Coalition for Life-Transformative Education Literature Review

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Introduction. The Coalition for Life-Transformative Education seeks to create educational environments that not only impart content knowledge and skills but also impart character development and psychological tools such as growth mindset, persistence, motivation, and engagement so that all students can benefit from life-transformative learning experiences. As part of its efforts, the Coalition for Life-Transformative Education is interested in examining the literature on the factors, interventions, and programs that have successfully shaped students' character, mindset, and other psychological outcomes.

This literature focuses on what is known about (a) authentic learning environments (e.g., experiential learning) and (b) emotionally-supportive mentors and how these factors shape students' social, emotional, and life outcomes (e.g., employment, life satisfaction). The review also suggests (c) additional avenues of intervention (e.g., direct-to-student social and psychological interventions) that help students build character, well-being, growth mindset, and sense of belonging in college that persists over the lifetime.

Because the Coalition is considering making a recommendation to focus on two levers for change: (1) authentic learning environments (e.g., experiential learning) and (2) emotionally-supportive mentors, this literature review provides the best available evidence regarding the extent to which these factors play a role in (a) identity/self-knowledge; (b) agency/motivation/engagement; and (c) purpose/social-consciousness. When available, I have relied on the most influential sources on these topics as well as meta-analyses of multiple studies that provide more robust evidence for each outcome. I have included an annotated bibiliography of the sources cited in the narrative review that follows.

Narrative Review

Authentic Learning Environments. Authentic learning environments are settings in which students engage in meaningful, practical, and hands-on learning often through activities that merge in-class experiences with community-based activities. These kinds of environments are often referred to as "experiential learning" or "service learning." There is robust evidence that authentic learning evironments help students build **identity** (i.e, a sense of who one is and who one wishes to become); **self-knowledge** regarding beliefs and skills; and **self-awareness**—including a sense of how one's group membership and status relates to others. One of the most highly-cited reports on authentic learning environments showed that service learning and similar experiential programs changed how students viewed their communities and their personal responsibilities to them.[2] Students who participated in these environments were more

likely to talk about their learning experiences with others and endorsed stronger beliefs about the value of service. A meta-analysis of sixty-two studies documented a robust effect of service-learning programs on students' self-knowledge (that is, their attitudes about the self and their abilities).[3] Longitudinal studies of the enduring effects of service-learning in authentic learning environments shows that these programs increase students' focus on others (vs. the self), increase students' commitments to socially responsible work, create greater openess to new ideas, experiences, and people; and increase capacity to care for people students did not previously have contact with. These skills endured over time.[1] Service-learning also changed students' perspectives about their social class and increased students' awareness that they could use their economic and educational privileges to help others. Indeed, students developed a sense of responsibility to uses these privleges to help others, which persisted for months after the service-learning experience.[1, 6]

There is also robust evidence that authentic learning environments build **agency**, **motivation**, and **engagement** among students. In a meta-analysis of sixty-two studies, students who participated in service-learning programs showed significant gains in attitudes and motivation toward school and learning, civic engagement, and social skills (as well as academic performance).[3] These gains also appear in qualitative studies of students who participate in service learning. One of the most influential qualitative studies in this area showed that authentic learning environments are effective because they increase (a) students' sense of personal self-efficacy (i.e., agency), (b) students' awareness of the world, (c) awareness of one's own personal values, and (d) engagement in classroom experiences.[4] That is, the gains reaped out in the world— through engagment in authentic learning environments—are generalized and benefit students in their more traditional classroom environments. Indeed, in a longitudinal study of college first-year students, students who engaged in service learning were more likely to interact with faculty and spent at least an hour per week doing so.[6]

Finally, research shows that authentic learning environments build a **sense of purpose** and **social-consciousness** among students. Authentic learning environments have been linked to greater awarness of social inequalities, greater awareness of one's own privilege, as well as greater perceived importance of political engagement.[6-7] Students who participated in service-learning (here, a university-sponsored AmeriCorps program) reported that engaging in service learning encouraged them to challenge stereotypes, increased their capacities for empathy, patience, and trust with outgroup members, and inspired them to commit to future service activities.[6] Consistent with evidence that authentic learning environments help students challenge stereotypes, other studies reveal that students who participate in service learning are more likely to attribute their clients' misfortunes to external factors (outside the client's control) instead of internal factors and, as a result, are more likely to espouse the need for equal opportunities for those less fortunate.[7] A cooperative longitudinal study with over 3,400

college students across several insitutions found that those who engaged in authentic learning environments reported that the experience helped them gain greater racial understanding and significantly influenced their social values.[5] These students were also more likely to volunteer in community action programs over time.[5] This lasting commitment to volunteering is reflected in several studies of authentic learning environments.[5-7] Finally, students who participated in service learning courses reported greater leadership aspirations following their participation. [7]

Emotionally-supportive mentors. Emotionally-supportive mentoring describes a relationship between a mentor (a senior, more experienced individual) and a protege (a junior individual) in which psycho-social support stimulates the social, emotional, and professional development of students. In the context of college, emotionally-supportive mentors offer students friendship, acceptance and confirmation, counseling, and role-modeling. There is some evidence that emotionally-supportive mentors help students build **identity**, **self-knowledge**, and **self-awareness** (though there is less evidence for these outcomes in academic contexts compared to organizational contexts where there are simply more studies; and less compared to authentic learning environments). Students with emotionally-supportive mentors report feeling more comfortable in their majors and confident in their abilities. These students also experience gains in their professional identities (feeling positive about one's career and work experiences).[11] Consistent with this finding regarding professional identity, a qualitative study showed that students who worked with an emotionally-supportive mentor developed professional voice—the sense of oneself as a burgeoning professional in a chosen area of expertise.[12] Experiences with emotionally-supportive mentors were also found to account for positive changes in self-management and self-esteem.[10] Finally, there is some evidence that for underrepresented minority students, the empathy expressed by emotionally-supportive mentors helps students explore their ethnic identity and self-awareness.[9]

There is also evidence that emotionally-supportive mentors help build students' **agency**, **motivation**, and **engagement**. Students who worked with an emotionally-supportive mentor developed a greater sense of agency by working through challenges to their competence and self-limiting beliefs.[12] Other studies demonstrate that emotionally-supportive mentoring relationships increase students' sense of agency to seek help and support from others. Indeed, those who experienced emotionally-supportive mentoring relationships were more likely to seek help as they transitioned across educational settings, which enabled these students to seek out new mentors.[13] Consistent with this idea of support over time, emotionally-supportive mentors provide students with cultural capital about how to navigate educational institutions more broadly.[13] Across studies, it is clear that emotionally-supportive mentors enhance students' trust, motivation, and engagement.[12-13]

Finally, there is robust evidence that emotionally-supportive mentors build a **sense of purpose** and **social-consciousness** among students. Students that received mentoring from emotionally-supportive mentors developed stronger leadership abilities including engagement in ethical leadership and empowering others to also become leaders.[14] Mentors that focused on the personal development and empowerment of students had a significant effect on students' socially responsible leadership capacity.[14] Being an emotionally-supportive mentor to others (in peer mentoring contexts, for example) has been associated with greater tolerance and prejudice reduction as well as greater engagement in projects connecting students with communities outside the university setting.[15]

Empirically-based practices, programs, and psychological interventions to enhance students' social-emotional development. There is a growing literature on evidence-based social and psychological interventions to support students' sense of belonging, growth mindset, resilience, and other social and emotional skills. These interventions often employ randomized controlled experiments at scale (e.g., students randomly assigned to a treatment or control condition) to examine the longitudinal effects of these programs in ways that inspire more confidence regarding causal inference.

These social psychological interventions have been shown to benefit students' **identity**, **self-knowledge**, and **self-awareness** in several ways. For example, the *social belonging intervention*[16] can be delivered to students online and provides students with narratives from successful juniors and seniors that communicate the idea that the transition to college can be difficult and can cause students to question their belonging in college; however, these difficulties are normal, temporary, and due to the transition to college (rather than due to some deficit within students or their groups). This intervention improves students sense of belonging and, among underrepresented students, reduces the accessibility of negative racial stereotypes and self-doubt.[16] In a similar belonging intervention conducted with first-year engineering students, women students reported feeling more valued in engineering and as a result, started to build a more diverse social network by befriending more male engineers.[17] Women who participated in a *self-affirmation intervention*[17], in which students affirmed the social identities that were most important to them, placed greater value on their gender identity and were more likely to construe daily adversities and stressors as challenges that could be overcome (vs. threats). Students assigned to either the belonging or self-affirmation treatment conditions also reported greater confidence that they would succeed in the field of engineering compared to students randomly assigned to a study skills control group.[17]

There is also evidence that psychological interventions build **agency**, **motivation**, and **engagement**. Students in a *difference-education intervention*[18] heard

personal stories of senior students that described how their different backgrounds were a strength in their academic pursuits and communicated the idea that students from diverse backfrounds could succeed with the right tools and strategies. This intervention showed improvements among college students from both disadvantaged and advantaged backgrounds including significant reductions in stress and anxiety, better adjustment to college life, and more academic and social engagement.[18] The *social belonging intervention* (described above) also improves students' social and academic enagement including their use of school resources and the likelihood that students will find a mentor during their college years.[16] Another psychological intervention, termed the *utility-value intervention*[19], helps students think about how course material and assignments are relevant to their own lives and future goals. This intervention increased students' engagement with coursework (as well as their course performance) and increased students' interest to engage in similar tasks in the future.[19-20] Utility-value interventions have been shown to be particularly effective in STEM contexts where some college students struggle to see how certain concepts may be relevant to their future goals.[19-20] *Growth mindset interventions*[21] have also been succesful in improving students' motivation and engagement. In these interventions, students learn about neural plasticity and are encouraged to consider the ways in which the brain grows as students attempt new strategies, seek help from others, and persist through challenges. These interventions have improved students' motivation and narrowed achievement gaps.[21-22]

Finally, there is robust evidence that psychological interventions can build students' **sense of purpose** and **social-consciousness**. Correlational, experimental, and longitudinal studies involving over 2,000 students showed that purpose for learning was correlated with more diligence in the face of tempting alternatives and greater college persistence among underrepresented minority students.[23] Interventions that helped students find a self-transcedent purpose, termed *purpose interventions*, doubled the amount of time students spent on tedious exam review questions and increased the number of problems students solved (compared to students randomly assigned to a control group).[23] Students who participated in these purpose interventions were more likely to see boring academic tasks as important and personally meaningful to their academic goals.[23] Additional research employing structured interviews and surveys showed that only 30% of students had reasons beyond themselves (termed "purposeful work goals") through which they hoped to make an impact on the world beyond themselves. However, students who had purposeful work goals reported higher meaning in life, a greater sense of purpose, and said that studying and doing homework were more meaningful than students who had self-focused work goals or no purposeful work goals at all.[25] The *purpose intervention* significantly increased students' self-transcendent purpose for learning compared to those in a study skills control condition,

suggesting that purpose for learning is a malleable quality that can be shaped through reading and writing activities such as those that comprise the purpose intervention.[23]

Annotated Bibliography

This annotated bibliography is organized into three sections and describes the most central and influential literature with regard to (1) authentic learning environments, (2) emotionally-supportive mentors, and (3) social-emotional learning and psychological interventions aimed at building (a) identity, self-knowledge, and self-awareness; (b) agency, motivation, and engagement; and, (c) a sense of purpose and social-consciousness.

1) Literature and the best available evidence that **<u>authentic learning environments</u>** (e.g., experiential learning; service learning) can:

- o Build identity/self-knowledge/self-awareness

- o Build agency/motivation/engagement

- o Build a sense of purpose/social-consciousness

2) Literature and the best available evidence that **<u>emotionally-supportive mentors</u>** can:

- o Build identity/self-knowledge/self-awareness

- o Build agency/motivation/engagement

- o Build a sense of purpose/social-consciousness

3) Finally, drawing on the fields of **social-emotional learning and psychological interventions**, we provide evidence about **<u>additional empirically-based practices, programs, or interventions</u>** (e.g., direct-to-student psychological interventions) that have been shown to:

- o Build identity/self-knowledge/self-awareness

- o Build agency/motivation/engagement

- o Build a sense of purpose/social-consciousness

Authentic learning environments

Literature that authentic learning environments build identity/self-knowledge/self-awareness

[1]Jones, S. R., & Abes, E. S. (2004). Enduring influences of service-learning on college students' identity development. *Journal of College Student Development*, 149–166.
- Cited by 293

Participants noted changes in how they constructed their identity and development. More specifically, the service learning course significantly influenced participants in the following ways: focus on others in relation to self, emerging commitments to socially responsible work, improved openness to new ideas, experiences, and people, and an enduring capacity to care for people whom they did not previously have contact with. The service learning course also changed participant's perspectives on their social class and granted them the insight that they could use their economic and educational privileges to help others. Participants discussed their evolving thoughts on social class and developed a sense of responsibility to use their privileges to help others, which each continued to do in the months after the intervention.

[2]Astin, A. W., Vogelgesang, L. J., Ikeda, E. K., & Yee, J. A. (2000). *How Service Learning Affects Students*.
- White paper/report, highly cited (1,253 citations)

One of the benefits of service learning is that students are more likely to discuss the service learning experience with each other, which strengthens the effect of service on values and beliefs. Interviews also demonstrated that students' experiences in the course impacted how they viewed their communities and the world, forcing them to reevaluate some of their previously held beliefs.

Literature that authentic learning environments build agency/motivation/engagement

[3]Celio, C. I., Durlak, J., & Dymnicki, A. (2011). A Meta-Analysis of the Impact of Service-Learning on Students, A Meta-Analysis of the Impact of Service-Learning on Students. *Journal of Experiential Education*, *34*(2), 164–181. https://doi.org/10.1177/105382591103400205
- Cited by 297

A meta-analysis of 62 studies found that students participating in service learning programs had significant gains in their: attitudes toward self, attitudes toward school and learning, civic engagement, social skills, and academic performance.

[4]Astin, A. W., Vogelgesang, L. J., Ikeda, E. K., & Yee, J. A. (2000). *How Service Learning Affects Students*.
- White paper, highly cited (1,253 citations)

Qualitative findings suggest that service learning is effective because it facilitates four outcomes, increased sense of personal efficacy, an increased awareness of the world, an increased awareness of one's personal values, and increased engagement in the classroom experience.

Literature that authentic learning environments build a sense of purpose/social-consciousness

[5]Astin, A. W., & Sax, L. J. (1998). How Undergraduates Are Affected by Service Participation. *Journal of College Student Development*, *39*(3), 13.
    -Cited by 1,655

Data was collected from the Cooperative Institutional; Research Program Freshman Survey (1990 – 1994) and from a follow-up survey, the 1995 College Student Survey. 3,450 freshmen students were surveyed through the mail. Students who engaged in service learning were more likely to report that they promoted racial understanding, participated in community action programs, and that service learning had influenced their social values. These same students were also more likely to interact with faculty, and spent at least an hour per week doing so.

[6]Einfeld, A., & Collins, D. (2008). The Relationships Between Service-Learning, Social Justice, Multicultural Competence, and Civic Engagement. *Journal of College Student Development*, *49*(2), 95–109. https://doi.org/10.1353/csd.2008.0017
- Cited by 299

Conducted with participants in a university-sponsored AmeriCorps program. Several participants reported an increased awareness of social inequality, espoused a sense of empowerment, awareness of their own privileges. Participants also stated that engaging in service learning encouraged them to challenge pre-held stereotypes, increased their capacity for empathy, patience, and trust with outgroup members, and inspired them to commit to further service.

[7]Giles, D. E., & Eyler, J. (1994). The impact of a college community service laboratory on students' personal, social, and cognitive outcomes. *Journal of Adolescence*, *17*(4), 327–339. https://doi.org/10.1006/jado.1994.1030
  - Cited by 635

Students in a service learning course reported an increased commitment to volunteering, aspirations of leadership, and endorsed the importance of political engagement. Participating in service also contributed to these students changing their perceptions of their service client's hardships. They were significantly more likely to attribute their client's misfortunes to circumstances outside the control of their clients and as a result were more likely to espouse the need for equal opportunities.

[8]Keen, C., & Hall, K. (2009). Engaging with Difference Matters: Longitudinal Student Outcomes of Co-Curricular Service-Learning Programs. *The Journal of Higher Education*, *80*(1), 59–79. https://doi.org/10.1080/00221546.2009.11772130
  - Cited by 203

Longitudinal survey that looked at the growth in responses of students involved in a service learning program during their freshmen, junior, and senior years. This study found that students in service learning courses benefited most from sustained dialogue with people of different backgrounds. More specifically, seniors in the program reported that serving people from backgrounds different from their own, dialogue with people served, opportunities to understand root causes of social justice issues, support by program staff, understanding the college's surrounding community, and support for the initiation of new service projects benefited them greatly. Engaging in service learning increases the likelihood that students will receive faculty support and that they will reflect on their experiences. Data also showed that the benefits of dialogue may only be found with service learning programs longer than one semester.

Emotionally-supportive mentors

Literature that emotionally-supportive mentors build identity/self-knowledge/self-awareness

[9]Peifer, J. S., Lawrence, E. C., Williams, J. L., & Leyton-Armakan, J. (2016). The culture of mentoring: Ethnocultural empathy and ethnic identity in mentoring for minority girls. *Cultural Diversity and Ethnic Minority Psychology*, *22*(3), 440–446. https://doi.org/10.1037/cdp0000078
- Cited by 2

Mentors' empathy in response to culturally different others' identity and concerns was found to encourage mentees' ethnic identity exploration.

[10]Karcher, M. J. (2005). The effects of developmental mentoring and high school mentors' attendance on their younger mentees' self esteem, social skills, and connectedness. *Psychology in the Schools*, *42*(1), 65-77.
- Cited by 239

A group of eight graders served as peer mentors for low-risk and high-risk fifth graders. Mentees had positive gains in their engagement and connection to their parents and schools in the 6 months after mentoring. Experience with consistent mentors was found to account for changes in self-management, self-esteem, and social curricula.

[11]Holland, J. M., Major, D. A., & Orvis, K. A. (2012). Understanding how peer mentoring and capitalization link STEM students to their majors. *The Career Development Quarterly*, *60*(4), 343-354.
- Cited by 47

Participating in peer mentoring was found to increase STEM majors' participation in voluntary self-development opportunities. Students with peer mentors may feel more comfortable in their major and confident in their abilities, leading to increased engagement in voluntary self-development activities and professional identity outcomes (i.e., feeling positive about one's career and work experiences).

Literature that emotionally-supportive mentors build agency/motivation/engagement

[12]Griffin, K. A., Eury, J. L., & Gaffney, M. E. (2015). Digging Deeper: Exploring the Relationship Between Mentoring, Developmental Interactions, and Student Agency. *New Directions for Higher Education*, *2015*(171), 13–22. https://doi.org/10.1002/he.20138
- Cited by 7

Qualitative study of student's experiences with one mentor, Kimberly. The students had different goals for their mentoring relationship, but student development was found to be connected to the development of students' agency: approachability through psychosocial support, support and challenge, and development of professional voice. Students also stated that trusting their mentor led them to develop the aforementioned skills by working through challenges with competence and self-belief.

[13]Hagler, M. (2018). Processes of Natural Mentoring that Promote Underrepresented Students' Educational Attainment: A Theoretical Model. *American Journal of Community Psychology*, *0*(0). https://doi.org/10.1002/ajcp.12251
- Cited by 1

Mentoring relationships enhanced youth's trust in nonparent adults and increased their sense of agency to receive help and support from adults. This made youth more likely to seek out help as they transitioned across educational settings and enabled them to seek out new mentors. Having mentors also provided mentees with cultural capital on how to navigate educational institutions.

Literature that emotionally-supportive mentors build a sense of purpose/social-consciousness

[14]Campbell, C. M., Smith, M., Dugan, J. P., & Komives, S. R. (2012). Mentors and College Student Leadership Outcomes: The Importance of Position and Process. *The Review of Higher Education*, *35*(4), 595–625. https://doi.org/10.1353/rhe.2012.0037
- Cited by 110

Students indicated that receiving mentoring on personal development helped them develop leadership abilities (e.g., engage in ethical leadership, empower others to engage in leadership). Mentorship for personal development had a greater effect on socially responsible leadership capacity than mentorship for leadership empowerment. These results suggest that mentors who want to instill socially responsible leadership should focus on the student's empowerment within the mentoring relationship.

[15]Lee, J. M., Germain, L. J., Lawrence, E. C., & Marshall, J. H. (2010). "It opened my mind, my eyes. It was good." Supporting College Students' Navigation of Difference in a Youth Mentoring Program. *Educational Horizons*, *89*(1), 33–46.
- Cited by 22

In this study, female college students mentored at-risk adolescent girls. Being a mentor increased college students' tolerance and prejudice reduction by helping them learn about the out-group, leading them to learn about similarities across groups. Mentoring also inspired many college women to become more engaged in projects connecting them to communities outside the university setting.

Social-emotional learning practices and psychological interventions (empirically-based practices, programs, or interventions; psychological interventions)

Literature that these build identity/self-knowledge/self-awareness

[16]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.
- Cited by 950

A social belonging intervention improved African American students' sense of belonging and reduced the effect of day-to-day adversity on their sense of belonging. African American students also self-reported less accessibility of negative racial stereotypes and self-doubt.

[17]Walton, G. M., Logel, C., Peach, J. M., Spencer, S. J., & Zanna, M. P. (2015). Two brief interventions to mitigate a "chilly climate" transform women's experience, relationships, and achievement in engineering. *Journalof Educational Psychology*, *107*(2), 468.
- Cited by 169

Randomized control trial on first-year engineering students at the University of Waterloo. The interventions were designed to help women navigate "chilly" STEM settings in male dominated majors. Female STEM majors in the intervention condition reported: viewing daily adversities and stressors as manageable challenges, more positive experiences in engineering, and greater confidence that they would succeed in the field. Women in the social-belonging condition also felt more valued in engineering, and as a result they started befriending male engineers. Women in the affirmation condition were found to place greater value on their gender, leading them to befriend women outside of engineering.

Literature that these build agency/motivation/engagement

[18]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.
- Cited by 287

In this intervention, first generation college freshmen heard the personal stories of senior students. The intervention provided students with the insight that people's different backgrounds matter and that people with different backgrounds like them can succeed with the right tools and strategies. Results showed improvements for both disadvantaged and mainstream students. All students in the intervention condition experienced reductions in their stress and anxiety, better adjustment to college life, and more academic and social engagement. For disadvantaged students, the intervention also improved their usage of college resources.

[19]Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Priniski, S. J., & Hyde, J. S. (2016). Closing achievement gaps with a utility-value intervention: Disentangling race and social class. *Journal of Personality and Social Psychology*, *111*(5), 745–765. https://doi.org/10.1037/pspp0000075
   - Cited by 96

Utility value intervention on first-generation and continuing generation students from both minority and majority backgrounds. The utility value intervention improved students' performance in a biology course. Thinking about how course topics relate to their own life made biology more relevant to students and increased their engagement with coursework.

[20]Hulleman, C. S., Godes, O., Hendricks, B. L., & Harackiewicz, J. M. (2010). Enhancing interest and performance with a utility value intervention. *Journal of Educational Psychology*, *102*(4), 880–895. https://doi.org/10.1037/a0019506
   - Cited by 395

Randomized experiments of a utility value intervention. The intervention, a writing exercise that encouraged students to apply the task or course material to their own lives, did increase perceptions of utility value. Utility perceptions predicted increases and triggered situational task interest and maintained interest to reengage in the math task in the future.

[21]Blackwell, L.S., Trzesniewski, K.H., & Dweck, C.S. (2007) Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development*, 78(1), 246–263. https://doi.org/10.1111/j.1467-8624.2007.00995.x
- Cited by 2587

Two studies explored the role of implicit theories of intelligence (known as mindsets) on students' math achievement. Study 1 showed that growth mindset beliefs (that intelligence is malleable) predicted an upward trajectory in grades over two years. Study 2 examined the effectiveness of an intervention teaching a growth mindset and found that the intervention promoted positive change in classroom motivation, compared to a control group.

[22]Yeager, D. S., Walton, G., Brady, S., Akcinar, E. N.*, Paunesku, D., Keane, L., Kamentz, D., ... & Dweck, C. S. (2016). Teaching a lay theory before college narrows achievement gaps at scale. *Proceedings of the National Academy of Sciences of the United States of America, 113*, E3341-E3348. https://doi.org/10.1073/pnas.1524360113
- Cited by 85

Three experiments demonstrated that lay theory (growth mindset) interventions delivered to over 90% of students increased full-time enrollment rates, improved grade point averages, and reduced the overrepresentation of socially disadvantaged students among the bottom 20% of class rank. The interventions also helped disadvantaged students become more socially and academically integrated in college.

Literature that these build a sense of purpose/social-consciousness

[23]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.
- Cited by 183

Correlational, experimental, and longitudinal studies involving around 2,000 high school and college students. Results of study one revealed that purpose for learning was correlated with more diligence in the face of tempting alternatives, and greater college persistence among low-income, urban, predominantly minority students. A self-transcendent purpose doubled the amount of time that students spent on tedious exam review questions, and increased the number of boring math problems that students solved compared to controls, even when they had the option to consume entertaining Internet media. Teens with a self-transcendent

purpose were also more likely to see boring academic tasks as linked to more important and personally meaningful academic goals.

[24]Yeager, D. S. (2017). Social and emotional learning programs for adolescents. *The Future of Children*, 73-94.
- Cited by 16

Effective SEL programs for adolescents (age: 14 - 17) focus on mindset and climate and harness adolescents' developmental motivations to make them feel respected by adults and peers. A few interventions in particular taught mindsets that harnessed adolescents' values by aligning healthy, long term behaviors with the shorter-term desire to have status and value. These interventions offered adolescents a purpose larger than their own self-interest and encouraged them to adopt a positive behavior. One of these interventions encouraged middle school students to have a purpose for healthy eating by redefining healthy eating so that it had greater social-status appeal.

[25]Yeager, D. S., & Bundick, M. J. (2009). The role of purposeful work goals in promoting meaning in life and in schoolwork during adolescence. *Journal of Adolescent Research*, *24*(4), 423-452.
- Cited by 131

Investigated the relationship between work goals, purpose, and meaning using semi-structured interviews and surveys. Results showed that 30% of participants had reasons beyond themselves that was intrinsic to their future occupation (called a purposeful work goal) through which they hoped make some kind of impact on the world beyond themselves. Students with purposeful work goals also reported higher levels of meaning in life, a greater sense of a higher sense of purpose in life, and said that studying and doing homework for school were more meaningful than students who had other or no reasons.