



Family and Fictive Family Influences on Engineering Students at Two-Year and Four-Year Institutions

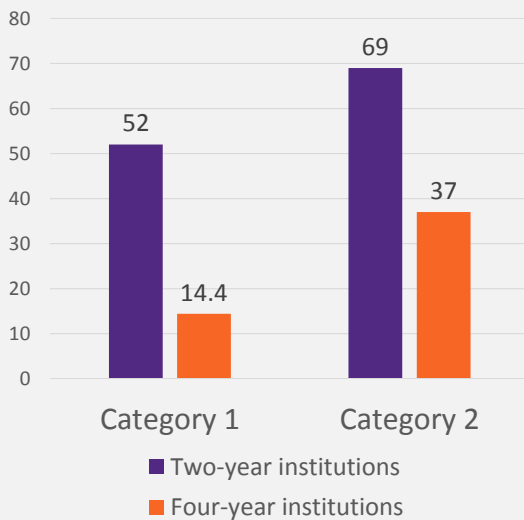
Julia Brisbane, Eliza Gallagher, Aubrie Pfirman, Khushi Patel, Joseph Murphy, & Abigail Hines



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Introduction

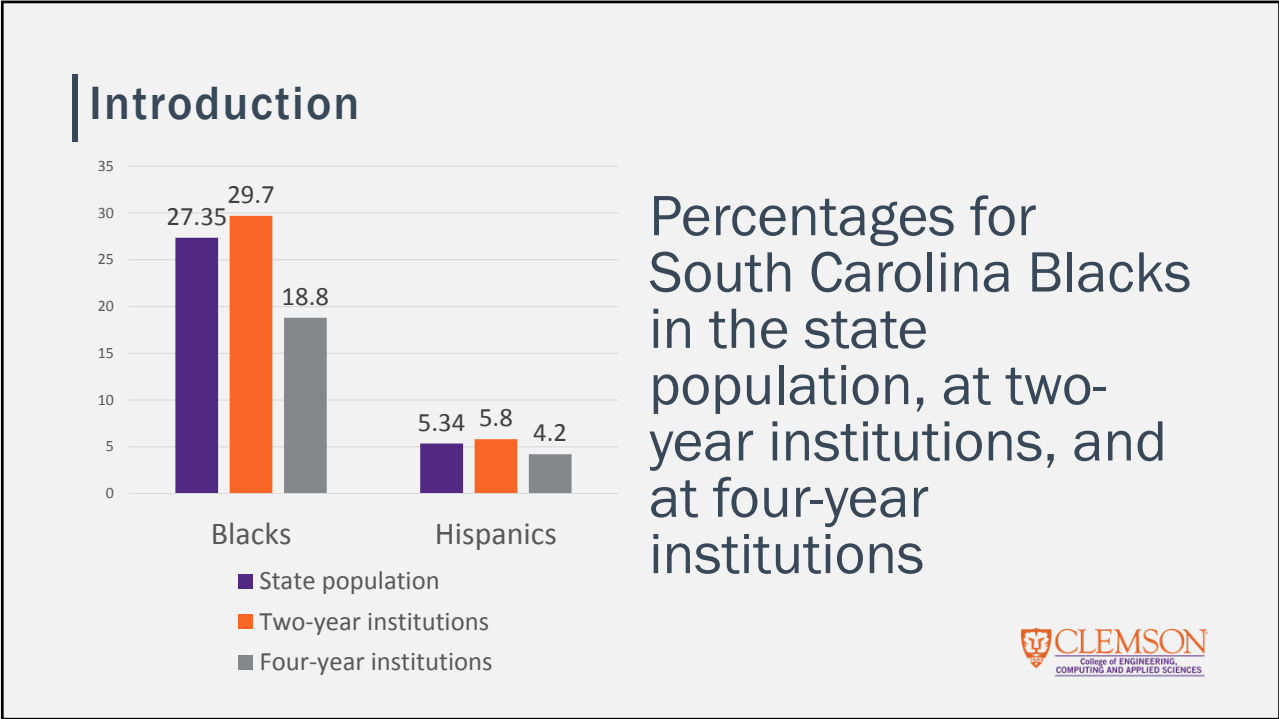


Category 1: Percentage of students who start below calculus

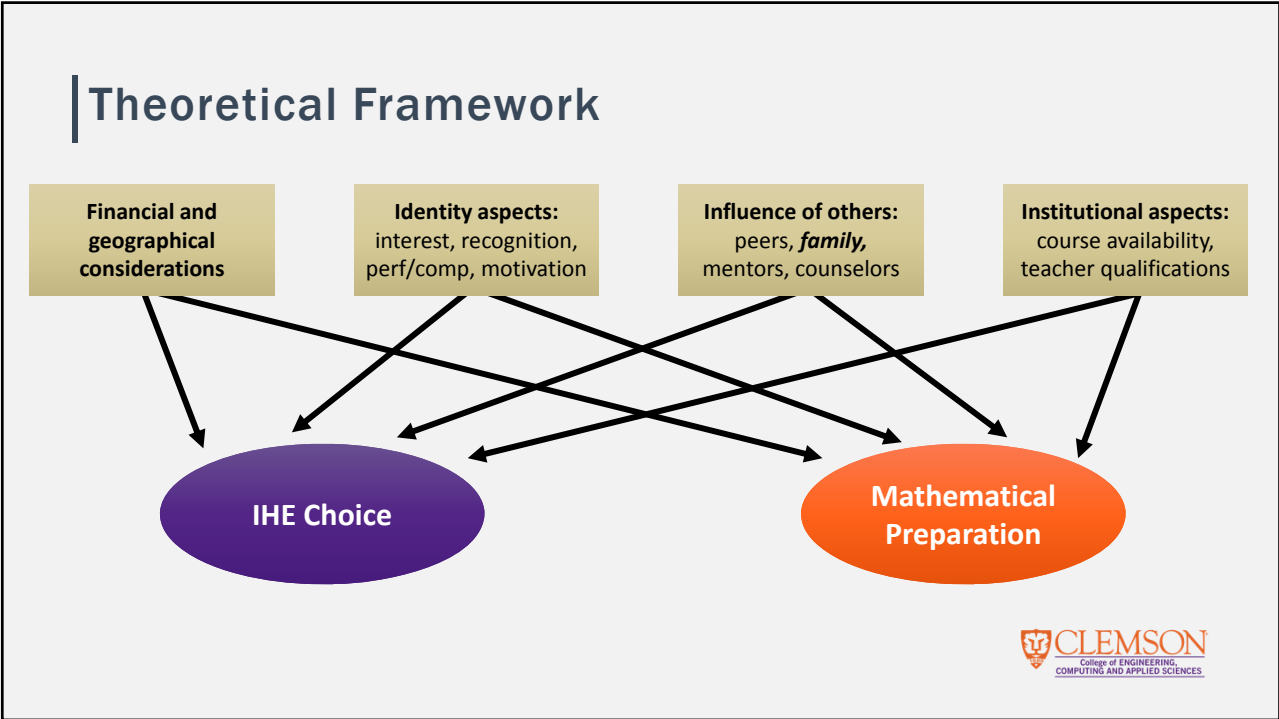
Category 2: Attrition rate for engineering students



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Proposal

Family influence: *the ways family members (parents, siblings, other relatives, and fictive family) affect a student's persistence in education, choice of major, or choice of institution*

Goal: to discuss the differences in family influences affecting engineering degree paths between students attending **two-year** and **four-year** institutions.



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Methods

Institution Type	Target Demographics	Number of Participants
Four-year	Engineering majors, placed below Calculus I	6
Four-year	Placed in Calculus I or above	5
Two-year	Engineering or tech certification, took upper level math courses in high school	6
Two-year	Placed below Calculus I	3

Table 1: Institution type, target demographics of each institution, and the number of participants in focus groups



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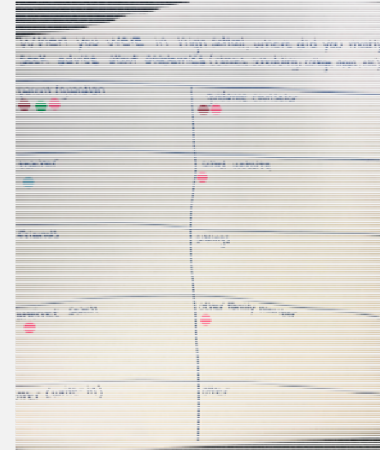
Methods

Sample Question on Poster:

When you were in high school, where did you MOSTLY seek advice about academics (classes, scheduling, college applications, etc.)?

Answer choices:

Parent/guardian, guidance counselor, teacher, school website, friends, **siblings, other family members**, internet search, other

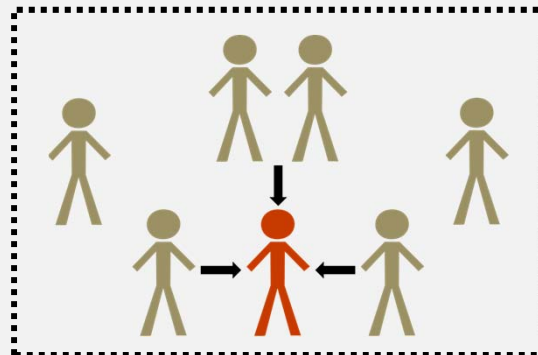


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Results

Three themes emerged from the focus group data related to family influences:

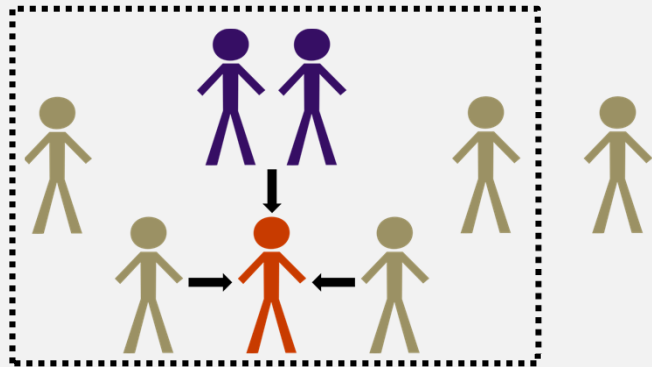
- Family Guidance
 - Parental Guidance
 - Sibling Guidance
 - Other Relatives Guidance
- Fictive Family Influence
- Family Responsibilities



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Parental Guidance

- Defined by any parent or guardian guiding a participant in an overt, direct way
- Four-year: stronger and more positive, by ways of being encouraging and supportive
- Two-year: less degree specific advice and more degree completion advice



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Parental Guidance

*Um, I think I did too. I think the main thing was that, well like I got a lot of advice from my **father** because he had also like gone through **engineering school**, so, like I have a **good relationship with my parents** so I, you know, it was just like I trust what they say, and they want what's best for me.*

– Claire



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Parental Guidance

[My mother] pushed us, and pushed me because I had a child, I thought I'd have to drop out. She was not gonna let that happen because she cleans condos and houses for a living because she has no education, she can't do much else, so she has like pushed me to, I didn't even wanna go to school like college... I would have dropped out of school, and I wouldn't have went to college if it weren't for her, 'cause I thought that's what a, a teen mom had to do, give it all up.

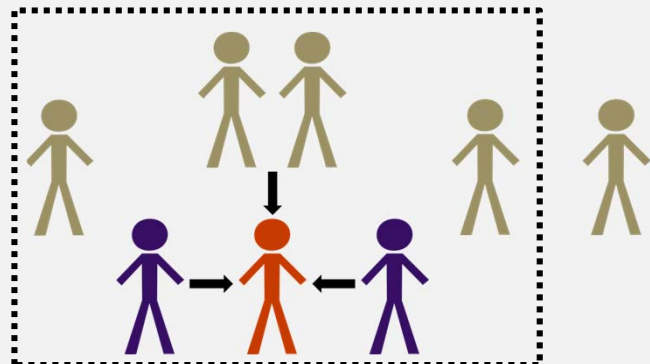
– Amy



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Sibling Guidance

- Comprised of instances in which the participant was guided directly and overtly by a sibling of theirs.
- Two-year: theme of sibling guidance emerged.



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| Sibling Guidance

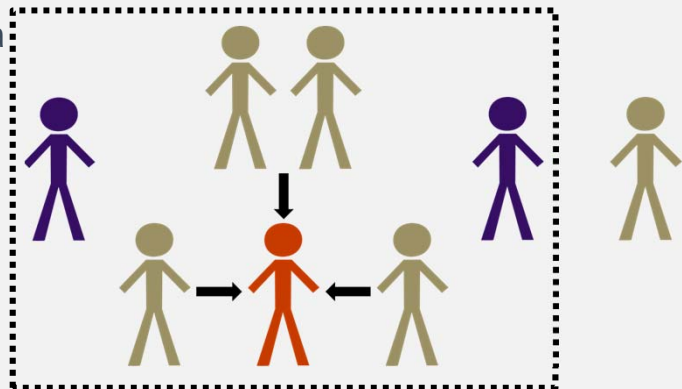
*That's who basically helped me schedule 'cause my **brother** he's been to every school in I think [County], so **he's knows what I should have done, when I should take it. I have, uh, seven brothers and two [sisters], so they knew what to do, and had to tell me how to do it.***
 – Amy



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| Other Relative Guidance

- Legal relative who is not a parent or sibling and not in a guardianship role, such as cousins and non-custodial aunts or grandparents, who influenced the participant directly.
- Four-year: theme of other relative guidance emerged.



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| Other Relative Guidance

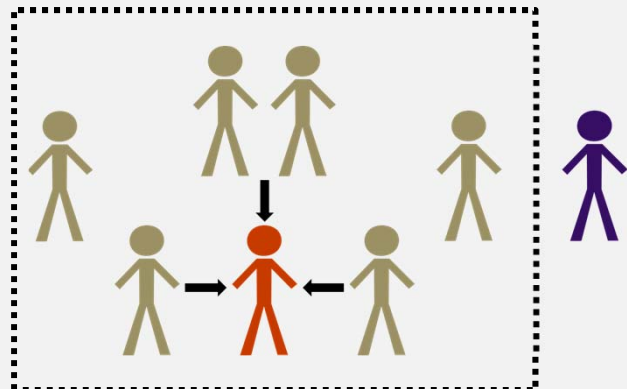
*My **great-aunt** [is] amazing. Uh, she um, was a really big influence on me coming to [public university] because this is her dream school. She **encouraged me to like retake the SAT and the ACT** my senior year of high school, like, even though I didn't want to do it. Um, but she was just like, always **encouraging me to do better in like my studies throughout high school so that I could get into a really good school.** – Robin*



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| Fictive Family Influences

- Influence from a person who was not a family member but is influencing the student to persist in their education, influencing their choice of major, or influencing their choice of institution.
- Four-year: specific to major choice in the absence of a family member with experience in that major
- Two-year: emerged in the absence of positive family influence



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| Fictive Family Influences

*Ironically, I have **family friend** as well who is a **computer engineer**. And during the summers, I would work with him. Because like, he would build my Dad's computers. So I thought that was super cool, so during the summers I would work with him and, uh, **decided that's what I want to do**. – Robin*



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| Fictive Family Influences

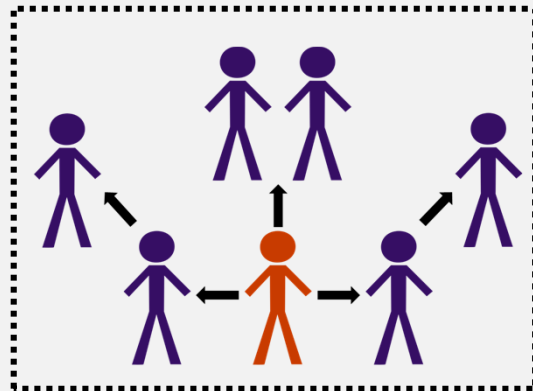
*I left home when I was 16 years old, my parents were both in and out of jail my whole life, so I kinda raised myself, and got myself through school. ... Um, I got really sick my senior year, like in the hospital for weeks- um, actually resulted in me not graduating... but he [**Probability and Statistics Teacher**], uh, he would come to the hospital with prob/stat stuff and help me get through it. And I missed so much work that at the end he said, "Listen, if you could come in, and you can take this test, whatever grade you get on this test I will give you for the, for the course." I think I got like an 86 on it so I ended up passing. Um, but **he was phenomenal, willing to go the extra distance to make sure that I was where I was**. – Gwen*



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Family Responsibilities

- Defined as any obligation towards their family that a participant referenced as an influence on their academic decisions.
- Four-year: most participants did not discuss obligations they had to their family that affected their academic performance.
- Two-year: emerged as a strong theme



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Family Responsibilities

*Well, like **my dad** has a kind of health, health real bad my senior year of high school so that had an impact on me, like, as well, 'cause I had to **take care of my dad and working practically full time**– Robin*

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| Family Responsibilities

We moved from California in 2012, like, at the end of the year. That was November. And, it was like about three months that my mom couldn't find a job. And you know, **you have bills to pay** and all that. I was 17, but right after like, whenever I turned 18, I applied. And then **I got a factory job**. In that time I was in, during summer vacation. But then after that I started high school, and it was the same thing. Like, I needed to help my mom. So, **I found a job in a restaurant**, fast-paced, like, they will yell at you and all that. – John



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| Conclusion

Four-Year Institutions	Two-Year Institutions
<i>*Parental and other relative guidance*</i>	Parental and sibling guidance
Fictive family influence specific to major choice in the absence of a family member with experience in that major	Fictive family influence in the absence of positive family influence
Limited family responsibilities	<i>*Extensive family responsibilities*</i>



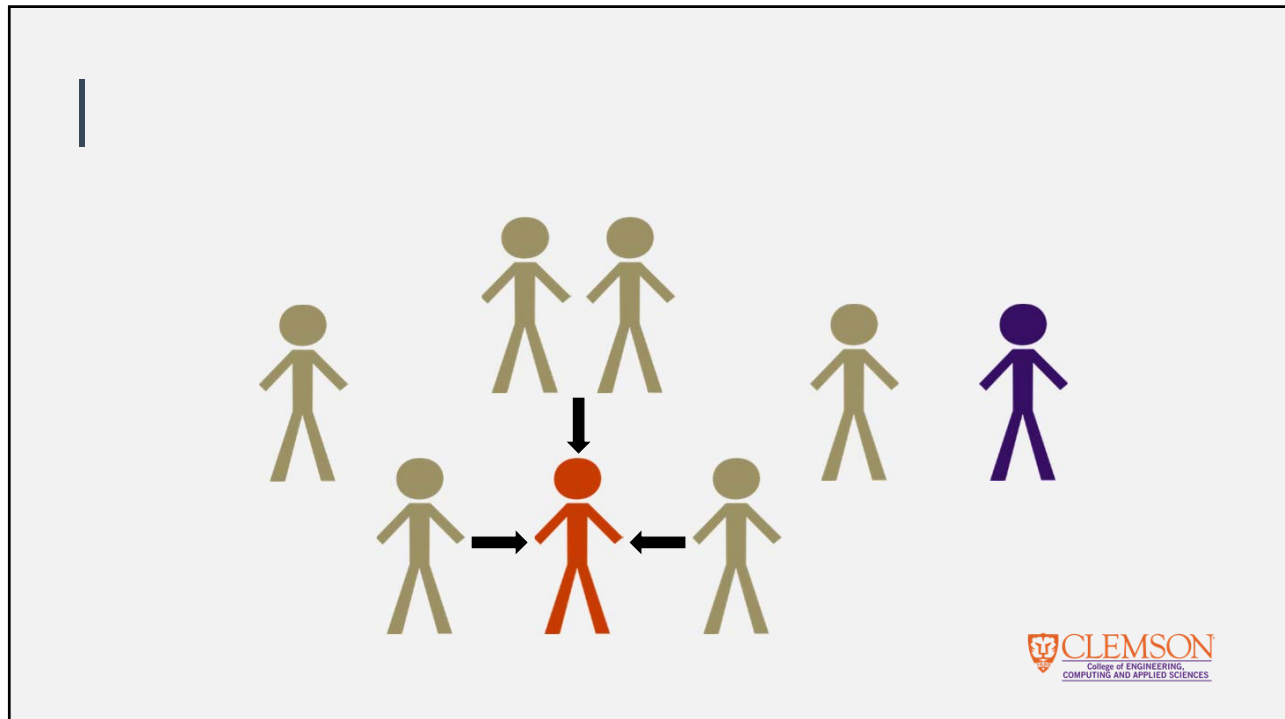
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Questions?

SC-INCLUDES website:
<https://cecas.clemson.edu/scincludes/>

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