MORE TO SAY

Analyzing Open-Ended Student Responses to the APPLE (Academic Pathways of People Learning Engineering) Survey

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⇒ Academic Pathways Study

APPLE (Academic Pathways of People Learning Engineering) Survey
10 minute online survey deployed in Spring 2008*, paid $4

BROAD NATIONAL SAMPLE

surveyed 4266 undergraduate students at 21 u.s. institutions

www.applesurvey.org

* prior to economic downturn
OPEN-ENDED QUESTION AT END OF 50-ITEM SURVEY

Is there anything else you want to tell us that we didn’t already cover?

# of Responses

N=4,266

For inter-rater reliability between 2 coders, Cohen’s kappa: moderate at .532
EMERGENT THEMATIC ANALYSIS

CATEGORIES:

- School
- Individual Beliefs

SUB-TOPICS:

**School**
- Advising
- Gender/URM
- Social
- Curriculum
- Language
- Co-op

**Individual Beliefs**
- Calling
- Challenge
- Future
- Understanding
- Lifestyle
- Money

20% sampled for inter-rater reliability between 2 coders, Weighted kappa: very good at .832
School

- **Advising** - student advising/mentoring, formal and informal
- **Gender/URM** - gender, under-represented minorities, “other”
- **Social** - social norms of engineering work
- **Curriculum** - teaching pedagogy and curriculum
- **Language** - English language proficiency
- **Co-op** - co-operative work arrangements with industry
Individual Beliefs

- **Calling** - as life’s calling, meant to be or not meant to be
- **Challenge** - engineering is hard, or too hard
- **Future** - career placement, worries about after college
- **Understanding** - knowing what engineering is, practice of
- **Lifestyle** - work/life balance
- **Money** - financial concerns
HOW NEGATIVE / POSITIVE WERE THE RESPONSES?

very negative   slightly negative   neutral   slightly positive   very positive

1  2  3  4  5

20% sampled for inter-rater reliability between 2 coders, Weighted kappa: moderate at .599
School

- Advising
- Gender/URM
- Social
- Curriculum
- Language

Co-op

negative 1 2 3 4 5 positive
Individual Beliefs

1. Lifestyle
2. Money
3. Calling
4. Challenge
5. Future
6. Understanding

Negative: 1
Positive: 5
EXAMPLE PARTICIPANT RESPONSES:

“[my institution] sucks”

“[my institution] rocks”
“... the academic advising from [my institution]’s central advising has been incorrect, inconsistent, and typically rubbish (at best)”

(2, Advising)
“As a female engineering student, I have noticed that the engineering courses at [my institution] are generally not composed of more than 5-10% female students. For me, this can be overwhelming at times.” (2, Gender/URM)
“... Engineers have poor social communication skills and don’t get girls.”

(2, Social)
“Engineering classes should start as soon in the college career as possible and should largely consist of hands-on and industry-relevant activities” (3, Curriculum)
“It is very hard to learn from TAs who cannot speak English very well and who cannot understand our questions.”

(2, Language)
"I had very little idea of what a job in engineering consisted of before I became a co-op student. I think these types of programs are crucial to creating capable engineers."
“... For me it was wondering who made cars... once I got into school I realized I was in the right profession... and I love it.” (4, Calling)
“Engineering classes are very hard; however I cannot picture myself studying another major... Work hard or die alive!” (5, Challenge)
“I studied engineering to go into business. I feel a technical background with study in business will make my goals of company ownership a reality…”

(3, Future)
“Need to do a better job marketing engineering programs to students. Many people who would do well in engineering do not pursue a degree simply because of lack of knowledge and exposure.”

(2, Understanding)
“... I sometimes feel as if earning an engineering degree requires a lot of sacrifice especially in terms of social involvement and a healthy lifestyle.”

(2, Lifestyle)
“... School is too expensive. I would enjoy it much better if I wasn’t financially stressed about it.”

(2, Money)
CONCLUSIONS

negative $<$ School $<$ Individual Beliefs $\leq$ neutral
CONCLUSIONS

+ adding to quantitative findings from survey
+ adding student voices
+ adding issues in that not otherwise captured
+ inform future deployments of the survey
CONCLUSIONS

What can the School change about Individual Beliefs?

What can Individual Beliefs change about the School?
ACKNOWLEDGEMENTS

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