Emergency funding for women in undergraduate computing: Toward an asset-based model and research framework*

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Five Minutes

1. **Talking Points** (with references)

2. **Theory of Change**
   a. Attitudes, knowledge, behaviors
   b. Individual & Organization

3. **Methods & Data Sources**
   a. Applications
   b. Follow-up Interviews
   c. Emails

4. **Findings**
   a. Priority Issues
   b. Impact Stories

5. **Discussion**
   a. Student perspective
   b. Policy perspective

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Talking Points

College has grown to be financially out of reach

- "nearly all flagship institutions are financially out of reach for low-income and even middle-income students" [6]

- financial aid no longer covers the full cost of college for 75% of 4-year college students, leaving a gap of $9000 per year, on average [13].

- 56% of students with 3 or more years of college report experiencing basic needs insecurity, such as food, housing and healthcare; receiving a federal Pell Grant and working did not alleviate needs insecurity [11]

Greater impact on low-income students and women

- Wealthy schools spend 2-5x more on instruction per student, while 70-80% of Hispanic and African American students attend open-access colleges [14]

- Affluent students are 8x more likely to earn a 4-year degree [3]

- 20% and 11% of enrollees in lowest income quartiles finish college in 6 years, compared to 58% overall [2]

- 72% of black college students experience basic needs insecurity [9]

- Among 134,970 women within 4 semesters of graduation
  - 55% (70,000) live "near" (22%) or "in poverty" (31%) [17]

- Women saw worse economic impacts from COVID-19 [16]

Funding near-graduates can make a big difference

- Georgia State
  - 72% had needs (after all sources)
  - 86% graduated using "retention" funds [12]

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Theory of Change

<u>Columns</u>
Preconditions (reach)
Interventions (fund)
Outcomes (impact)

<u>Rows</u>
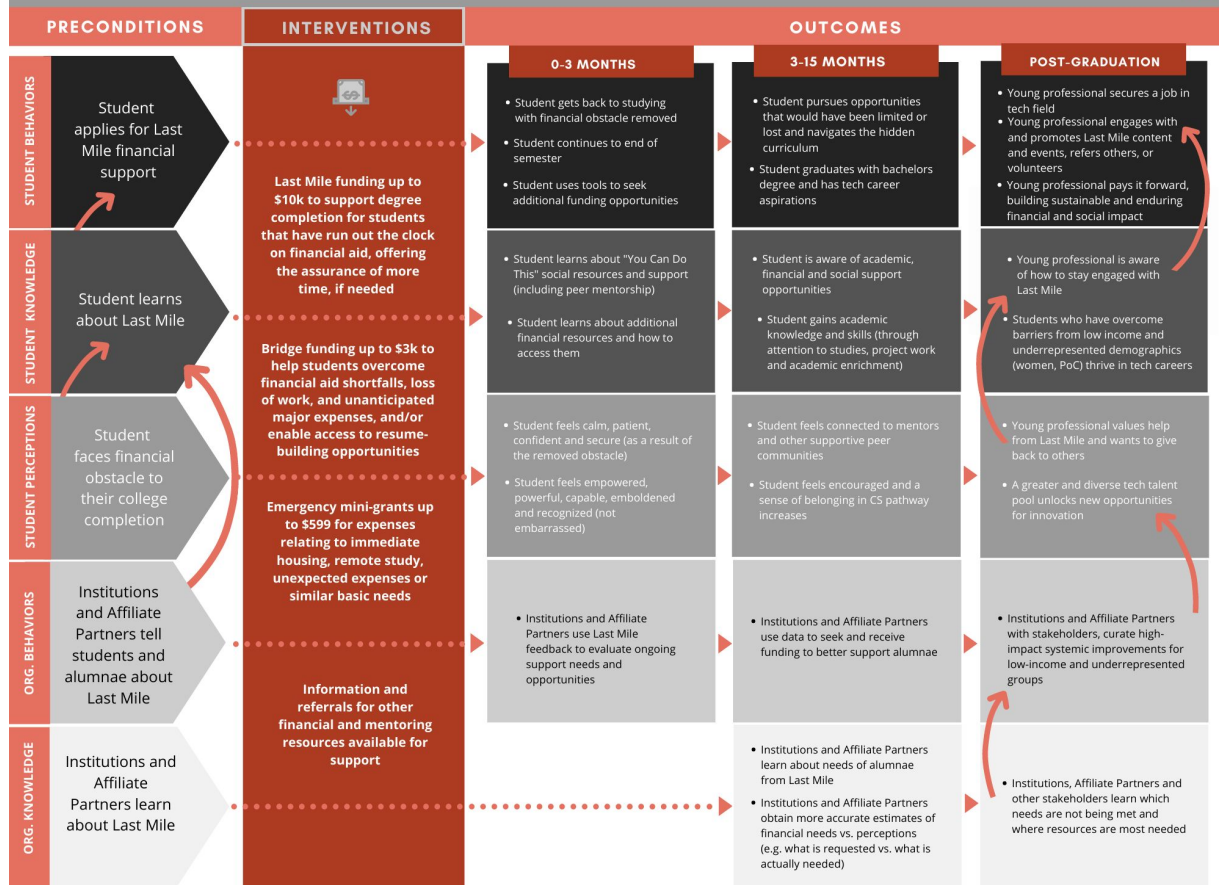Student
- Behaviors
- Knowledge
- Perceptions

Organization
- Behaviors
- Knowledge

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LAST MILE EDUCATION FUND THEORY OF CHANGE

PRECONDITIONS	INTERVENTIONS	OUTCOMES		
		0-3 MONTHS	3-15 MONTHS	POST-GRADUATION
STUDENT BEHAVIORS — Student applies for Last Mile financial support	Last Mile funding up to $10k to support degree completion for students that have run out the clock on financial aid, offering the assurance of more time, if needed	• Student gets back to studying with financial obstacle removed • Student continues to end of semester • Student uses tools to seek additional funding opportunities	• Student pursues opportunities that would have been limited or lost and navigates the hidden curriculum • Student graduates with bachelors degree and has tech career aspirations	• Young professional secures a job in tech field • Young professional engages with and promotes Last Mile content and events, refers others, or volunteers • Young professional pays it forward, building sustainable and enduring financial and social impact
STUDENT KNOWLEDGE — Student learns about Last Mile		• Student learns about "You Can Do This" social resources and support (including peer mentorship) • Student learns about additional financial resources and how to access them	• Student is aware of academic, financial and social support opportunities • Student gains academic knowledge and skills (through attention to studies, project work and academic enrichment)	• Young professional is aware of how to stay engaged with Last Mile • Students who have overcome barriers from low income and underrepresented demographics (women, PoC) thrive in tech careers
STUDENT PERCEPTIONS — Student faces financial obstacle to their college completion	Bridge funding up to $3k to help students overcome financial aid shortfalls, loss of work, and unanticipated major expenses, and/or enable access to resume-building opportunities Emergency mini-grants up to $599 for expenses relating to immediate housing, remote study, unexpected expenses or similar basic needs	• Student feels calm, patient, confident and secure (as a result of the removed obstacle) • Student feels empowered, powerful, capable, emboldened and recognized (not embarrassed)	• Student feels connected to mentors and other supportive peer communities • Student feels encouraged and a sense of belonging in CS pathway increases	• Young professional values help from Last Mile and wants to give back to others • A greater and diverse tech talent pool unlocks new opportunities for innovation
ORG. BEHAVIORS — Institutions and Affiliate Partners tell students and alumnae about Last Mile		• Institutions and Affiliate Partners use Last Mile feedback to evaluate ongoing support needs and opportunities	• Institutions and Affiliate Partners use data to seek and receive funding to better support alumnae	• Institutions and Affiliate Partners with stakeholders, curate high-impact systemic improvements for low-income and underrepresented groups
ORG. KNOWLEDGE — Institutions and Affiliate Partners learn about Last Mile	Information and referrals for other financial and mentoring resources available for support		• Institutions and Affiliate Partners learn about needs of alumnae from Last Mile • Institutions and Affiliate Partners obtain more accurate estimates of financial needs vs. perceptions (e.g. what is requested vs. what is actually needed)	• Institutions, Affiliate Partners and other stakeholders learn which needs are not being met and where resources are most needed

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Research Questions

1. To what extent can emergency funding make a pivotal difference on college persistence, completion and long term success for low-income women in computing pathways?

2. What are the key financial challenges that low-income women must overcome, in addition to their computing studies, and what can we learn about their circumstances and choices?

Methods & Data Sources

Applications (N=711)
Jan - Sept
Interviews for larger funding requests

Email testimonials
After funding and over time

Follow-up Awardee Interviews (N=199)
March - December
With trained near-peers (staff), after 3 months
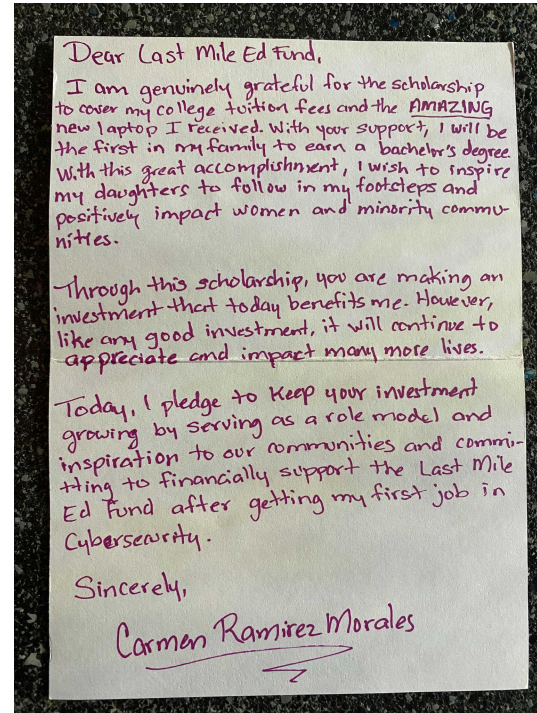
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Funding Rates by Race/Ethnicity

- **Overall rate = 41%**
  - Hispanic/Latinx (52%)
  - Black (44%)
  - White (37%)
  - Asian (28%)

- **$260,000 to 317 awardees**
  - $820 average
    - Most $599
    - 15 or so larger (flagged)

	N Applied	N Funded	% Funded
AFRICAN AMERICAN OR BLACK	232	**102**	44%
HISPANIC OR LATINX	203	**106**	**52%**
ASIAN	166	**46**	**28%**
NOT AVAILABLE	16	16	100%
WHITE	30	11	37%
Low n			
NATIVE AMERICAN, ALASKA NATIVE, OR FIRST NATION	20	9	45%
MIDDLE EASTERN / NORTH AFRICAN	17	5	29%
OTHER	9	5	56%
PREFER NOT TO ANSWER	12	3	25%
PACIFIC ISLANDER OR NATIVE HAWAIIAN	6	2	33%
TOTAL	**771**	**317**	**41%**

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Priority Issues

Awarded Applications (N= 317)

Primary issue	#	%
Food	150	47%
Housing / rent	129	41%
Tech (desks, equipment, wifi)	97	31%
School (tuition, fees, supplies)	76	24%
Bills (phone, electric, misc)	75	24%
Transportation (moving, auto)	30	9%
Health (necessities)	24	8%
Medical and dental	16	5%
Children	3	1%
Immigration	2	1%
Family business or livestock	2	1%

All Issues

- Food & Housing combined = #1 (40%)
- School = #2 (31%)
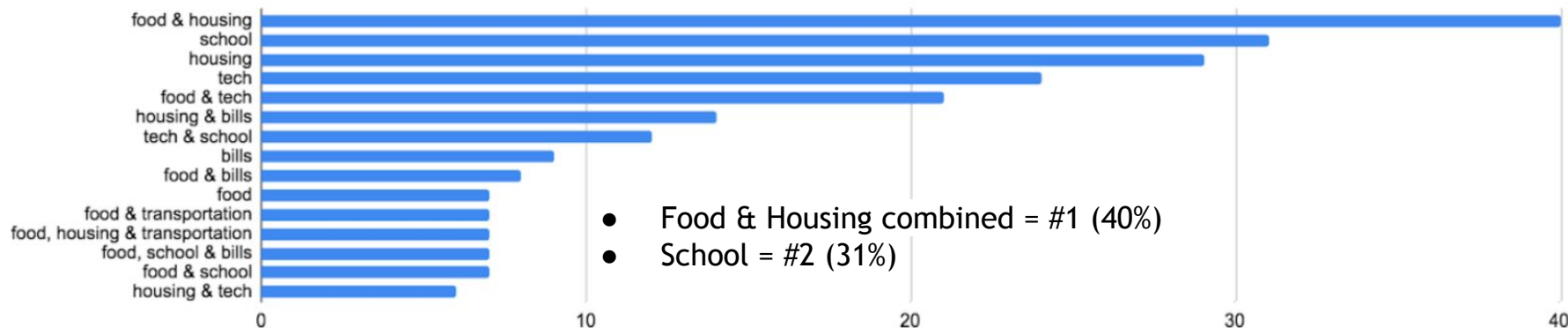
Signals of Financial Insecurity (early follow-ups)

More Sensitive (Yellow Flags)
- Food, School Supplies, Internet
  - If secure, other issue reported less than ⅕

More Extreme (Red Flags)
- Housing, Cell Phone, Computer

Overall...	Reported insecure...	
47%	**Food**	93/199
15%	Housing	29/199
30%	**School supplies**	53/177
15%	Cell phone	26/177
32%	**Internet**	128/192
8%	Computer	15/192

Of the ...	With secure....		Reported insecure...
53%	Food	12%	Housing
85%	Housing	**45%**	**Food**
70%	School supplies	14%	Cell phone
85%	Cell phone use	**27%**	**School supplies**
68%	Internet	7%	Computer
92%	Computer	**31%**	**Internet**

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Discussion

Students, Peers & Mentors

- Making choices
- Steering toward success
- Finding opportunities
- Asking for enough
- Getting social support
- Seeing success

Organizations & Policy

- Improving funding
- Recognizing opportunity
  - Low income women in tech
  - Ending "tyranny of merit" [5]
- Monitoring well-being
- Building capacity for research
- Informing the field

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Impact Stories

"My father lost his job in the embassy...so I had to take off from work to care for my younger siblings while my dad looks for work."

- Funds allowed her to help her family out, care for siblings, and stay focused on her studies while seeking additional funding.

"I have been placed on academic hold and can't register for classes. I am so desperate that I don't know what to do. I come from a life of poverty and my education is the only thing I have going for me. I am an Informatics major and I have overcome so much to get to where I am. I really do not want this to be the end of the road for me."

- This student had not established residency to receive state support, and was not eligible for FAFSA because they were a DACA student. After being funded for the needed amount they were able to continue their studies.

"I can no longer afford to live and I am nervous that I will not be able to pay my rent next month. I have applied for food stamps because I can no longer afford groceries, but unfortunately I have not heard back from them yet. I have resorted to food banks in order to eliminate my grocery bill, and sometimes my best friend cooks extra meals to help me out"

- A larger award resulted in graduation, successful hire, and ability to pay it back
  - *"You guys helped me so much in my collegiate journey and I am so pleased that I can now pay it forward."*

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Working in School

Planning to work in school

- 65% (80/123) yes
- 21% maybe
- 14% no
  - does not mean "full-time" student, can be caring for family, long commutes, etc.

Of working

- 10 hours or less (27%)
- 11-15 hours (21%)
- 16-20 hours (29%)
- > 20 hours. (20%

Impact of COVID-19

Despite COVID-19,

- 84% (of 196) planned to be enrolled in Spring, 2021.

Graduation dates

- One-quarter (26%) either might (13%) or had changed (13%)

- Those not changed indicated
  - Spring, 2021 (36%)
  - Spring, 2022 (18%)

- Those changed indicated
  - Spring 2022 (31%)
  - Fall, 2021 (15%)
    - or at an unknown date (19%)

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