Identifying Strengths and Areas for Improvement in a New Physics Ph.D. Program

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Background and Motivation

- Physics Ph.D. student retention rates remain low at around 60%[1]
- Early departures can negatively impact both students and departments[2]
- Academic and social support in the first year in a graduate program is important in predicting student persistence[3]
- A newly established physics Ph.D. program offers an opportunity to establish effective support structures early in its development
- This study was designed to help create a culture of using student data towards consistent program improvement

Research Question

What supports, challenges, and structural elements do students in the first cohort of a newly developed physics doctoral program identify, and how do they describe areas of strength and areas for improvement within the program?

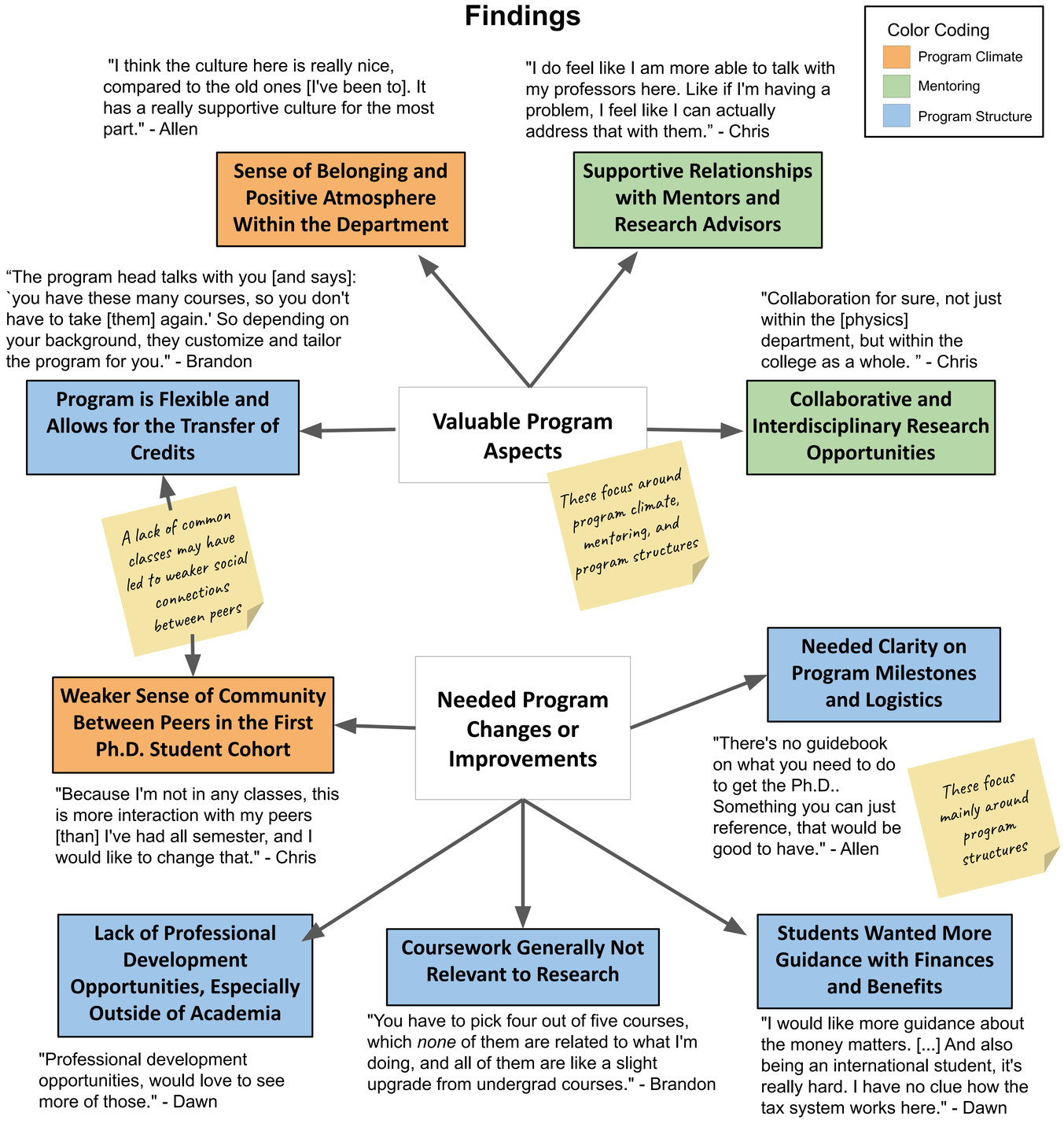
Study Context

- Private R2 University in the U.S.
- Inaugural physics Ph.D. cohort in Fall of 2024
  - 6 out of 7 students transferred with MS degrees
  - All 7 students had research advisors chosen

Methods

- 90 minute semi-structured focus group interview with 4 out of 7 PhD students in cohort during their first academic year
- Interview protocol designed around the areas of mental health, social integration, coursework, TA experiences, research and mentoring, and financial support
- Codebook developed from interview protocol and existing literature
- Thematic analysis conducted with a deductive approach[4]

Findings



MAIN TAKEAWAYS

Supportive Culture and Mentorship: Students reported a strong sense of belonging within the department and positive relationships with faculty (especially research advisors) who provided both academic and personal support

Valued Flexibility and Collaboration: Program strengths included flexible credit transfers and rich opportunities for interdisciplinary and cross-institutional research collaboration

Opportunities for Growth: Students identified key areas for improvement, including clearer communication of program expectations, more professional development (especially for industry paths), and increased social and peer engagement

Conclusions and Future Work

- Mentorship, belonging, and flexibility are consistent with prior research highlighting their critical role in graduate student satisfaction, retention, and mental health[5]
- Gaps in professional development, social integration with peers, and clarity in program expectations reflect well-documented challenges in graduate education, reinforcing calls for structured support beyond academic training[6]
- This analysis will be incorporated into a larger study on the climate and culture of the graduate physics culture at the university
- A report on these findings will be presented to department leadership and faculty in an effort to begin a practice of collecting student data toward continuing program

References

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