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2019

## **Insights from Educational Psychology Part 12: Interventions and Collaborations**

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## **Insights from Educational Psychology Part 12: Interventions and Collaborations**

### **Abstract:**

Educational interventions are manipulations implemented to change students' thoughts, emotions, or behaviors. Brief, easily implemented interventions have been shown to have long-lasting positive effects if they cause students to change recursive psychological processes. Successful interventions require deep understanding of both theories of psychological processes and specific contexts. One size cannot fit all, and seemingly minor variations in an intervention can result in unexpected effects. Collaboration with faculty and others who support student learning can benefit all parties involved.

### **Introduction**

Educational intervention can be defined as “a manipulation implemented by an external agent (such as a teacher or researcher) intended to change students' cognitions, emotions, or behaviors” (Lazowski & Hulleman, 2016, p. 606). Interventions have gained a great deal of attention due to evidence that brief, inexpensive, and relatively unobtrusive actions can have significant lasting positive effects on students. In one well-known and frequently cited example, African-American first year college students read a report providing evidence that social adversity is typical and transient. The students then wrote and videorecorded messages for an audience of future first year students to help their transitions to college life. Compared to a control group, by senior year the participants had higher grade point averages, better health, and greater sense of belonging (Walton & Cohen, 2011).

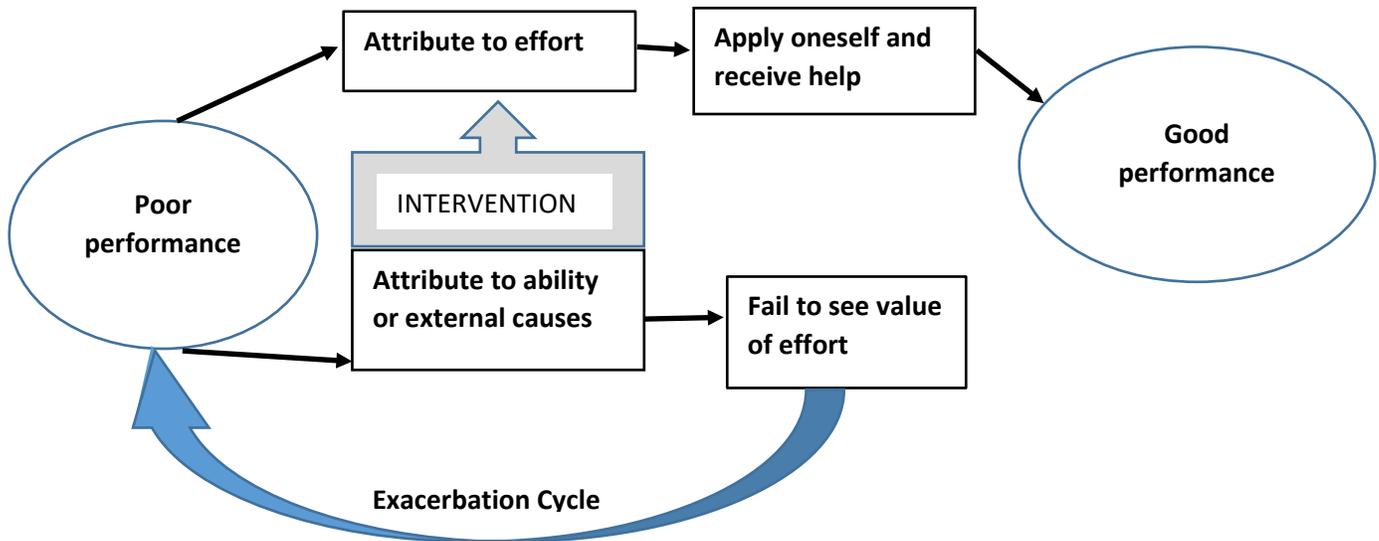
To be effective, an intervention “depends on a precise understanding of people's psychological reality—what it is like to be them and how they construe themselves and their

social world” (Walton, 2014, p. 73). Various psychological theories can be used to form the basis for understanding people’s reality. Most of the theories that underpin educational interventions have been introduced in the prior columns of this twelve-part series on insights from educational psychology. In this, the final column of the series, we describe educational interventions as applications of educational psychology theory to the practice of improving student achievement. We close with observations on the benefits of collaborating with others involved in the education of college students.

### **Intervene to influence recursive psychological processes**

A key assumption that underlies educational interventions is that learning, performance, and motivation are highly social and psychological in nature (Spitzer & Aronson, 2015). Interventions work when they change individuals’ recursive psychological processes, something akin to hitting a reset button. The desired outcome of an educational intervention is to increase students’ motivation to achieve learning goals. Take for example a student who received negative feedback on the first draft of a research paper. This student might blame themselves for not being good at research and believe they are unlikely to get better. Such a fatalist attitude makes the task of researching and writing a new draft fraught with worry, anxiety, and self-doubt. These emotions are counterproductive and hinder performance, in what has been called an exacerbation cycle (Storms & McCaul, 1976). The processes that contribute to an exacerbation cycle and how an intervention can induce a student to take a more productive attitude toward the task are presented in Figure 1.

Part 12 figure 1: Attribution Intervention



Harackiewicz and Priniski (2018) described three types of intervention: task value (why students should care to learn), framing (how students respond to challenges), and personal values (what goals are important). All three types of interventions “convey some information hypothesized to affect a psychological process and engage the student in a process of active reflection that often involves conversation or writing” (Harackiewicz & Priniski, 2018, p. 411). The induced active reflection prompts students to alter recursive processes, hopefully in ways that will boost motivation.

Figure 1 above depicts a type of intervention designed to change a student’s attribution of the causes of outcomes away from fatalism toward recognition that success comes with effort. The goal is to overcome learned helplessness, change one’s belief that ability is fixed, and gain confidence in one’s self-efficacy (Wilson, Damiani, & Shelton, 2002). The most common

method for attributional intervention is to have students watch videos of older students describing their early struggles and how they worked through them to achieve success. But other methods might also be effective. Wilson et al. (2002) advocate for educators to conduct and report on controlled experiments to advance our knowledge of the effectiveness of interventions.

One of us did so, with an intervention intended to change students' willingness to ask librarians for help (Black & Krawczyk, 2017). The control group read facts about the library. The experimental group read a narrative of students describing how librarians had helped them. To the authors' surprise, the only significant difference in attitudes was that the experimental group expressed less confidence in their ability to conduct research. We speculated that the narrative increased those students' awareness of how much they had left to learn about research. We initiated the intervention expecting students to reflect on how asking librarians for help could benefit them (an expectancy-value perspective), but the primary effect was for students to recognize a discrepancy between their perceived abilities and the abilities of peers (a self-confrontation perspective). The study was a good example of how interventions can produce unanticipated results.

Educational intervention studies of particular interest to librarians have specifically targeted students' abilities to find and cite sources. Brante and Strømsø (2017) reviewed 18 studies designed to improve students' abilities to "identify and represent source features to predict, interpret, and evaluate documents' content and relevance according to a reading task" (p. 792). Instructional interventions included worksheets, prompts, and modeling. Interventions were found to generally lead to improvement, but the authors concluded that more studies need to be conducted on long-term effects and should incorporate students' motivations for assessing the credibility of sources (Brante & Strømsø, 2017).

Another interesting group of intervention studies were designed to foster positive changes in students' beliefs about the nature of knowledge and knowing. As we described in "Part 3: College Student Development," first year students tend to see knowledge in a dualistic way and be overly accepting of authority (Black & Allen, 2017). Students with more sophisticated epistemic beliefs are more open to conflicting viewpoints and more critical of sources. For students to shift to more nuanced beliefs about knowledge, they need to be dissatisfied with their current conceptions, find new conceptions intelligible and plausible, and perceive new perceptions as fruitful for inquiry (Muis & Duffy, 2013). Students who were required to evaluate multiple approaches to solving problems and make connections demonstrated significant shifts towards more sophisticated epistemic beliefs (Muis & Duffy, 2013). Rosman, Peter, Mayer, and Krampen (2018) investigated the role of epistemic beliefs in information literacy instruction and concluded that an embedded model is more conducive to promoting critical thinking.

Lazowski and Hulleman (2016) reviewed motivation interventions in education and organized their reported findings around 15 theoretical frameworks, summarized in Table 1 on the following page.

**Table 1: Types of Academic Interventions**

<b>Theoretical framework</b>	<b>Intervention example</b>
Achievement emotions	Ahead of an exam, students read that feeling some anxiety is not only normal, but can benefit performance.
Achievement goal	Instruction or exercises in adopting a mastery goal orientation.
Attribution	Provide examples of success coming from effort, not from innate ability.
Expectancy-value	Have students reflect on how a course or project benefits them.
Goal setting	Students identify personal goals, create implementation plan, and state level of commitment to achieving their goals.
Theories of intelligence	Nurture growth mindset by teaching students how the brain changes over time.
Interest	Generate interest with stimulating tasks.
Need for achievement	Direct instruction in understanding achievement-related thoughts and emotions.
Possible selves	Reflect on successful future self and how to achieve that.
Self-affirmation	Write about important personal values.
Self-confrontation	Examine discrepancies between one's stated values and how personal behavior compares with successful peers' behavior.
Self-determination	Provide students choice and control over the content of learning.
Self-efficacy	Practice setting and achieving realistic study goals.
Social belongingness	Provide evidence that worrying about belonging is typical for first year students and it will diminish over time.
Transformative experience	Encourage students to actively apply learning to their personal lives.

They reviewed 92 studies and found that interventions in all 15 theoretical frameworks had positive effects on student outcomes, with an average overall positive effect of  $d=.49$  (Lazowski & Hulleman, 2016). That means that students in the treatment condition did half a standard deviation better on whatever metric was used in each of the 92 studies.

### **Potentials and pitfalls of interventions**

Given that interventions can be brief and fairly easy to administer, the average half a standard deviation improvement reported in Lazowski and Hulleman's (2016) meta-analysis indicates great promise for interventions. A big question is the degree to which interventions might work on large scales, causing enough positive change to benefit not just individual

students in isolated studies, but provide benefits to all students. Paunesku et al. (2015) designed two 45-minute interventions that were administered to 1,594 students in 13 geographically diverse high schools. The interventions were designed to foster a growth mind-set of intelligence (Dweck, 1986) and sense of purpose (Yeager et al., 2014). They found that the interventions had a significant positive effect on students at risk of dropping out, but did not have a significant effect on other students. Paunesku et al. (2015) noted that interventions will be ineffective if they are not followed up with opportunities to learn, and that the effects of interventions may take time to emerge.

It is clear from the educational psychology research on interventions that a one size fits all approach will be ineffective for many students. Spitzer and Aronson (2015) investigated the potential role of interventions in closing gaps in educational achievement by reviewing studies designed to help students cope with threats to their identity. Methods included meditation, role models, emotional reappraisal, growth mind-set, imagining possible selves, self-affirmation, belongingness, and cooperative learning. They make the point that if we attribute educational gaps to unchangeable forces, we will be pessimistic about society's ability to improve the educational system. Interventions designed to boost motivation can work quite well when they positively impact recursive processes. "Overall, it appears that alleviating psychological threats improves academic achievement in real-world environments. Yet, because contextual details matter, it necessarily follows that these interventions will not work in all settings" (Spitzer & Aronson, 2015, p. 12).

So for all their promise, interventions are clearly not magic (Yeager & Walton, 2011). What works to motivate one student might have no effect or even backfire on another. The unexpected result from Black and Krawczyk's (2017) intervention described above is a good

example of the unpredictability of intervention effects. The authors had good reason to apply an expectancy-value theoretical perspective to students' attitudes towards asking librarians for help, but the experiment's results revealed that the intervention was primarily an exercise in self-confrontation. Thus far the educational psychology literature on this topic makes clear that interventions have selective effects. This leads one to wonder why interventions only benefit a particular population when there are reasons to believe most students might benefit (Schwartz, Cheng, Salehi, & Wieman, 2016).

Yeager and Walton (2011) suggest several answers as to why interventions have selective effects. One is the need for stealth, to avoid stigmatizing students and triggering stereotype threat. Another is that small, seemingly insignificant changes to an intervention can ruin the effect. For example, students writing on their own why schoolwork was important to them had positive effects, but telling students why schoolwork was important had negative effects (Yeager & Walton, 2011). Students have to be able to personalize their responses. The contexts in which interventions are administered can vary widely. In sum, effective interventions rely on both theoretical expertise and contextual expertise. "Because subtle changes to delivery mechanisms can shift the meanings of interventions for students, sometimes in nonobvious or unpredictable ways, researcher and practitioners should approach efforts to scale interventions with humility and with rigorous, step-by-step evaluation" (Yeager & Walton, 2011, p. 291).

An intervention must be wise to population and context in three ways: target matters in the setting at hand, actually change the targeted psychological process, and alter important recursive processes (Walton, 2014). A good example of paying attention to individual differences is a study by Stephens, Hamedani, and Destin (2014) that targeted the particular needs of first generation college students. The intervention highlighted how students' different

backgrounds could shape the college experience in both positive and negative ways. The students who participated in the session that highlighted the role of differences took more advantage of college resources and had improved academic performance. The researchers concluded that “engaging students about difference can be empowering if students have the opportunity to learn about the significance of their backgrounds in a supportive, constructive, and identity-safe manner” (Stephens et al., 2014, p. 950).

Educational psychologists’ findings about interventions have important implications for reference and instruction. Librarian contact with students provides opportunities to apply these findings. Librarians can integrate knowledge of and appreciation for students’ subjective experiences in our interactions. One example would be to model the research process in a way that shows it is messy and difficult, but doable with effort and perseverance. The main point overall is to be aware of and sensitive to subjective experience. As Walton (2014) put it, our ability to intervene with effective messages that promote positive attitudes “depends on a precise understanding of people’s psychological reality—what it is like to be them and how they construe themselves and their social world” (p. 73).

## **Collaborations**

Librarians have deep commitment to and a long history of collaborating. Collaborating with faculty has been described as an imperative for the future success of academic librarianship (Raspa & Ward, 2000). The literature of library science includes much information about successful collaborations, including books such as *Building Bridges* (McAdoo, 2010) and the journal *Collaborative Librarianship* (<https://digitalcommons.du.edu/collaborativelibrarianship/>). In the course of writing this series, we have been impressed by the myriad ways librarians can not only learn from educational psychologists, but also by the many ways psychologists,

professors, and other professionals who support student learning can benefit from librarians' knowledge and experience. Higher education as a whole can benefit when librarians collaborate with teaching faculty, writing centers, centers for teaching and learning, student affairs, career services, and other campus offices.

Effective collaboration and outreach is a win-win. In her description of collaborations with six different departments, Serpico (2016) notes the shared interest in student success and benefits of increased visibility when departments work together on common goals. Mazella, Heidel, and Ke (2011) describe how a collaboration among a librarian, English professor, and learning strategies counselor from the office of student affairs led to improved student learning compared with the traditional one-shot introduction to the library. "The collaboration team was able to explicitly demonstrate and model the research process [so] students could clearly identify the various stages of the research process and realize the iterative nature of the process" (Mazella et al., 2011, p. 52).

Collaborations can of course reach beyond one institution. Many of the national organizations for academic disciplines have created guidelines or standards for student learning, and librarians work with colleagues to align those guidelines with our information literacy standards or framework. The Association for College and Research Libraries' (ACRL) web site for the *Framework for Information Literacy for Higher Education* includes links to eight discipline-specific information literacy standards or guidelines (American Library Association, 2015). Teams of librarians are currently working on updating these discipline-specific guides.

Coordination of information literacy with discipline-based learning goals is also occurring locally. For example, Brady and Malik (2019) used the *Framework* and the American Psychological Association's *Guidelines for the Undergraduate Psychology Major* (APA, 2013)

to critically examine and revise an undergraduate writing assignment. The authors emphasized that engaging with one another enriched their understanding of students' needs and improved their instruction beyond what they could have achieved working alone. "We found in our collaboration ways to amplify each other's information literacy goals and identified areas of our own understanding that were enhanced through collaboration" (Brady & Malik, 2019, p. 71). The *Framework* can be a valuable starting point for developing shared understanding, but the document has been criticized for its use of jargon and its lack of clarity (Guth, Arnold, Bielat, Perez-Stable, & Meer, 2018). The authors of a study of faculty perceptions of the *Framework* argue that "librarians need to connect the frames in everyday terminology or disciplinary language that reflect faculty's concerns regarding their students' information literacy skills" (Guth et al., 2018, p. 709).

### **Scholarship of Teaching and Learning**

One of the most obvious places on campus to pursue collaboration is within educational development offices. Not every college or university has a center for teaching and learning, but many do. The Professional and Organizational Development (POD) Network in Higher Education, "devoted to improving teaching and learning in higher education" (<https://podnetwork.org/about-us/>), has 1484 members. Where offices for educational development exist, they are natural allies of librarians. Felten and Chick (2018) note that while the work of educational developers is highly varied, they have in common dedication to the scholarship of teaching and learning (SoTL). SoTL is based on five principles:

1. focus on faculty and organization-wide learning with the goal of promoting student learning
2. grounded in specific disciplinary contexts

3. sound methodology attuned to particular circumstances
4. conducted in partnership so that faculty retain the right to set objectives and make decisions
5. committed to making findings public and sharing experiences (Felten & Chick, 2018).

The parallels with the work of reference and instruction librarians are obvious. Librarians should be familiar with SoTL and be able to speak the language. We need to be able to “translate” the language of the *Framework* into the vocabularies of SoTL and the academic disciplines. The web site for the aforementioned POD Network is a good entry point into the literature of that field (POD network, n.d.)

## **Conclusion**

This column concludes our twelve-part series on insights from educational psychology for academic librarians. We hope readers find the series to be a useful introduction to important concepts and that our presentation of these ideas fosters improved reference and instruction librarianship. It is worth reiterating that librarians’ wisdom and experience can inform and enrich the work of educational psychologists, and we strongly encourage librarians to apply, critique, and share the concepts we have presented here. Please consider publishing or presenting not only at librarian conferences, but also at the conferences of organizations your collaborators are affiliated with.

Because these columns were written specifically for academic librarians, we have intentionally skipped or only mentioned in passing topics typically covered in an introduction to educational psychology textbook. These topics include test construction, memory formation, language processing, early childhood development, classroom management, and research

methodologies. The library profession in general could use a better grounding in research methods, but we chose to not tackle that very large subject in this series of columns. Most college campuses have many experts with whom librarians can collaborate on research, and that is often the most efficient way to combine librarians' insights with methodological expertise.

In our opinions, the library literature to date has relied entirely too much on case studies and surveys. We encourage experimentation with interventions modeled on those we have introduced in this column. For those interested in trying an intervention, the recommended readings listed below are good starting points for examples of sound methods for conducting that kind of research. As a profession, we need to move away from asking students how much they think they've learned. Self-reported survey data is frowned upon in educational psychology because of its unreliability. Granted, in some cases self-reporting is the only practical way to gain insight, for example determining the degree to which students are experiencing anxiety. But direct measures should be used whenever they are feasible and accepted by the relevant Institutional Review Board. It will benefit the library profession and all those whose work we support when librarians are conversant in the vocabulary and concepts of educational psychology and when our research on reference and instruction meets the standards of that discipline.

### **Takeaways for Librarians**

- Interventions designed to shift students' attitudes have been shown to have lasting positive effects.
- Effective interventions are based on psychological theories and targeted to engage students in a process of active reflection.

- Three broad categories of interventions are those that focus on how students perceive the value of the task, how students frame academic challenges, and the ways tasks align with personal values and goals.
- Wise interventions require expertise in both theory and context.
- Use care with interventions, as seemingly insignificant changes can result in dramatically different outcomes.
- The impact of interventions varies widely among individual students. One size cannot fit all.
- Collaboration with faculty is essential, even when time-consuming and sometimes difficult.
- Potential collaborators include offices for educational development, academic affairs, writing and learning centers. All share commitment to the scholarship of teaching and learning.

### **Recommended Reading**

**Brady, L. L. C., & Malik, M. (2019). Science, story, and structure: Framing the conversation for psychology faculty and librarian information literacy collaboration. *Teaching of Psychology, 46*(1), 64–71.**

<https://doi.org/10.1177/0098628318816155>

Psychology professor Loretta L. C. Brady and librarian Melinda Malik describe their collaboration to help students conduct an “article genealogy.” The assignment began like an entry for an annotated bibliography, but then students investigated the authors and their affiliations, identified the most important cited works, and identified the field of psychology represented by the research. A key to their collaborative planning was to align the *American*

*Psychological Association's Guidelines for the Undergraduate Psychology Major with the ACRL Framework for Information Literacy*, particularly the frame “scholarship as conversation.”

**Felten, P., & Chick, N. (2018). Is SoTL a signature pedagogy of educational development?**

*To Improve the Academy*, 37(1), 4–16. <https://doi.org/10.1002/tia2.20077>

Peter Felten and Nancy Chick direct centers for teaching and learning at Elon University and the University of Calgary, respectively. The authors do not directly address collaboration with librarians, but their explanation of the principles and practices of the Scholarship of Teaching and Learning are directly applicable to reference and instruction librarianship and suggest fertile areas for collaboration. The authors describe how educational developers: 1) focus on student learning, 2) are grounded in local contexts, 3) are committed to sound methodologies, 4) work in partnership with faculty, and 5) share with the broader community through presentation and publication.

**Harackiewicz, J. M., & Priniski, S. J. (2018). Improving student outcomes in higher education: The science of targeted intervention. *Annual Review of Psychology*, 69(1), 409–435. <https://doi.org/10.1146/annurev-psych-122216-011725>**

Judith Harackiewicz and Stacy Priniski review the literature on three broad types of interventions: perceived utility of completing a task, framing, and personal values. Task value interventions induce students to consider how a course or assignment can help them meet personal goals. Framing interventions are meant to have students realize that challenge is normal and can be overcome with personal effort. Personal values interventions have students reflect on what is broadly important to them, which strengthens their ability to work through immediate difficulties. Empirical support for interventions is strong, but more research is needed to replicate findings and generalize results.

**Lazowski, R. A., & Hulleman, C. S. (2016). Motivation interventions in education: A meta-analytic review. *Review of Educational Research*, 86(2), 602–640.**

<https://doi.org/10.3102/0034654315617832>

Rory Lazowski and Chris Hulleman reviewed 74 experimental manipulations of one or more variables intended to change students' motivations. The authors describe 15 theories that informed the interventions. Overall the interventions had positive effects on educational outcomes. No one of the 15 theoretical frameworks was found to be significantly more effective than the others. The authors contend that compared to overhauling education systems, continued experimentation with motivation interventions can be a far more efficient and cost-effective way to improve student achievement.

**Paunesku, D., Walton, G. M., Romero, C., Smith, E. N., Yeager, D. S., & Dweck, C. S. (2015). Mind-set interventions are a scalable treatment for academic underachievement. *Psychological Science*, 26(6), 784–793.**

<https://doi.org/10.1177/0956797615571017>

A team of experienced and well-regarded educational psychologists investigated the impact of interventions to target student's beliefs about learning, specifically as "Can I learn and grow my intelligence" (growth mind-set) and "Why should I learn?" (sense of purpose). The subjects were 1,594 students from 13 geographically diverse high schools. The researchers found that a 45-minute intervention administered online improved academic performance for students at risk of dropping out. The authors note that interventions will only lead to improvement if students are given opportunities to succeed.

**POD Network. Retrieved May 29, 2019, from Professional and Organizational**

**Development Network in Higher Education website: <https://podnetwork.org/>**

The POD Network's motto is "advancing the research and practice of educational development in higher education since 1976" (<https://podnetwork.org/about-us/>). The organization's publications and conferences refer extensively to the educational psychology literature we have reviewed in this series of columns. Educational development includes helping teachers improve their craft, assisting in the design of courses and curricula, and helping create an organization that supports improved teaching and learning. The information provided in the POD Network can facilitate librarians' deeper understanding of centers for teaching and learning.

**Spitzer, B., & Aronson, J. (2015). Minding and mending the gap: Social psychological interventions to reduce educational disparities. *British Journal of Educational Psychology*, 85(1), 1–18. <https://doi.org/10.1111/bjep.12067>**

The gap Brian Spitzer and Joshua Aronson refer to is inequities in educational attainment. They assert that many achievement gaps are due at least in part to threats to social identity or sense of belonging, and that interventions can help individuals overcome those barriers. The authors review interventions that address meditation, role model exposure, reappraising fears, fostering a growth mindset, imagining possible selves, affirming personal values, boosting sense of belonging, and cooperative learning. The common thread is all the interventions pay serious attention to students' subjective experience of learning.

**Walton, G. M. (2014). The new science of wise psychological interventions. *Current Directions in Psychological Science*, 23(1), 73–82. <https://doi.org/10.1177/0963721413512856>**

Gregory Walton explains that "a wise intervention depends on a precise understanding of people's psychological reality—what it is like to be them and how they construe themselves and

the social world” (p. 73). The key to a successful intervention is to apply the appropriate psychological theory at the right time in a manner that resonates with the subjects. A mismatched or poorly designed intervention can be ineffective or backfire. The author reviewed successful interventions in civic behavior, close relationships, education, and health. Walton’s lucid writing and broad scope make this article an especially valuable introduction to why and how to intervene to improve outcomes.

**Wilson, T. D., Damiani, M., & Shelton, N. (2002). Improving the academic performance of college students with brief attributional interventions. In J. Aronson (Ed.), *Improving academic achievement: Impact of psychological factors on education* (pp. 89–108). New York, NY: Academic Press.**

College students who do poorly on an assignment may become trapped in an exacerbation cycle, whereby they attribute poor performance to their inability to improve. This causes anxiety, which in turn hampers achievement. In several studies, students watched interviews of upperclass students describing how they overcame trouble in their first year through effort and hard work. The first year students who watched the interviews had improved academic outcomes. Stressing the difficulty of college work can be protective and motivating. Results from studies show good replicability, but attributional interventions may not work for all students.

**Yeager, D. S., & Walton, G. M. (2011). Social-psychological interventions in education:**

**They’re not magic. *Review of Educational Research*, 81(2), 267–301.**

**<https://doi.org/10.3102/0034654311405999>**

David Yeager and Gregory Walton explain why the long term effectiveness of interventions depends on how well they change self-reinforcing recursive processes. A quick,

easy intervention can have lasting effects if it removes a critical psychological barrier to learning. The review of interventions is organized in four categories: attributions, mitigation of stereotype threat, possible selves, and expectations of the value of learning. For all interventions, stealth is required in order to avoid stigmatizing individuals. Small changes can ruin an intervention, so doing them well requires both theoretical and contextual expertise.

## References

- American Library Association. (2015). *Framework for Information Literacy for Higher Education* [Text]. Retrieved from Association of College & Research Libraries (ACRL) website: <http://www.ala.org/acrl/standards/ilframework>
- American Psychological Association. (2013). *APA Guidelines for the Undergraduate Psychology Major*. Retrieved from <https://www.apa.org/ed/precollege/about/undergraduate-major>
- Black, S., & Allen, J. D. (2017). Insights from educational psychology part 3: College student development. *Reference Librarian*, 58(3), 214–228. <https://doi.org/10.1080/02763877.2016.1276505>
- Black, S., & Krawczyk, R. (2017). Brief intervention to change students' attitudes regarding library research. *Reference & User Services Quarterly*, 56(4), 277–284. <https://doi.org/10.5860/rusq.56.4.277>
- Brady, L. L. C., & Malik, M. (2019). Science, story, and structure: Framing the conversation for psychology faculty and librarian information literacy collaboration. *Teaching of Psychology*, 46(1), 64–71. <https://doi.org/10.1177/0098628318816155>
- Brante, E. W., & Strømsø, H. I. (2017). Sourcing in text comprehension: A review of interventions targeting sourcing skills. *Educational Psychology Review*, 30(3), 773–799. <https://doi.org/10.1007/s10648-017-9421-7>
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41(10), 1040–1048. <https://doi.org/10.1037/0003-066X.41.10.1040>
- Felten, P., & Chick, N. (2018). Is SoTL a signature pedagogy of educational development? *To Improve the Academy*, 37(1), 4–16. <https://doi.org/10.1002/tia2.20077>

- Guth, L. F., Arnold, J. M., Bielat, V. E., Perez-Stable, M. A., & Meer, P. F. V. (2018). Faculty voices on the framework: Implications for instruction and dialogue. *Portal: Libraries and the Academy*, 18(4), 693–718. <https://doi.org/10.1353/pla.2018.0041>
- Harackiewicz, J. M., & Priniski, S. J. (2018). Improving student outcomes in higher education: The science of targeted intervention. *Annual Review of Psychology*, 69(1), 409–435. <https://doi.org/10.1146/annurev-psych-122216-011725>
- Lazowski, R. A., & Hulleman, C. S. (2016). Motivation interventions in education: A meta-analytic review. *Review of Educational Research*, 86(2), 602–640. <https://doi.org/10.3102/0034654315617832>
- Mazella, D., Heidel, L., & Ke, I. (2011). Integrating reading, information literacy, and literary studies instruction in a three-way collaboration. *Learning Assistance Review*, 16(2), 41–53.
- McAdoo, M. L. (2010). *Building bridges: Connecting faculty, students, and the college library*. Chicago, IL: American Library Association.
- Muis, K. R., & Duffy, M. C. (2013). Epistemic climate and epistemic change: Instruction designed to change students' beliefs and learning strategies and improve achievement. *Journal of Educational Psychology*, 105(1), 213–225. <https://doi.org/10.1037/a0029690>
- Paunesku, D., Walton, G. M., Romero, C., Smith, E. N., Yeager, D. S., & Dweck, C. S. (2015). Mind-set interventions are a scalable treatment for academic underachievement. *Psychological Science*, 26(6), 784–793. <https://doi.org/10.1177/0956797615571017>
- POD network. (n.d.). Retrieved May 29, 2019, from POD Network: Professional and Organizational Development Network in Higher Education website: <https://podnetwork.org/>

- Raspa, R., & Ward, D. (Eds.). (2000). *The collaborative imperative: Librarians and faculty working together in the information universe*. Chicago, IL: Association of College and Research Libraries.
- Rosman, T., Peter, J., Mayer, A.-K., & Krampen, G. (2018). Conceptions of scientific knowledge influence learning of academic skills: Epistemic beliefs and the efficacy of information literacy instruction. *Studies in Higher Education*, *43*(1), 96–113.  
<https://doi.org/10.1080/03075079.2016.1156666>
- Schwartz, D. L., Cheng, K. M., Salehi, S., & Wieman, C. (2016). The half empty question for socio-cognitive interventions. *Journal of Educational Psychology*, *108*(3), 397–404.  
<https://doi.org/10.1037/edu0000122>
- Serpico, J. M. (2016). Reaching university students via partnerships with non-academic departments. *Proceedings of the Conference for Entrepreneurial Librarians*, 2. Retrieved from <http://libjournal.uncg.edu/pcel/article/view/1457>
- Spitzer, B., & Aronson, J. (2015). Minding and mending the gap: Social psychological interventions to reduce educational disparities. *British Journal of Educational Psychology*, *85*(1), 1–18. <https://doi.org/10.1111/bjep.12067>
- Stephens, N. M., Hamedani, M. G., & Destin, M. (2014). Closing the social-class achievement gap: A difference-education intervention improves first-generation students' academic performance and all students' college transition. *Psychological Science*, *25*(4), 943–953.  
<https://doi.org/10.1177/0956797613518349>
- Storms, M. D., & McCaul, K. D. (1976). Attribution processes and emotional exacerbation of dysfunctional behavior. In J. H. Harvey, W. J. Ickes, & R. F. Kidd (Eds.), *New directions*

*in attribution research* (Vol. 1, pp. 143–164). Hillsdale, NJ: Lawrence Erlbaum Associates Publishers.

Walton, G. M. (2014). The new science of wise psychological interventions. *Current Directions in Psychological Science*, *23*(1), 73–82. <https://doi.org/10.1177/0963721413512856>

Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*, *331*(6023), 1447–1451. <https://doi.org/10.1126/science.1198364>

Wilson, T. D., Damiani, M., & Shelton, N. (2002). Improving the academic performance of college students with brief attributional interventions. In J. Aronson (Ed.), *Improving academic achievement: Impact of psychological factors on education* (pp. 89–108). New York, NY: Academic Press.

Yeager, D. S., Henderson, M. D., Paunesku, D., Walton, G. M., D’Mello, S., Spitzer, B. J., & Duckworth, A. L. (2014). Boring but important: A self-transcendent purpose for learning fosters academic self-regulation. *Journal of Personality and Social Psychology*, *107*(4), 559–580. <https://doi.org/10.1037/a0037637>

Yeager, D. S., & Walton, G. M. (2011). Social-psychological interventions in education: They’re not magic. *Review of Educational Research*, *81*(2), 267–301. <https://doi.org/10.3102/0034654311405999>