Peer Effects on Academic Achievement

What does the field of Psychology tell us?

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Step 1: Ask a professor of Psychology

- Answer: “Hmmm... that’s an interesting question. Nope. Can’t think of any actual studies...”
Step 2: Literature review

- The primary review source for academic Psychology is PsychINFO,
Step 2: Literature review

- The primary review source for academic Psychology is PsychINFO,
- maintained by the American Psychological Association (APA)
- 2,154 journals
- coverage (full text) reaches back 40 years + (older journal articles have been scanned)
- not just in Psychology
  - Education
  - Sociology
  - Anthropology
  - Many branches of biomedicine
Page 1 of Journals

- Association for Computing Machinery journals
- Neurological journals
- Psychology
- Sociology
- Education
- Health Sciences education
In short...

- if it is not in here, it probably doesn’t exist
In all those journals, over all those years...
   Cited References (28) Times Cited in this Database (2).
   Get item

   Cited References (47)
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   Times Cited in this Database (3).
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“Academic * “ = what kinds of topics?

• What specific keywords did our search include when we used the “academic*” stem?
The term **academic** would appear here had there been an exact match

<table>
<thead>
<tr>
<th>Term</th>
<th>Explode</th>
<th>Major Concept</th>
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<tbody>
<tr>
<td>Academic Achievement</td>
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<td>Academic Achievement Motivation</td>
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<td>Academic Achievement Prediction</td>
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<td>Academic Aptitude</td>
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<td>Academic Engagement Use Student Engagement</td>
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<td>Academic Environment</td>
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<td>Academic Failure</td>
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<td>Academic Grade Level Use Grade Level</td>
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<td>Academic Overachievement</td>
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<td>Academic Records Use Student Records</td>
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<td>Academic Self Concept</td>
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<td>Acalculia</td>
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<td>Accelerated Speech Use Speech Rate</td>
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<td>Acceleration Effects</td>
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<td>Acceptance (Social) Use Social Acceptance</td>
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<td>Accessory Nerve Use Cranial Nerves</td>
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<td>Accident Prevention</td>
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Conclusion 1

- There is no literature on “Peer effects and academic performance”
- or any term that starts off “academic...”
How about “Peer effects”? Synonyms?

• Maybe there is a better key term than “peer effects”
• What keywords use “Peer”? 
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How about “Peer effects”? Synonyms?

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Not productive

• These turn out to be mostly about the negative impact of not fitting in
  • “Students who do not form good peer relations are more likely to not progress to the next grade.”
  • “Discrimination is one result of not fitting in & discrimination impacts academic achievement.”

• This is also the result when we combine “Academic *” with “Peer group”
  • (other variants of “Peer...” yield the same type of results)
“School environment”

• This is a key term used in the literature quite a bit
• A superset of “peer group effects”
• Used to index articles that look at how the attributes of your school impact achievement
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   Get item

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   Cited References (58)
   PDF Full Text Get item

   Cited References (76)
   Get item

   Cited References (126)
   HTML Full Text PDF Full Text Get item

   Cited References (86)
   Get item
Again, not productive

- This literature turns out to be about
  - overcrowding
  - bullying / violence
  - racial composition
  - neighborhoods
There is at least one article on “Persistence” (retention)

- He concludes that even when you take other factors into account, peer quality affects retention.
So, our two initial key terms return nothing

- “Academic *”
- “Peer *”
Approach #2

• Let’s start with things we DO know

• then ask what SHOULD be true of peer effects on academic achievement
Reaction of students to group assignments

- We know a bit about how students react when placed in groups to do assignments for class
Goals.
Greater agreement on goals = better cohesion.

• This paper examines the mediating role of students' goals in group work at university. Research on cooperative and collaborative learning has provided empirical support for the cognitive, motivational and social benefits of group work but the antecedents of motivation and ongoing management of emerging motivational and socio-emotional issues have received less attention. A theory of self-regulation that incorporates students' personal goals and perceptions of context, combined with a sociocultural perspective on co-regulation of individuals and contexts, can help understand why and how some groups resolve their social challenges while others are less successful. An empirical study highlighted the mediating role of students' goals in their appraisals of group assignments, perceptions of various aspects of the contexts, and in turn regulation strategies to achieve their goals. Qualitative differences were found in the regulation strategies of students with positive and negative appraisals. (PsycINFO Database Record (c) 2006 APA, all rights reserved)(from the journal abstract)

Volet & Mansfield 2006 (abstract only)
Cohesion

- Groups do well when members feel a sense of cohesion
  - greater cohesion leads to better performance of individuals & group
    - more communication
    - increased participation
    - lower rate of absence
    - higher self-evaluation

Myers, 1997
Where do you get your goals? How do you achieve a sense of cohesion?

- Peers are an important ongoing influence
Just one conversation between friends increases agreement on academic motivation

- Experiment. 13 year old 8th graders.

- Task: student says how he/she would resolve a dilemma such as get necessary studying done vs. attend a greatly desired rock concert.

- Series of such dilemmas presented, some before, some after two friends are directed to privately discuss academic motivation.

- Finding: on posttest, higher agreement between friends on academic motivation related dilemmas.

- Control group: friends discussed other things, not academic motivational related, such as where they wanted to spend their vacation. This group did not see any pretest--posttest change in degree of agreement on motivation dilemma choices.

Critical determinants of academic success -- friends tend to be on the same wavelength

- Empirical study of grade school children (4th grade through 7th)
- Friends show higher agreement than random pairs on such dimensions as
  - beliefs about self efficacy (competence),
  - motivation,
  - academic standards, &
  - preference for challenging work.

Altermatt & Pomerantz, 2003
What happens in heterogenous groups?

- Group cohesion is important
- Agreement on goals of the academic process increases achievement
- Similarity among students would therefore be good.
- Right?

- What happens when lower ability or lower motivated students are included in the mix?
The problem of slackers

• In the literature on group projects in college, one finding emerges again and again

• Cohesion is substantially reduced by the presence of students unable or unwilling to maintain the group’s standard of productivity
“I learned more from group activity than I would have from lectures”

• In general, students react positively to group projects

• (as long as certain factors are controlled)

• Typical finding: 70% to 90% of students who complete a group project agree with the statement,
  • “I learned more from this group activity than I would have learned through other teaching methods.”

• Typical finding: More than 50% will agree with the statement,
  • “I look forward to working on group projects later in life.”

• This is important, as many jobs later in life will be group-based
“I DIDN’T….”
“I DON’T….”

- What happens when the group includes a slacker?
- Agreement with those positive statements declines substantially
- In one study

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Payne & Monk-Turner, 2006
Post-graduates, leery of the unqualified

- In another study, post-graduate students were very guarded about engaging in group projects
- Their fear? Slackers.
- Previous experience, in college, had taught them that the quality of your peers has a massive impact on the quality of the work experience

(An aside for college instructors in the room)
- They were more willing when the instructor would grade “cooperatively” (clear demarcation of work, subtasks allocated to individuals) than “collaboratively”
- Students proved very reluctant to take any action against non-contributors, neither reporting or confronting.

Underwood, 2003
Do you perceive your peers as capable & motivated?

• In the Introduction to a journal article on ways to increase participation & productivity in small group activities, Myers (1977) cites these observations:
  • If students perceive their peers to be capable & motivated, they are more likely to commit to the group work
  • If not, the better students are likely to reduce their efforts to match the level that they believe others will be contributing

• Lower quality peers can cause a good student to reduce his/her efforts
Heterogenous groups: what about the less-capable? Do they benefit?

• There is research suggesting that lower achievers may, if paired with higher achievers, increase
  • motivation,
  • perceived academic goals/standards, and
  • achievement
Low achiever with high-achiever friend

• Empirical study: low achiever who has high achiever friend performs better but evaluates himself/herself less positively

  • (This may be a very good thing. Students tend to overestimate themselves and the worst students are most prone to grossly overestimating their competence & performance. The low achiever above may have just become better calibrated.)

Altermatt & Pomerantz, 2005
But what about low-achiever tossed into a high-achiever environment?

• Claude Steele (1997, and many others) has carried out research on a phenomenon he names “stereotype threat”

• Core idea: Black students may do poorly in a White dominant school environment in part because they themselves wonder about the myth that Black students are less capable of academic excellence

• The simple act of wondering about the stereotype, worrying about it, is enough, Steele argues, to impact performance

• Classic study: you can change the test scores of White males on a math exam simply by “pointing out” to them before the exam that it has been clearly shown that Chinese males are excellent at math, but White males only so-so.

• Will this be a problem for “diversity” students in an elite academic setting?
Summary

• No significant Psychology literature on peer effects on academic achievement

• We can, from research on related topics, offer some hypotheses:
  
  • If students agree on things such as the goals of the college experience, you will get greater cohesion
  
  • Cohesion is very important. Many things follow from it.
  
  • Your goals, motivation, strategies, all are affected by interactions with peers. Even one conversation with your friend brings the two of you more into agreement on these things.
  
  • In low cohesion academic environments (as when one slacker is introduced into a group project), the work of the large group of good students declines.
  
  • Less competent students may be elevated by high-competence environment, but they may actually perform worse due to threat.
Bibliography


