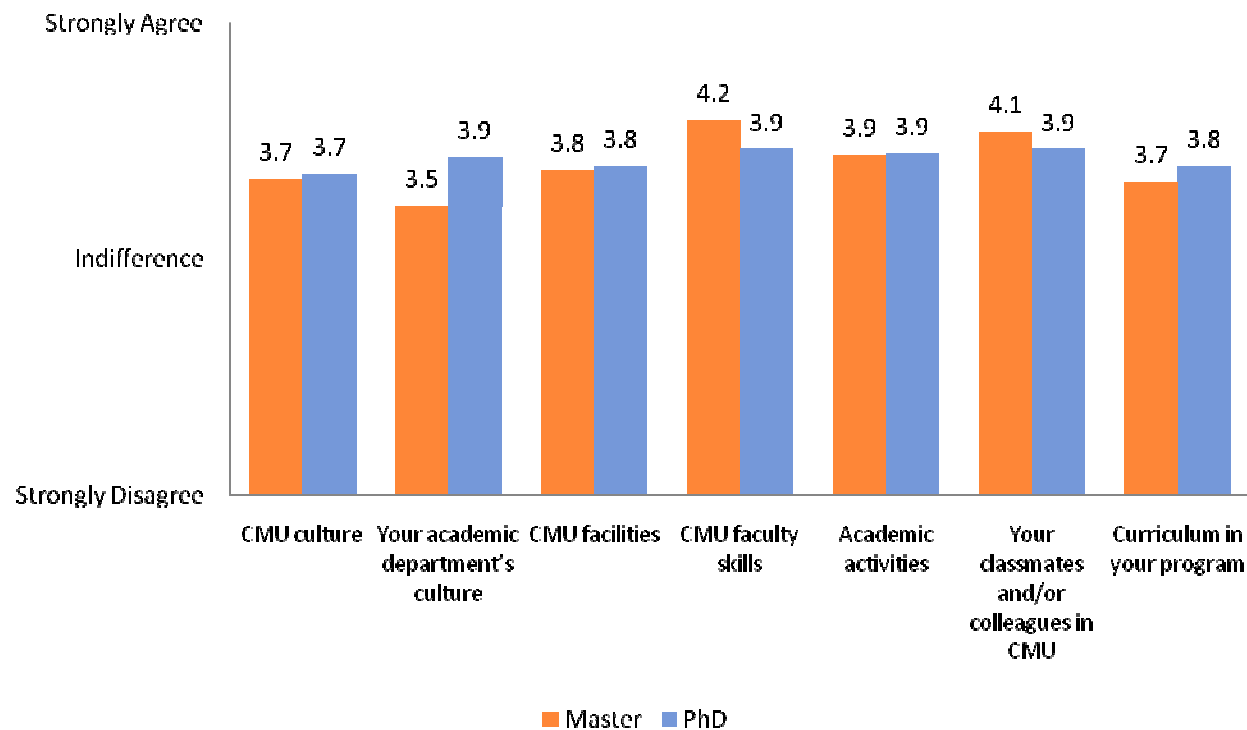
Type of knowledge

	Knowledge			
	Business	Technical	Design	Law or legal
Master (40)	3	1	2	4
PhD (28)	3	1	2	4

Inferences

Academic Level (Master: 40 and PhD: 28)

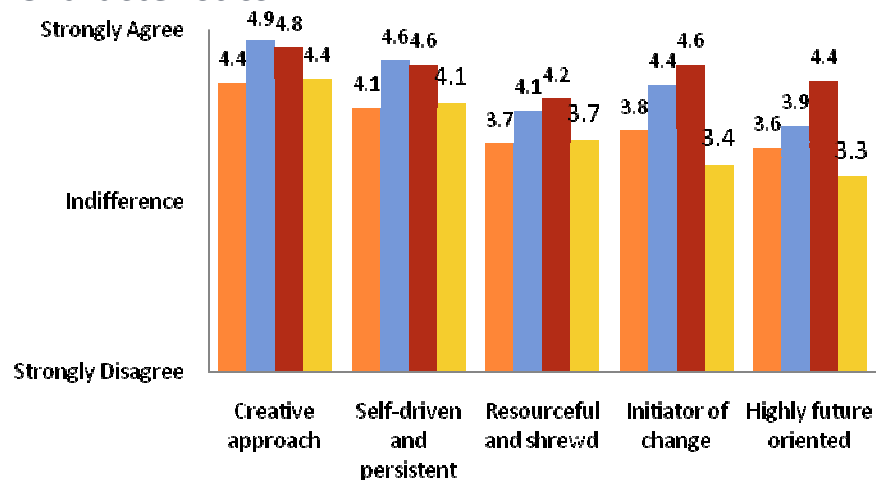
CMU elements



Inferences

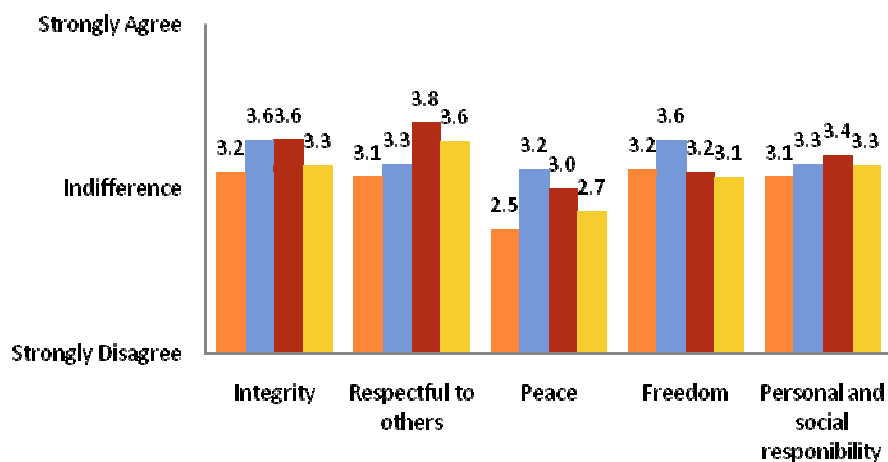
Nationality (American: 37, Australian-Asian: 17, European: 5, and Indian: 7)

Characteristics



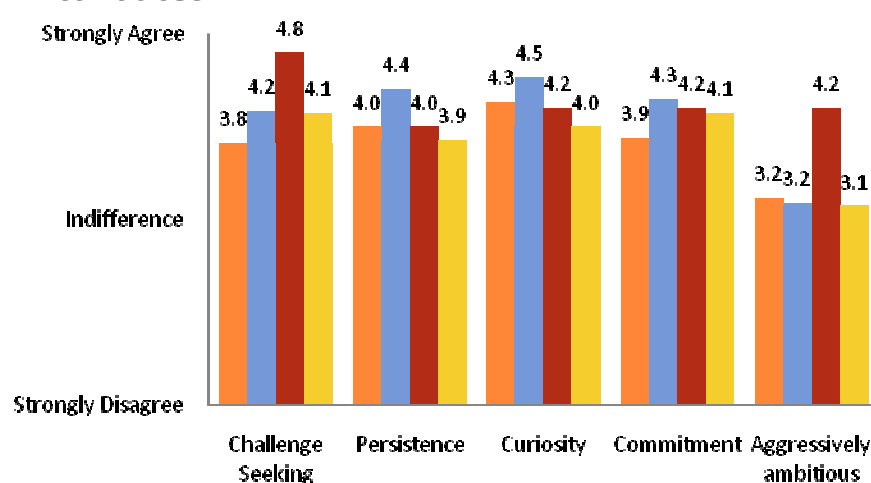
American Australian-Asian European Indian

Values



American Australian-Asian European Indian

Attributes



American Australian-Asian European Indian

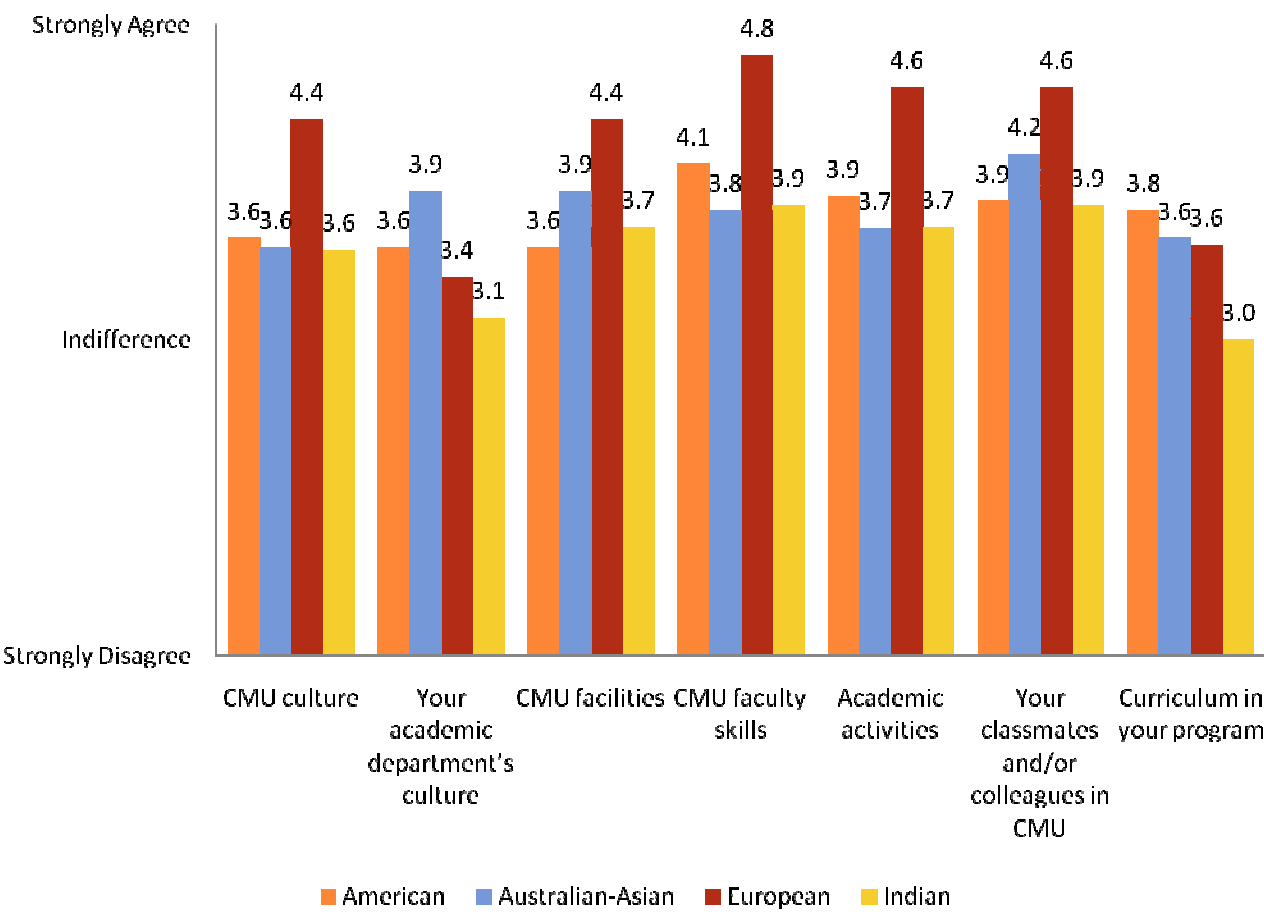
Type of knowledge

	Knowledge			
	Business	Technical	Design	Law or legal
American (37)	3	2	1	4
Australian-Asian (17)	2	1	2	3
European (5)	2	1	3	4
Indian (7)	1	1	2	3

Inferences

Nationality (American: 37, Australian-Asian: 17, European: 5, and Indian: 7)

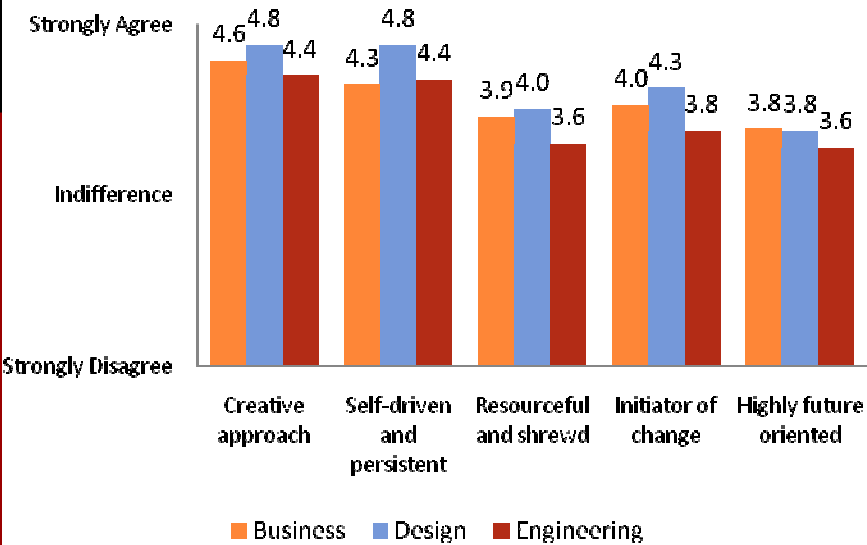
CMU elements



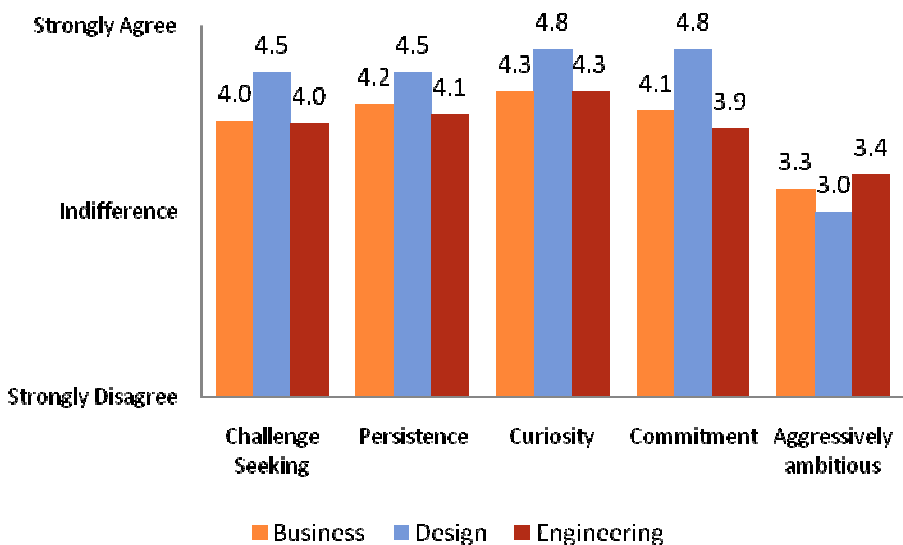
Inferences

Schools (Business: 44, Design: 4 and Engineering: 20)

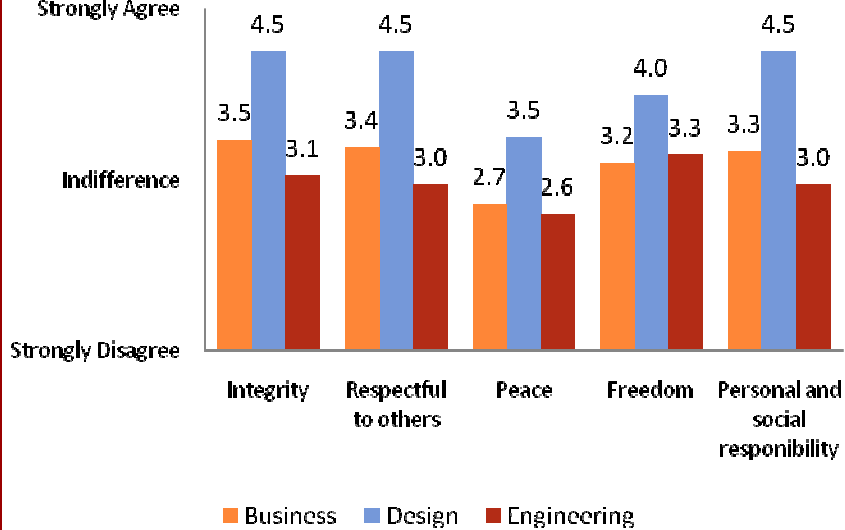
Characteristics



Attributes



Values



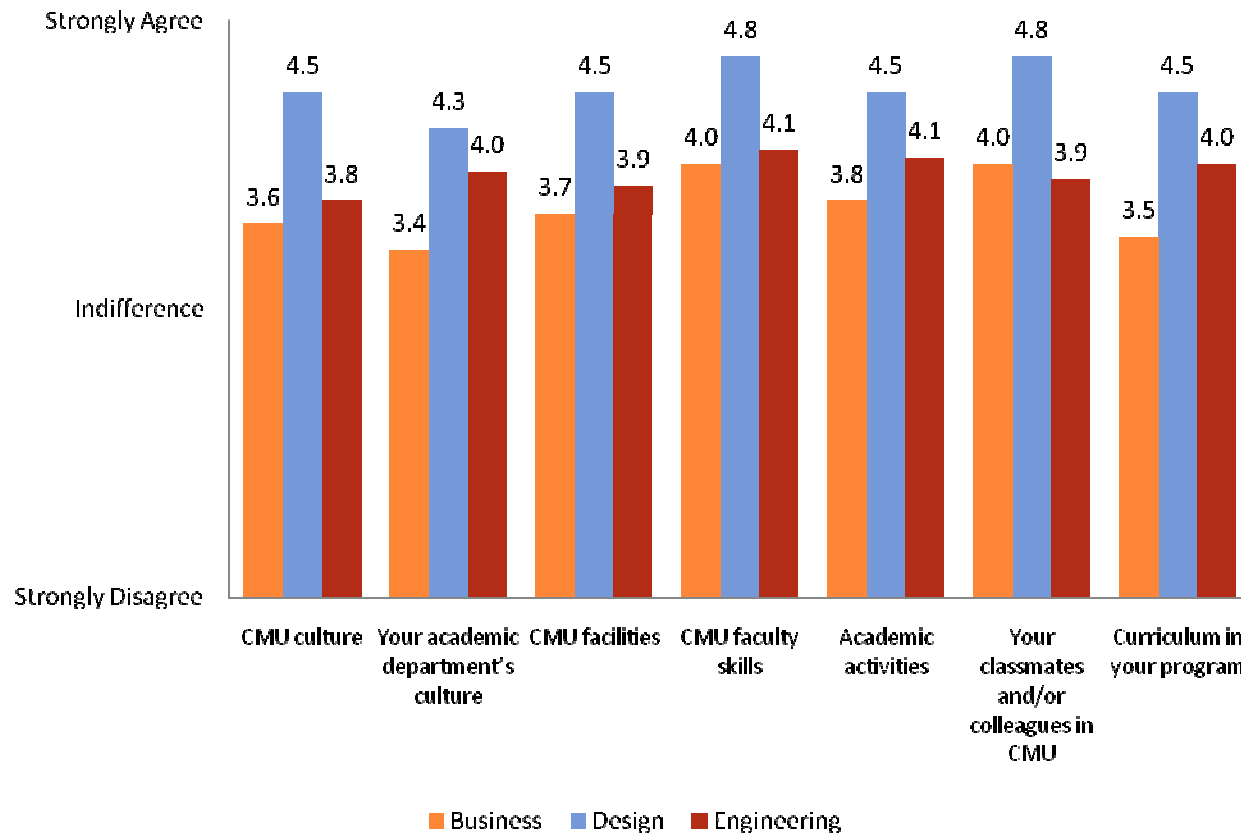
Type of knowledge

	Knowledge			
	Business	Technical	Design	Law or legal
Business (44)	1	2	1	3
Design (4)	3	2	1	4
Engineering (20)	3	1	2	4

Inferences

Schools (Business: 44, Design: 4 and Engineering: 20)

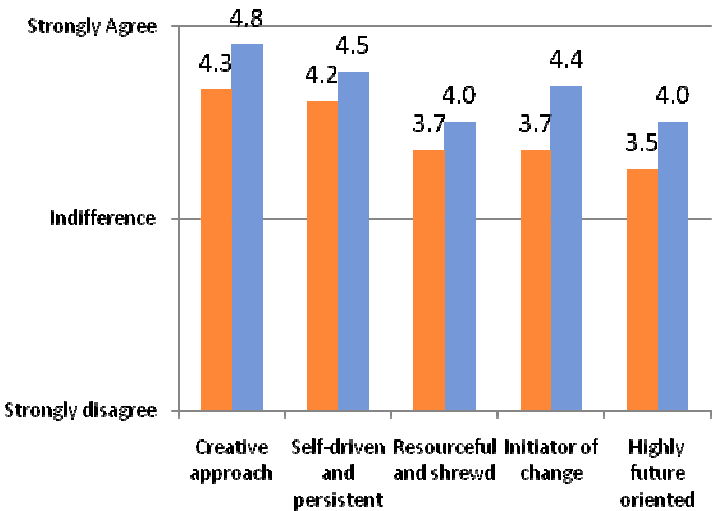
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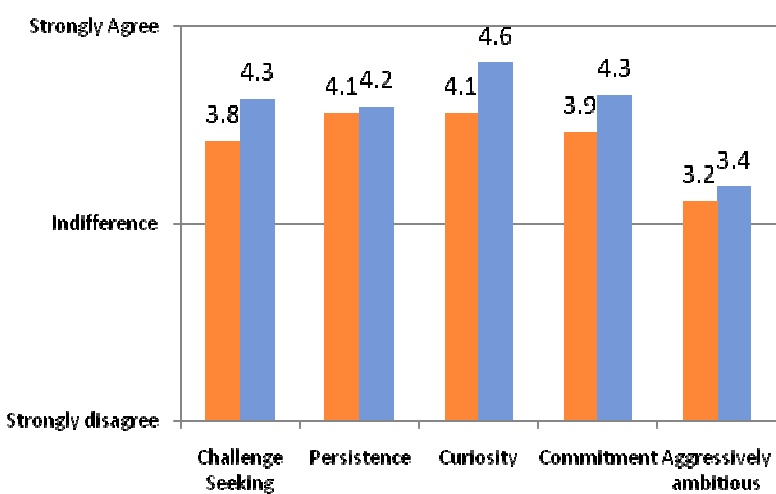
Inferences

Gender (Female:27 and Male:41)

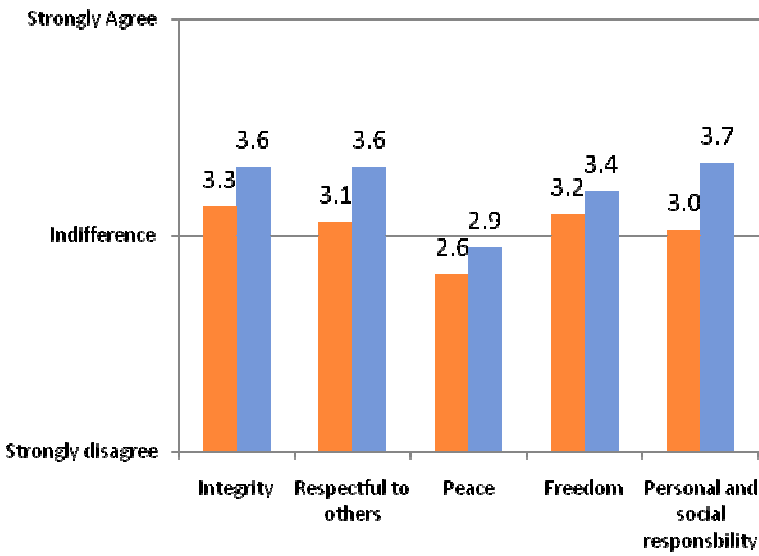
Characteristics



Attributes



Values



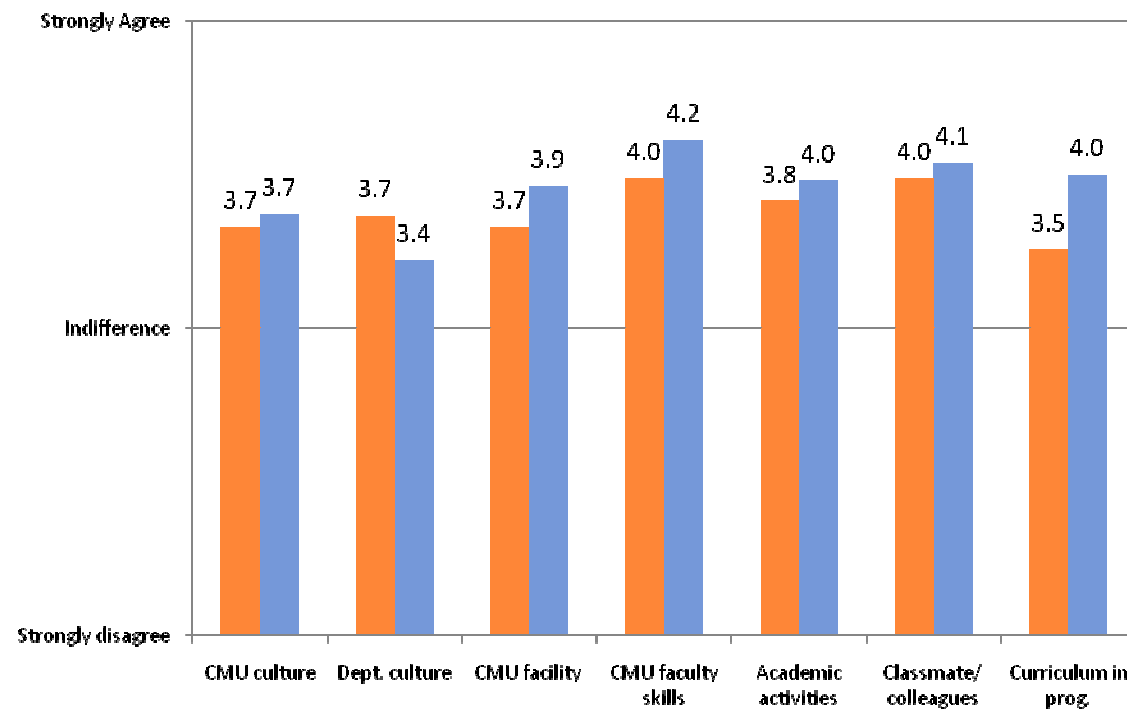
Type of knowledge

	Business	Technical	Design	Law or legal
Male (41)	2	1	3	4
Female (27)	3	2	1	4

Inferences

Gender (Female:27 and Male:41)

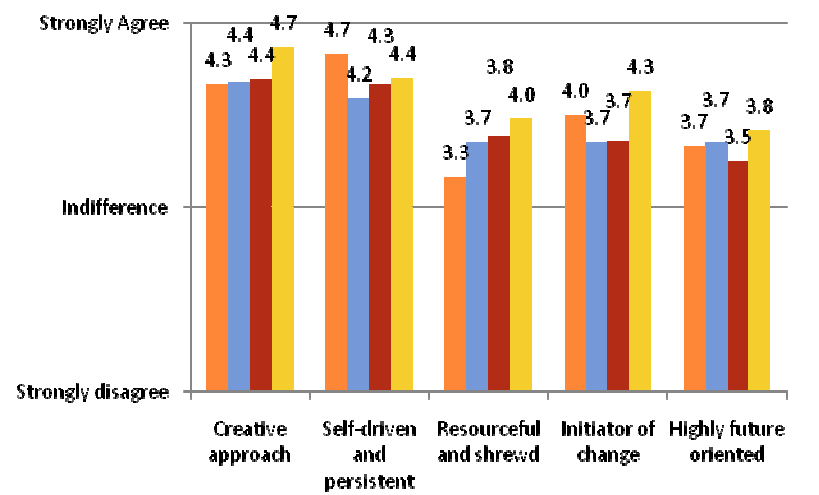
CMU elements



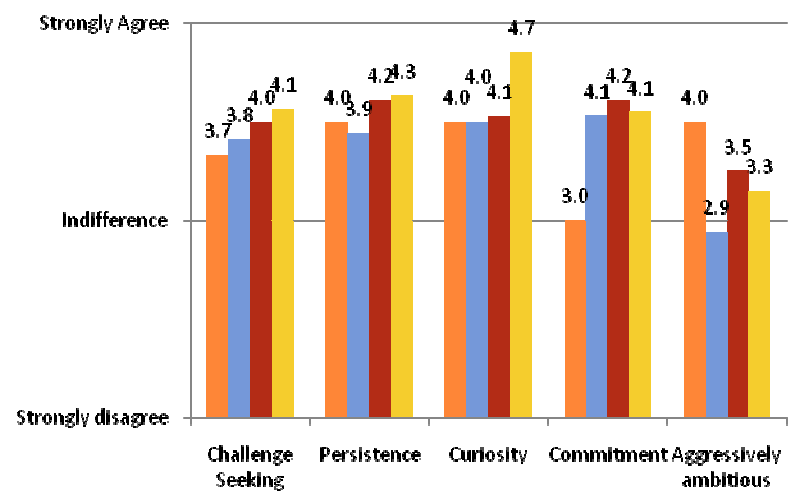
Inferences

Internship/Work Experience (None:3, Work:17, Internship:18, and Both:30)

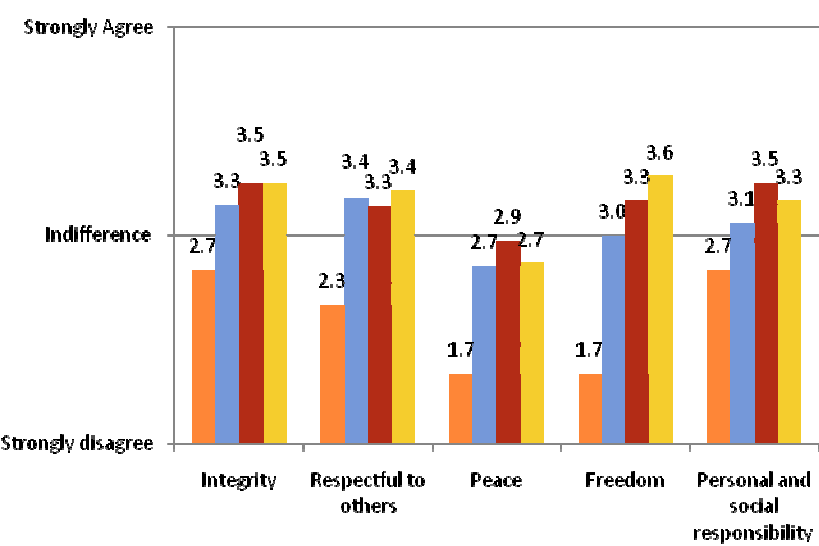
Characteristics



Attributes



Values



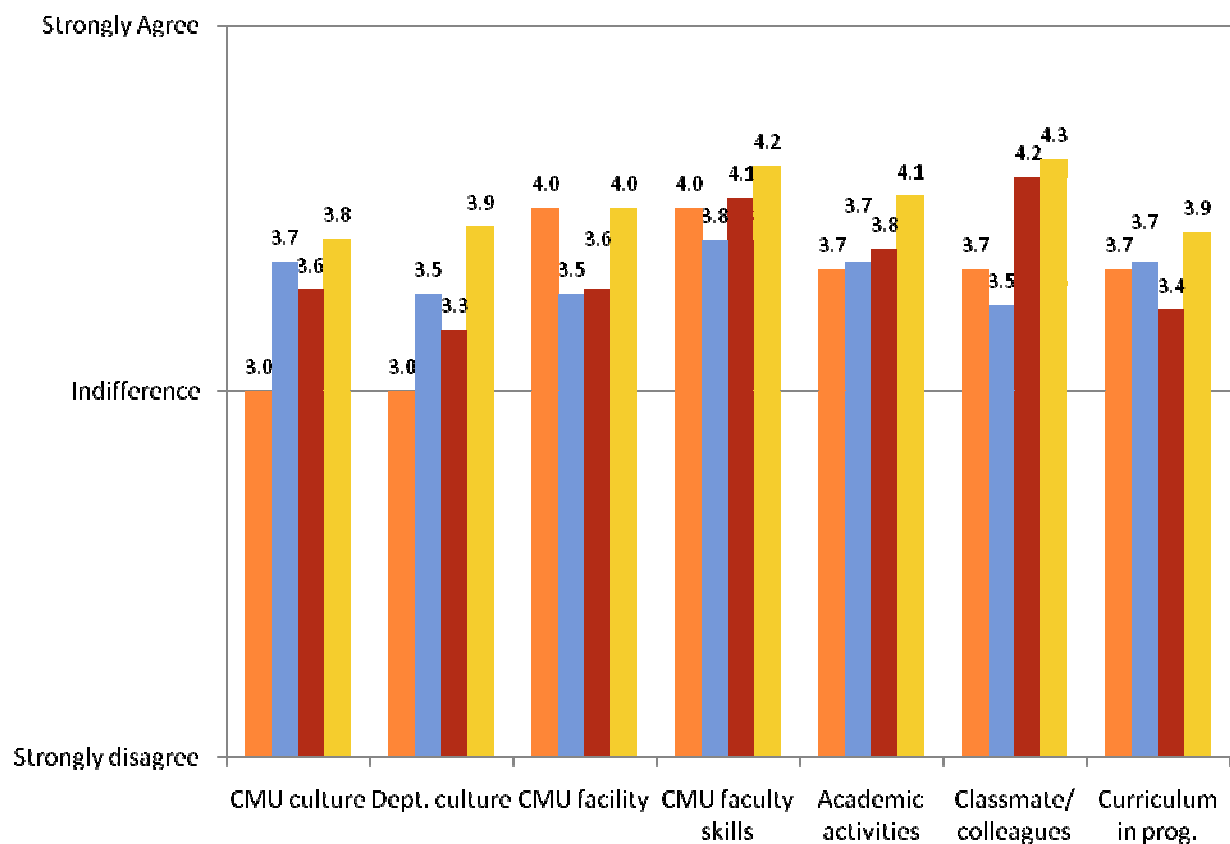
Type of knowledge

	Business	Technical	Design	Law or legal
None (3)	3	1	2	4
Work (17)	2	2	1	4
Intern (18)	3	1	2	4
Both (30)	3	1	2	4

Inferences

Internship/Work Experience (None:3, Work:17, Internship:18, and Both:30)

CMU elements



THANK YOU!

QUESTIONS?