



EXPANDING STEM TALENT through Upward Transfer

Reconciling Intent with Action: Factors Associated with the Intent-Action (Dis)connect among Two-Year College Students in STEM

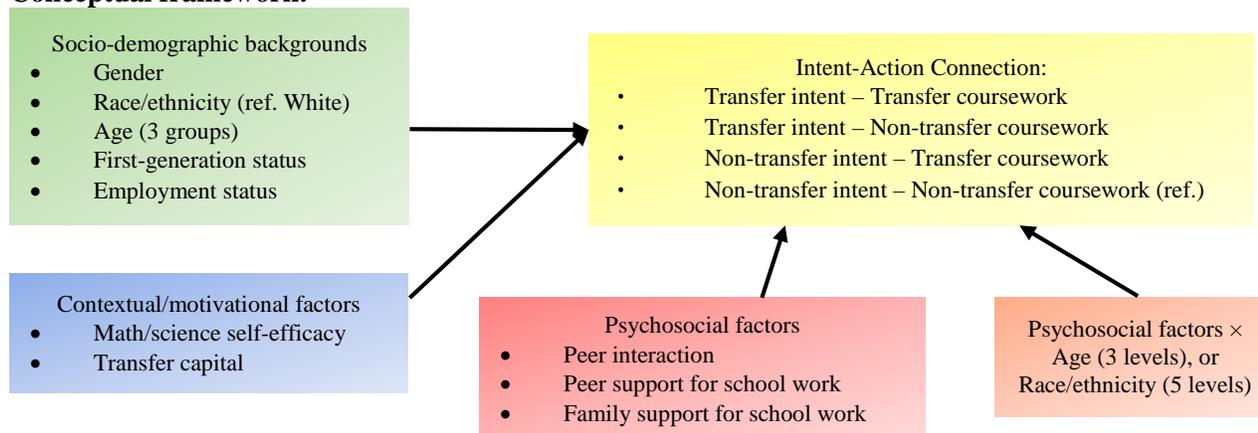
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Study focus: Explore the factors that explain the relationship between transfer intent and course completion patterns, and how this relationship varies by students' age and racial/ethnic backgrounds, for two-year college students in STEM fields.

Research Background and Literature:

- Two-year college students tend to voice high aspirations, but it is difficult to translate those expectations into actions (Elliott, 2016; Pascarella & Terenzini, 2005). To close the intent-action gap, we have to understand what factors underlie the actualization of goals.
- Transfer intent, as one of the most important precursors of actual transfer (Wang, 2013, 2015), warrants research focusing on it in conjunction with enrollment behaviors practiced by students.
- Also of importance is research examining the interaction with and support from family and peers underlying the intent-action (dis)connect, given their critical role in encouraging or discouraging one's pursuit of educational and career goals (Li, Albert, & Dwelle, 2014; Townsend & Wilson, 2006).
- Since these psychosocial factors weigh differently for individuals at varying life stages (e.g., Wentzel, Filisetti, & Looney, 2007) and of different racial/ethnic background (e.g., Markus & Kitayama, 1991), we suspect that individuals' age and racial/ethnic background differentially affects how psychosocial factors impact students' adherence to the initial intent.
- Our study represents one of the first empirical attempts to address these gaps.

Conceptual framework:



Sample: A total of 1,331 first-time students were selected from a large, longitudinal research project, which examines factors contributing to upward transfer in STEM fields. The project applied stratified sampling by race/ethnicity and STEM fields and sampled community college students in STEM fields. About 3,000 students were invited to complete the Expanding STEM Talent survey questionnaire, and 1,668 of them completed the survey in the end (as a response rate of 56.6%). These 1,331 first-time students matriculated in Fall 2014 and were all retained Spring 2015, and either declared a major or enrolled in at least one course in STEM, across three public two-year institutions in a Midwestern state.

<http://stemtransfer.wceruw.org>

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Outcome variable: Intent – Action Alignment Indicator (4 levels)

- Transfer intent – Transfer coursework
- Transfer intent – Non-transfer coursework
- Non-transfer intent – Transfer coursework
- Non-transfer intent – Non-transfer coursework (reference category)

Key independent variable: Psychosocial factors (4 latent constructs measured by 19 items on Likert-scale; Cronach's $\alpha = [.69, .77]$).

Peer interaction (selected items): How often do

- courses require you to explore key concepts, data, beliefs, or values within small groups?
- you participate in a learning community, which are classes that are linked or clustered, often around an interdisciplinary theme, and enroll a common group of students?
- you interact with the following individuals for academic purposes? Student peers

Peer support:

- How supportive of your school work are your friends?
- How much support do you have from friends and peers for transfer to a four-year college or university?

Family support:

- How supportive of your school work are your family members?
- How much support do you have from your family for transfer to a four-year college or university?

Transfer capital (selected items): How often do you

- contact academic advisors or counselors to discuss matters related to transfer to a four-year college or university
- contact instructors to discuss matters related to transfer to a four-year college or university

Moderating variable: Age and race/ethnicity

Students' age and race/ethnicity are provided by the administrative records and from the survey. Age variable is separated into three groups and dummy-coded: 18 to 23 years old (reference group), 24 to 29 years old, and 30 years old and above; and race/ethnicity into five groups: Hispanic, Asian, Black, White (reference group), and Other racial/ethnic group (e.g., multiracial, native American).

Statistical approach:

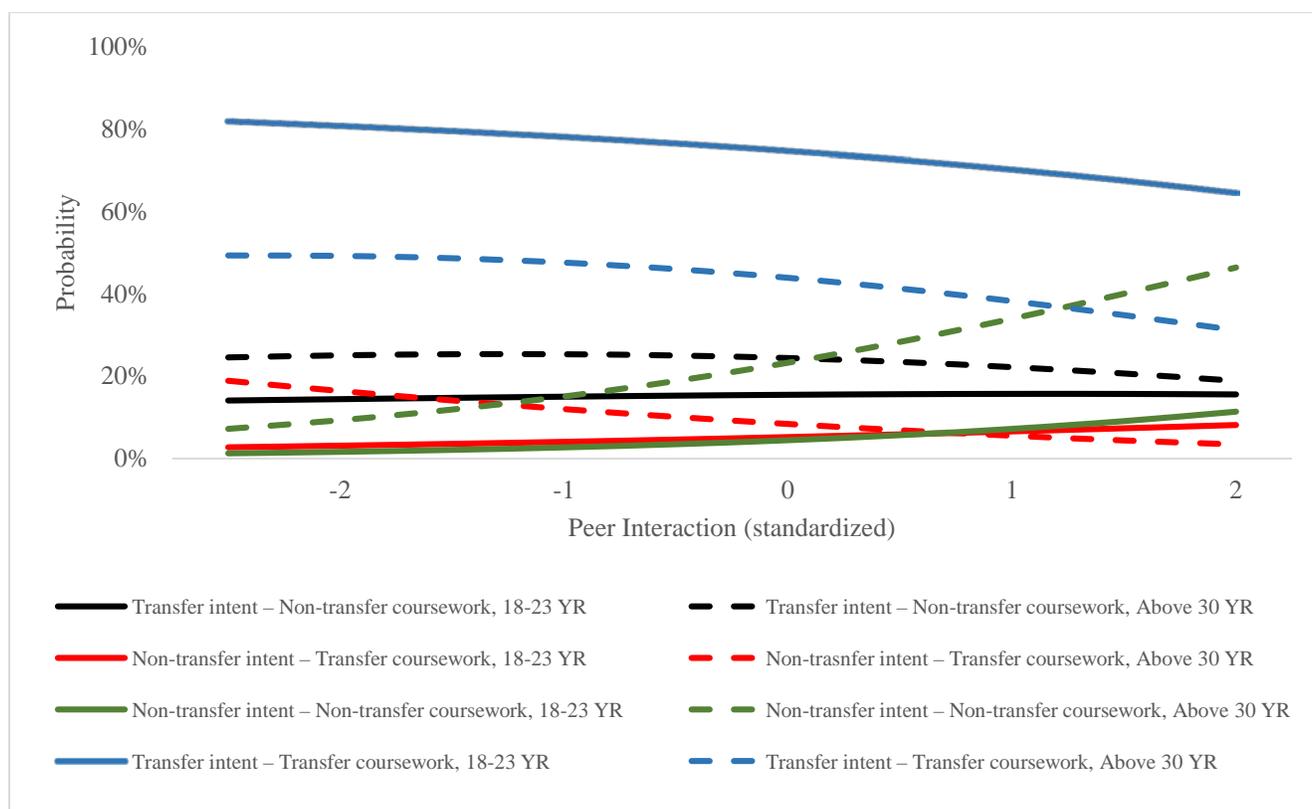
- Unconditional latent profile analysis (for course completion pattern in Spring 2015)
- Multinomial logistic regression, with interaction terms

Key findings:

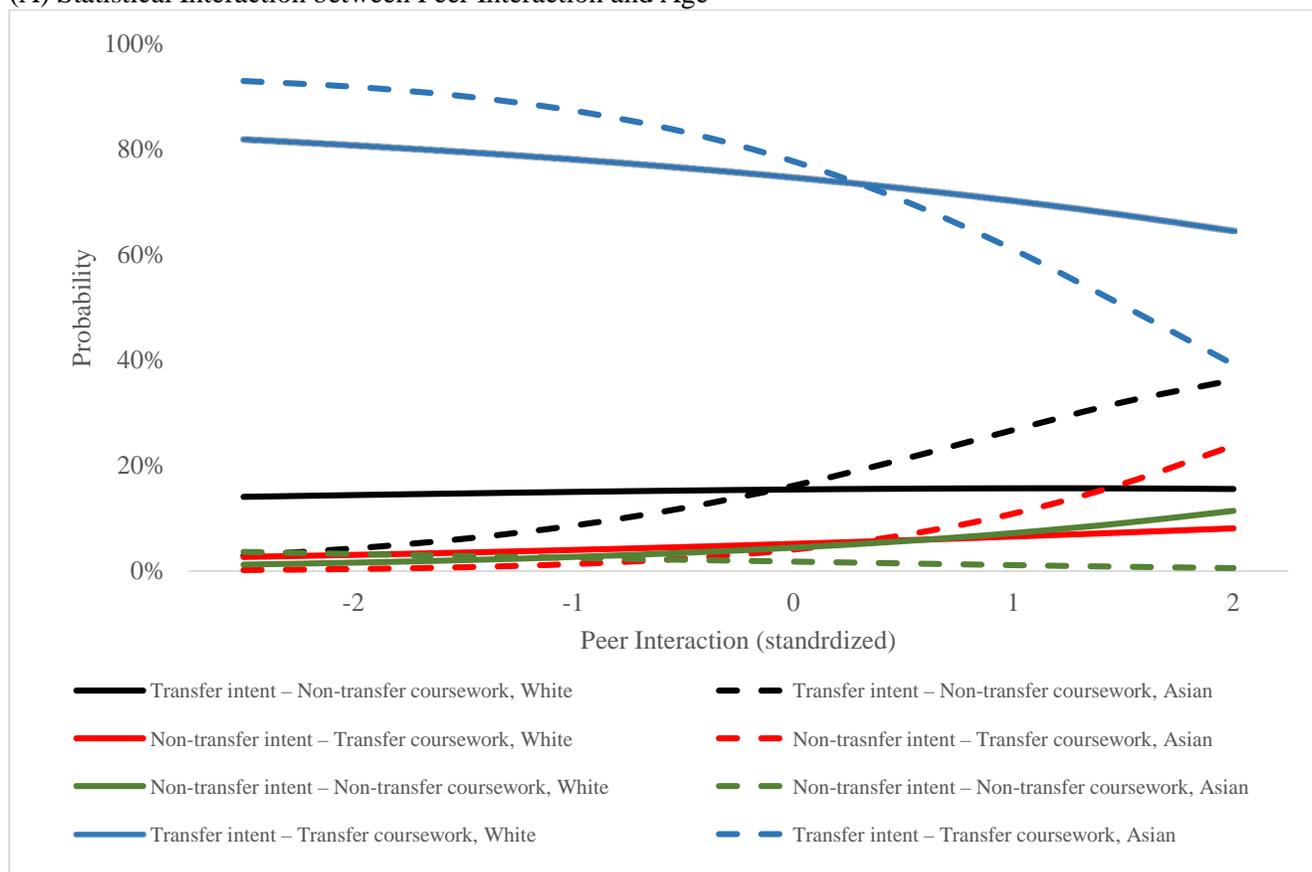
- Students in *Transfer intent – Transfer coursework* reported a higher level of peer interaction and family support.
- A higher level of math self-efficacy, science self-efficacy, and transfer capital is related to being in the *Transfer intent – Transfer coursework* group.
- Female and students with part-time employment are also more likely to be in the *Transfer intent – Transfer coursework* group.
- First-generation students are more likely to be grouped in *Non-transfer intent – Transfer coursework* group than *Transfer intent – Transfer coursework*.
- Age and race/ethnicity moderate the relationship between psychosocial factors and intent-action alignment (see next page).

Implications:

- To retain students in or encourage them to transfer track, faculty could cultivate students' math and science self-efficacy, and help students gather information on upward transfer.
- Courses that encourage peer interaction may be particularly appealing to students completing nontransferable courses, especially for students over 30 years of age, Asian, and Black students, though they may have aspired to transfer track at the beginning of college.
- More knowledge of peer interaction's effect on academic and career aspiration is needed; it may entice students into non-transfer tracks.



(A) Statistical Interaction between Peer Interaction and Age

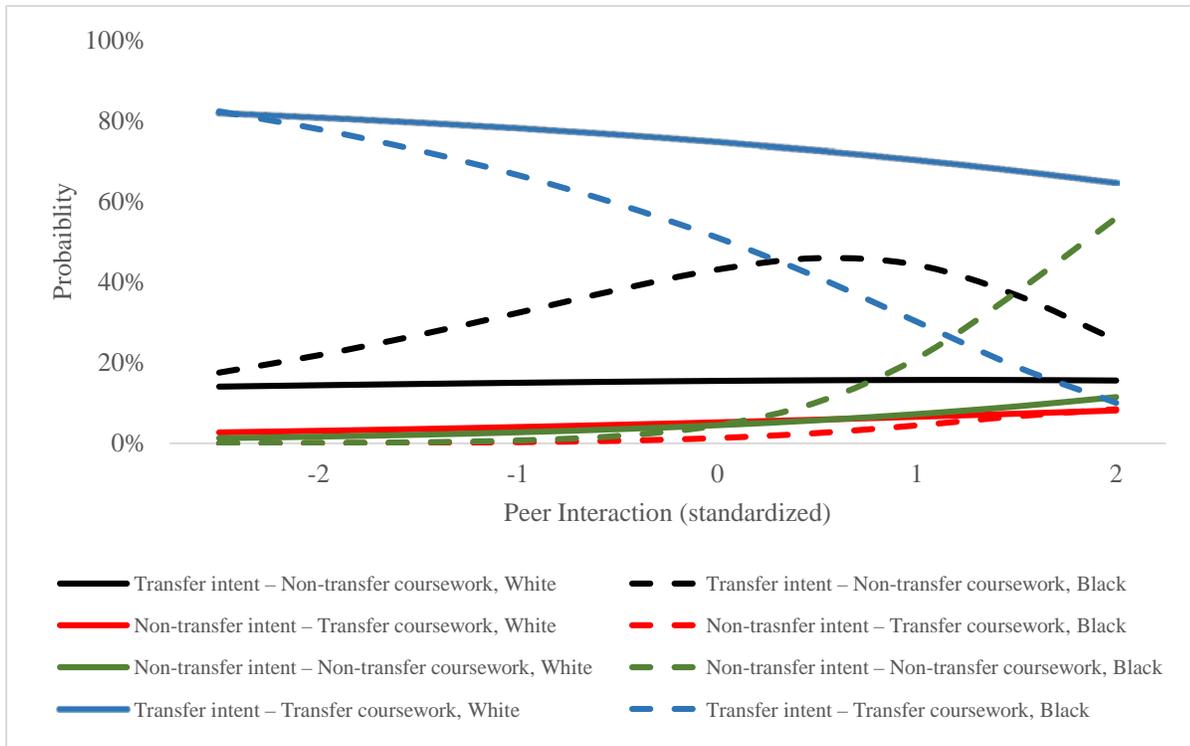


(B) Statistical Interaction between Peer Interaction and Race/Ethnicity

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(C) Statistical Interaction between Peer Interaction and Race/Ethnicity