

# Graduate School or Not

## Engineering Students Consider Continuing Their Education in Dual Degree Programs

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# You are a College Graduate. What's next?

- Engineering Career
- Non-Engineering Field
- Engineering Graduate School

# You are a College Graduate. What's next?

38%

Engineering Career

30%

Non-Engineering Field

32%

Engineering Graduate School

Nationally

Sheppard 2001

Saks 2008

NSF 2008

*"Should I Pursue Graduate School?"*

GUIDING QUESTION

Do students carefully consider their choices?

SET OF RESEARCH QUESTIONS

*What factors  
considered?*

*Where to apply  
& in what field?*

*Who consulted  
for decision?*

# Longitudinal Cohort at SPU APS Core School

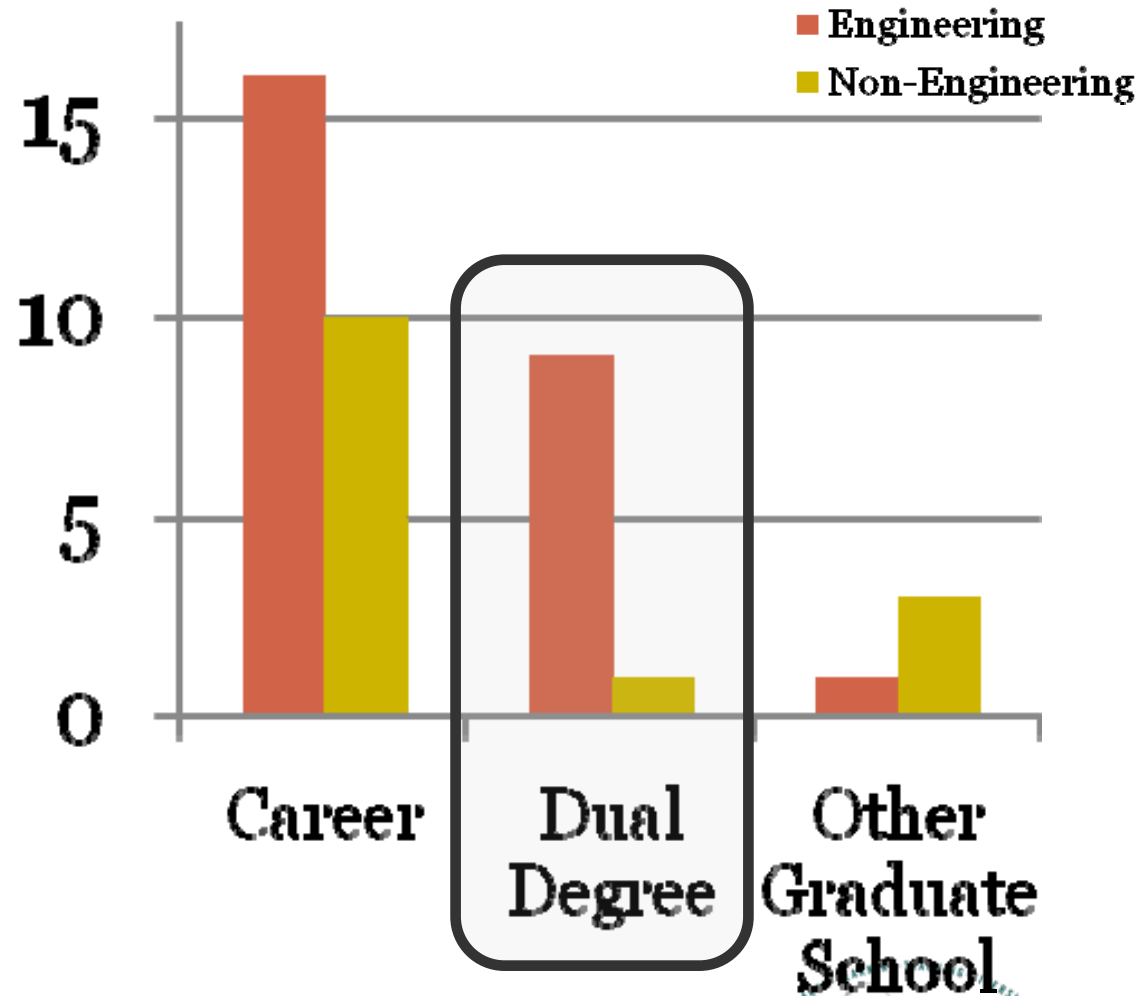
LOCAL SAMPLE (May '07)  
Suburban Private University

*What do you plan to do  
after graduating from college?*

N = 40 students

10 Dual Degree students

Note: Different distribution  
than National Sample



# A Dual Degree Option?

- Undergraduate degree & master's degree concurrently
- Consistent with the recommendations of recent reports regarding undergraduate and graduate education  
2020 2005, Duderstadt 2007
- Nationally, 51% of the 96 Doctoral Research Universities' Engineering Departments have option Carnegie 2006
- Locally, 20% of the students in the Mechanical Engineering Department at the school studied choose this program

# Data Collection

- Gathered data about general plans
  - Persistence in Engineering (PIE) survey instrument (Apr '07) Chen 2008, Eris 2005
  - Semi-Structured Interviews (May '07)
  - Follow-up Questionnaire (May/Jun '07)
- Follow-up Questionnaire
  - Undergraduate and Graduate degree plans
  - Verifying plans following completions of degree
  - Dual degree information
  - Job search and plans for future

# Example Questionnaire

- Dual degree information

M1 How did you search for graduate school programs?

M2 What fields were you interested in studying?

M3 What factors did you consider in your decision to pursue graduate studies in this field?

M4 How did you choose your dual degree master's program?

M5 Please describe the range of graduate programs and/or schools you applied to.

M6 How would you describe the graduate school application process?

M7 How prepared do you feel to pursue your graduate studies in [field]?

M8 What are you looking forward to?

M9 Any concerns?



# Coding Responses

- Map to the questionnaire
- Applied to the semi-structured interviews (if available)
- Capture the students' decisions
- Have sub-codes
  - Categorical Variables
  - Ordinal Discrete Variables

# Coding for Responses

- Search process for program/job
- Range of programs/jobs (applied)
- Decision process/reasons
- Factors considered in decision
- Basic plans (confirmed)
- Fields of interest
- Application process description
- Level of preparedness
- Excitement
- Concerns
- Transition (from one area to another)

EMERGING THEME

# student intention

GUIDING QUESTION

Do students carefully consider their choices?

SET OF RESEARCH QUESTIONS

*What factors  
considered?*

*Where to apply  
& in what field?*

*Who consulted  
for decision?*

# Salient Codes to Intention Theme

- **Search** process for program/job  
*Internet resources, hard-copy, career center, ...*
- **Range** of programs/jobs (applied)  
*Only this school*
- **Decision** process/reasons  
*Sought advice, past experience, easy*
- **Factors** considered in decision  
*Enjoyment, financial, future opportunities, comfort*

# Examples

## LESS INTENTION

- none

*Search*

- applied only to the one program to "give the option later"

*Range*

- no one

*Decision*

- missed all other deadlines and did not seek a job
- thought the degree would probably help get a job later
- does not have to move or adjust to a new program

*Factors*

## WITH INTENTION

- used many tools

- broad and specific

- faculty advisors
- work mentors
- friends and family

- provide the opportunities for dream job
- Allows to take classes that still wanted to take
- help build upon the work has accomplished in undergraduate and internship experiences

# Dual Degree Decision Making at SPU With Intention

**"I knew I was going to apply** for the [dual degree], because, I think last year **in ...the summer internship, I thought I wanted to learn more about [civil engineering].** So, **I knew I wanted to apply,** and so I was working on that [my application] **fall quarter."**

- Anna (Semi-Structured Interview)

**"I'm very interested** in programming, data analysis, and modeling. I also felt the [dual degree] **would make me more attractive to Physics PhD schools."**

- Tim (Questionnaire)

# Dual Degree Decision Making at SPU With Less Intention

"I really **only considered [this school]**. I decided that it would be **worth it** to get a Master's in a year, especially **since I wasn't sure what I wanted to do** several years from now."

- Logan (Questionnaire)

"I felt that **continuing** at [this school] would be the **most practical**, since I **already** am **familiar** with the school, and already **have a research assistantship lined up** for next year."

- Mike (Questionnaire)

# Conclusions

- This small sample reveals some distinct patterns
  - Intentional* - students perceive the dual degree as a way to achieve their goal
  - Less Intentional* – students perceive it as a way to maintain a lifestyle
- Size limits the ability to fully define the dimensions of these groups
- Preliminary exploration of the data



# Implications and Future Work

- Implications:

  - Dual degree programs geared differently for differently intentioned students

  - Might recruitment and retention activities in engineering education influence student intention

- Future Work:

  - More to Explore in Undergraduate-to-Graduate transition

    - Look at larger data sets to more fully define categories
    - Look at schools that do not have the dual degree to compare

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