Yale Educator Affective Experiences and Sources of Well-Being Surveys

Report prepared for SCHOOL NAME TOWN, STATE

> Survey administered DATE Report prepared DATE

Yale Center for Emotional Intelligence

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Well-Being and Social-Emotional Learning Resource Bank

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Introduction

Thank you again for participating in the Yale Teacher Well-Being. We hope this report will provide helpful information.

Background

Researchers from The Yale Center for Emotional Intelligence began developing the Yale Teacher Well-Being Survey in 2018 based on prior research on educator well-being and social and emotional learning in K-12 schools. The survey has evolved in the years since, both before and during the COVID-19 pandemic.

Contents of this Report

This report shares your **schools** aggregated results. Although our study results are preliminary, this report provides information on the well-being of the adults at your school. When interpreting the results, note that this is only a sample of the teachers in your school.

Interpreting and Using this Report

Please keep in mind that these survey results capture a snapshot of educator-reported feelings, beliefs, and behaviors at one time point during this year. Also remember that this report only reflects the perspectives of educators in **your school** who chose to complete the survey.

This report should *not* be used to make high-stakes decisions about staff performance or programming for students. Rather, our intention is that this snapshot of your **school's** current strengths and opportunities for growth will support ongoing conversations about how your community can work together to build healthy and productive educational environments for all, now and in the future.

Questions?

Please send any questions or feedback about this report to our team at <u>yceiresearch@yale.edu</u>.

Yours in partnership,

Jessica Hoffmann, Ph.D. Research Scientist Director of Emotion and Implementation Science

Jenny

Jennifer Seibyl, M.Ed. Assessment Manager

Survey Participants

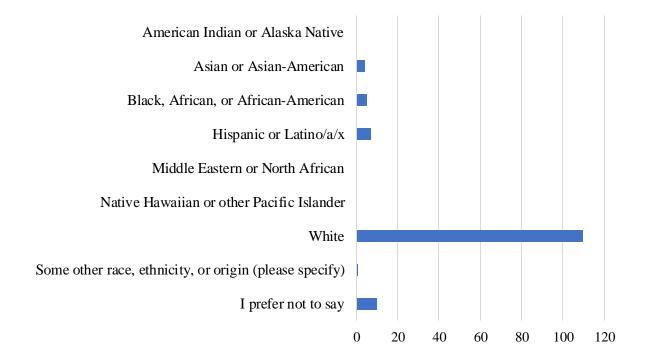
Additional demographic information

Survey Participants

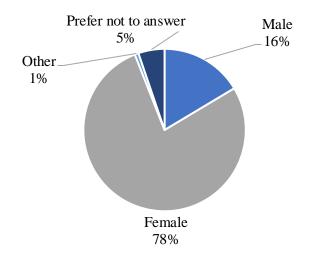
161 people participated in the survey. 141 people completed the entire survey.

Note. Some demographic questions allow for multiple responses; thus, totals may exceed the total number of participants (e.g., dual roles).

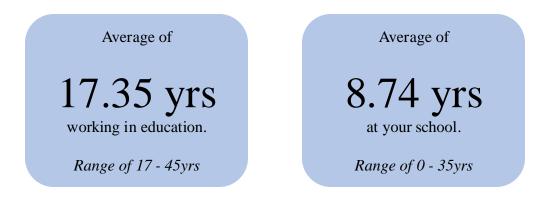
Race



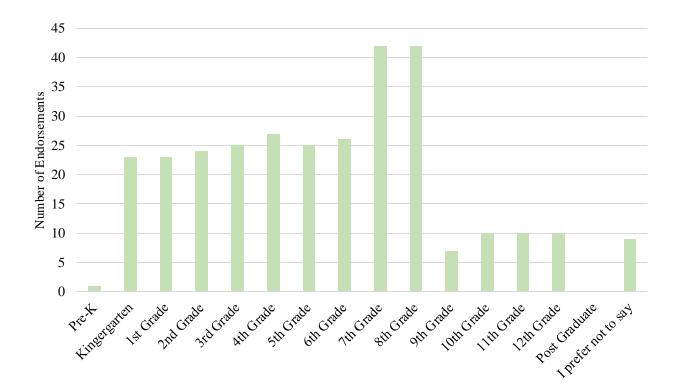
Gender



Survey Participants



Grades Taught



Why study teacher well-being?

- Before the pandemic, US teachers evidenced among the highest rates of stress and burnout recorded 46% of teachers report high levels of daily stress (Gallup, 2014; McIntyre et al., 2017).
- Pre-pandemic, about 30% to 50% of teachers left the profession in the first five years, often citing stress and burnout as leading factors (Greenberg et al., 2016).
- Since the pandemic, teacher stress and burnout have escalated (Cipriano & Brackett, 2020; Ferren, 2021; Hamilton et al., 2020) with stress becoming the leading reason that teachers leave the profession (Diliberti et al., 2021; Steiner & Woo, 2021).
- The cost of turnover to the US economy is estimated to exceed \$7 billion annually (National Commission on Teaching and America's Future, 2007).
- Teacher well-being is linked with student outcomes: social and emotional health and academic achievement (Milkie & Warner, 2011; Oberle & Schonert-Reichl, 2016; Roorda et al., 2011).

What is well-being?

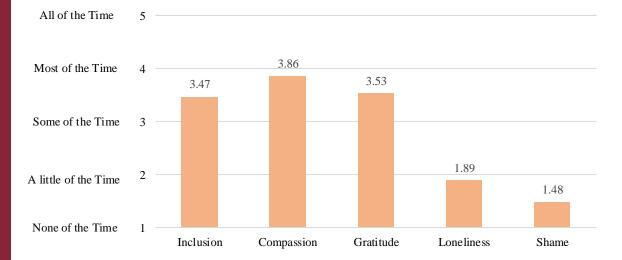
- Based on decades of research, well-being is considered to have three primary dimensions.
 - <u>Social Well-Being</u>: is the extent of one's social connectedness and social inclusion with valued others; one's social reciprocity and concern for others in need; and one's ability to be themselves around others (Keyes, 1998; Ryan & Deci, 2000).
 - <u>Emotional Well-Being</u>: is the extent to which individuals feel excited or content in their daily lives rather than anxious and depressed; and that individuals experience pleasant emotions consistently and somewhat frequently, and overall at a higher rate than they experience unpleasant emotions (Diener, 2009; Lyubomirsky, 2008).
 - <u>Workplace Well-Being</u>: is the extent to which individuals have a sense of meaning and purpose that motivates their professional lives; that individuals actively engage their faculties and are stimulated by their work; and that individuals feel a sense of accomplishment in pursuing their goals (Ryan & Deci, 2001; Ryff & Singer, 2008).

What is the Yale Teacher Well-Being Report?

- This Yale Teacher Well-Being Report provides initial information on the social, emotional, and workplace well-being of teachers at your school.
- Please remember that the results only represent the portion of teachers **in your school** who responded to the survey.
- All the measures are grounded in empirical science, following the core assessment standards of reliability and validity. That said, we're piloting new tools, so these data are *preliminary*.
- By measuring teacher well-being, the intention is to identify areas of strength and opportunities for development to enhance school climate and support teacher flourishing.

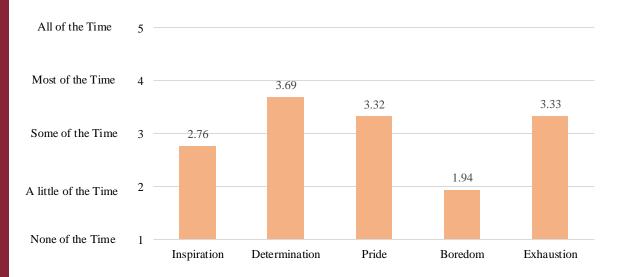
Yale Teacher Affective Experiences Scale

Teachers were asked to rate how frequently they experienced each feeling and emotion over the past few weeks on a scale from 1 (None of the time) to 5 (All of the time). The numbers above the bars represent the mean score.



Social Well-Being

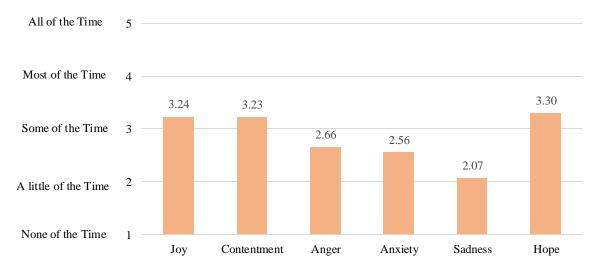
Note: Inclusion = accepted, included, valued; Compassion = compassionate, empathic, sympathetic; Gratitude = grateful, appreciative, thankful; Loneliness = isolated, alone, excluded; Shame = embarrassed, ashamed, humiliated.



Workplace Well-Being

Note: Inspiration = inspired, amazed, awed; Determination = determined, motivated, focused; Pride = accomplished, proud, successful; Boredom = disengaged, bored, disconnected; Exhaustion = exhausted, tired, burned-out.

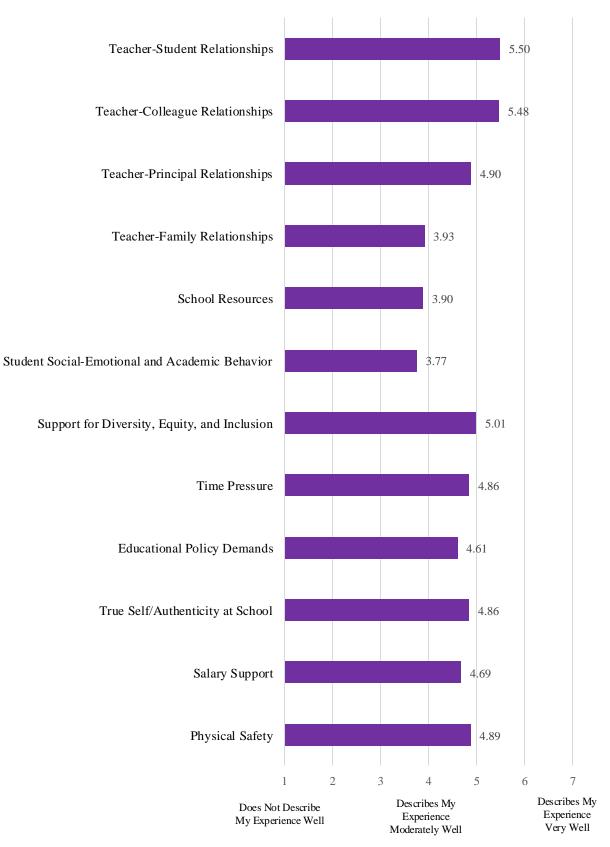
Emotional Well-Being



Note: Joy = excited, enthusiastic, joyful; Contentment = content, fulfilled, satisfied; Anger = angry, annoyed, frustrated; Anxiety = anxious, nervous, worried; Sadness = sad, down, depressed; Hope = hopeful, optimistic, wishful.

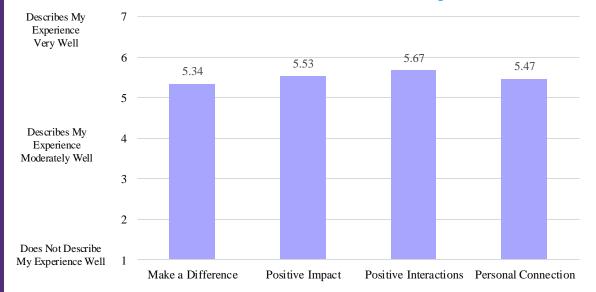
Yale Educator Sources of Well-Being Scale (SOW)

This bar graph represents the average score across all domains of the Sources of Well-being Scale. The domains are on a a scale from 1 (Does Not Describe My Experience Well) to 7 (Describes My Experience Very Well).



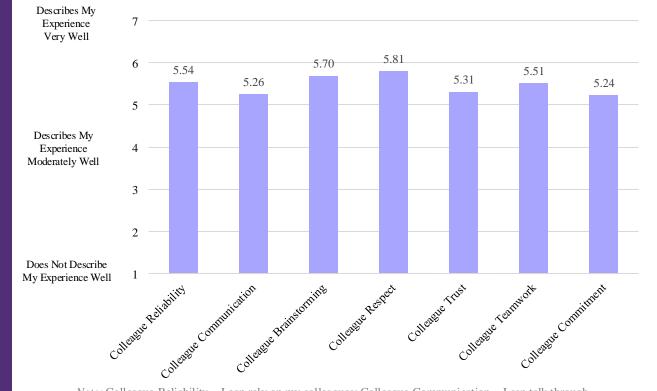
SOW at the Item Level

The following graphs are of the individual items that make up each domain. Teachers were asked to rate the extent to which they agree or disagree with the following statements on a scale from 1 (Does Not Describe My Experience Well) to 7 (Describes My Experience Very Well). The numbers above the bars represent the mean score.



Teacher-Student Relationships

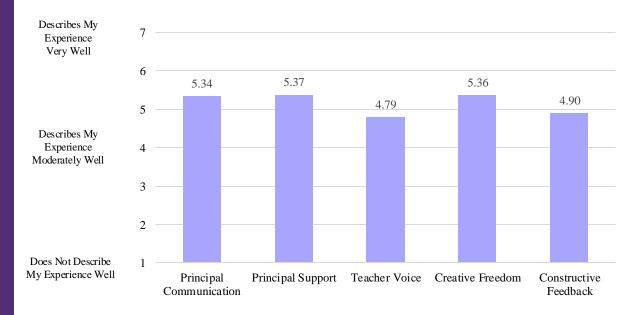
Note: Make a Difference = I make a difference in my students' lives; Positive Impact = I have a positive impact on my students; Positive Interactions = I have positive one-on-one interactions with my students; Personal Connection = I learn about my students' personal lives.



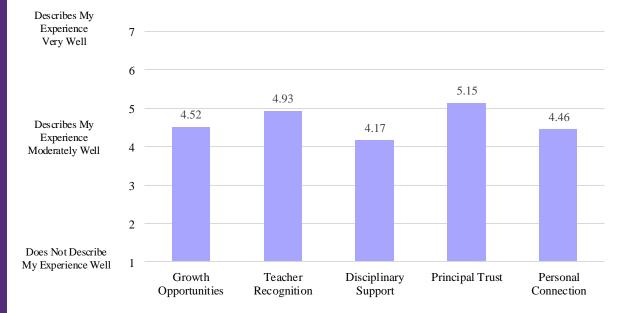
Teacher-Colleague Relationships

Note: Colleague Reliability = I can rely on my colleagues; Colleague Communication = I can talk through problems with my colleagues openly and honestly; Colleague Brainstorming = I exchange ideas with my colleagues; Colleague Respect = My colleagues are respectful to me; Colleague Trust = My colleagues are people I can trust; Colleague Teamwork = My colleagues are team players; Colleague Commitment = My colleagues go 12 above and beyond their duties at work.

Teacher-Principal Relationships I



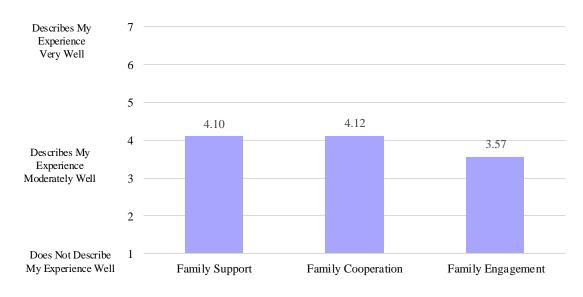
Note: Principal Communication = My principal communicates openly and honestly with me; Principal Support = My principal is easy to talk to about school related problems; Teacher Voice = My principal consults me in the decision-making process; Creative Freedom = My principal gives me permission to be creative in my work; Constructive Feedback = My principal provides me with constructive feedback.



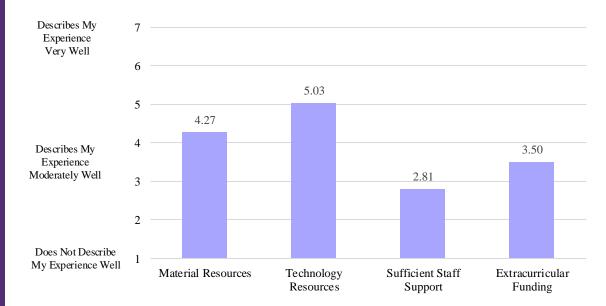
Teacher-Principal Relationships II

Note: Growth Opportunities = My principal offers valuable professional development opportunities to help me perform at my best; Teacher Recognition = My principal recognizes my contributions to the school; Disciplinary Support = My principal provides me with student disciplinary support; Principal Trust = My principal is someone I can trust, Personal Connection = My principal is someone who knows me well.

Teacher-Family Relationships



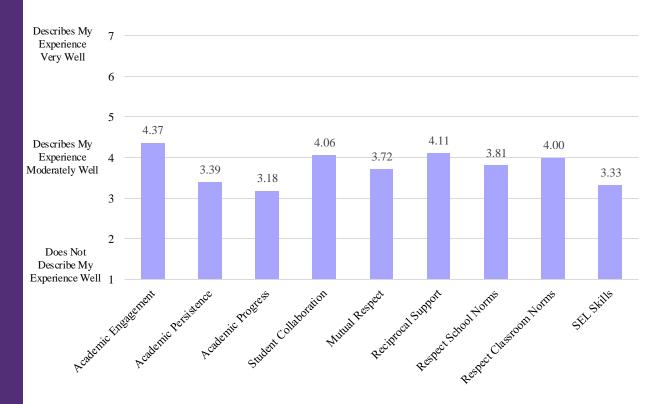
Note: Family Support = My students' families support the work I am doing with their child; Family Cooperation = My students' families cooperate with me to promote their child's success; Family Engagement = My students' families are engaged in their child's education.



School Resources

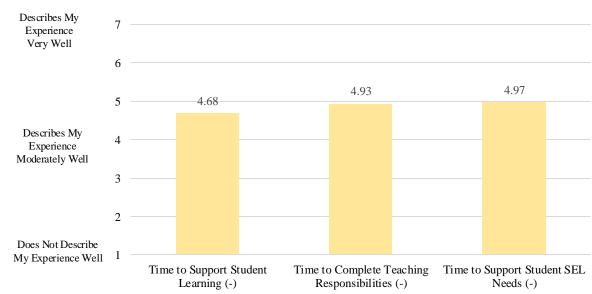
Note: Material Resources = My school has enough material resources (e.g., books, writing utensils) needed to teach effectively; Technology Resources = My school offers the necessary technology to support student learning; Sufficient Staff Support = My school has sufficient staff to meet all student learning needs; Extracurricular Funding = My school has sufficient funding for extracurricular projects.

Student Social, Emotional and Academic Behavior

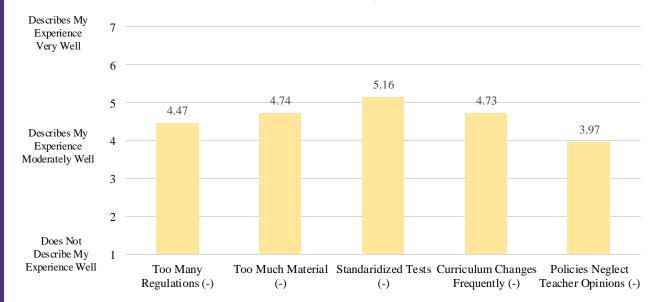


Note: Academic Engagement = My students are engaged during class; Academic Persistence = My students persist when they face challenges with their learning; Academic Progress = My students make academic progress over the school year; Student Collaboration = My students work well together; Mutual Respect = My students treat each other with respect; Reciprocal Support = My students make an effort to support one another; Respect School Norms = My students respect classroom norms; SEL Skills = My students have the social and emotional skills they need to succeed in my classroom.

Time Pressure



Note: Time to Support Student Learning = I do not have enough time to support each student's learning needs (-); Time to Complete Teaching Responsibilities = I do not have enough time in the school day to complete my teaching responsibilities (-); Time to Support Student SEL Needs = I do not have enough time to support each student's social and emotional needs (-).



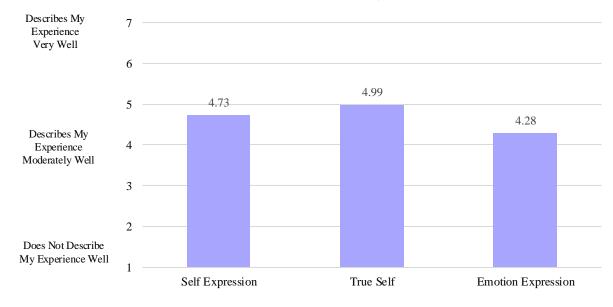
Educational Policy Demands

Note: Too Many Regulations = Educational policies contain too many rules and regulations directing how I teach (-); Too Much Material = Education policies require me to cover too much material in the school year (-); Standardized Tests = Education policies focus too heavily on standardized testing (-); Curriculum Changes Frequently = Education policies about the curriculum change too frequently (-); Policies Neglect Teacher Opinions = Education policies do not reflect my thoughts and opinions about education (-).

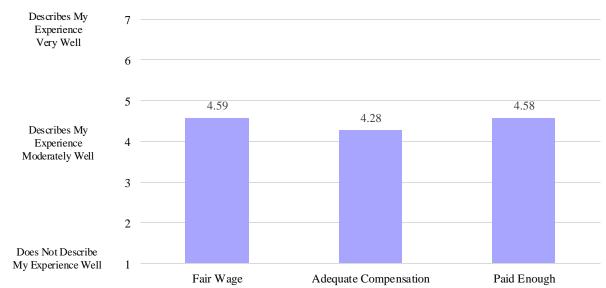


The yellow bars are a reminder that these particular questions are worded negatively, where the lower numbers are a more favorable response (i.e., a 1 on **Too Many Regulations** would indicate that "Educational policies contain too many rules and regulations directly how I teach." does *not* describe your experience well).

True Self/Authenticity at School



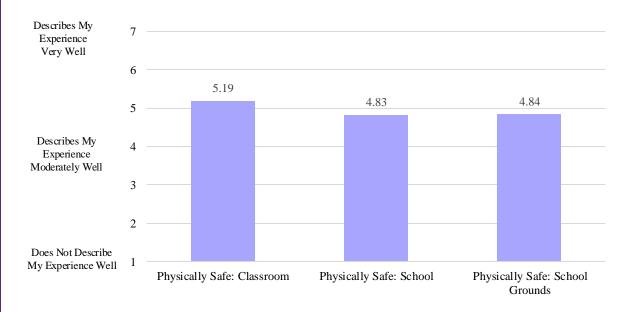
Note: Self Expression = I am comfortable sharing my opinions at school, even if they are different from those of others; True Self = I can be my true self at school; Emotion Expression = I can express my true emotions at school.



Salary Support

Note: Fair Wage = In my school, I am paid a fair wage; Compensation = In my school, I am adequately compensated; Pay Adequacy = In my school, I am paid enough to make ends meet.

Physical Safety



Note: Physically Safe: Classroom = I feel physically safe in my classroom; Physically Safe: School = I feel physically safe in my school; Physically Safe: School Grounds = I feel physically safe on my school grounds.

Emotional intelligence, well-being, connection, and kindness are skills that can be taught and developed over time—with practice. Below are a series of research-based resources to support daily efforts to develop these vital human capacities and demonstrate resilience inside and outside of the classroom.

Resources for Adults and Teachers

Well-Being, SEL, and Mindfulness Courses and Practices

- Free 10-hour course designed by the Yale Center for Emotional Intelligence to help school staff better manage their emotions and create supportive learning environments for students <u>https://www.coursera.org/learn/managing-emotions-uncertainty-stress</u>
- Greater Good in Action (GGIA) collects the best research-based practices for a happier, more meaningful life—and puts them at your fingertips in an online format that's easy to use: <u>https://ggia.berkeley.edu/</u>.
- Center for Investigating Healthy Minds UW-Madison has created a Well-Being Toolkit with practices they have found in their research to support both physical and mental health: <u>https://centerhealthyminds.org/your-well-being-toolkit</u>
- Free 8-Week online Mindfulness-Based Stress Reduction (MBSR) Course (with Certification): <u>http://palousemindfulness.com/index.html</u>. MBSR is the most studied and empirically supported secular mindfulness program in the West. Find schedules for in-person MBSR classes near you here: <u>https://www.umassmed.edu/cfm/mindfulness-based-programs/mbsr-courses/find-an-mbsr-program/</u>
- Paid 8-Week evidence-based Compassion Cultivation Training (CCT) Course: <u>http://ccare.stanford.edu/education/directory-of-certified-teachers/</u>. CCT is an 8-week in-person evidence-based training program designed to develop the qualities of compassion, empathy, and kindness for oneself and for others.
- Free Yale University course on the Science of Human Emotion: <u>https://www.youtube.com/watch?v=8KFFkNhID4Y&list=PLh9mgdi4rNewieO9Dsj-OhNBC9bF4FoRp</u>.
- Free Online Course on the Science of Meditation: https://www.coursera.org/learn/science-of-meditation
- The Mindful Awareness Research Center (MARC) at UCLA provides a variety of meditation types and lengths for an introduction to meditation that you can practice on your own: <u>http://marc.ucla.edu/mindful-meditations</u>

Well-Being, SEL, and Mindfulness Research and Information

- The Collaborative for Academic and Social-Emotional Learning (CASEL) is *the* clearinghouse for SEL research, policy and practice information: <u>http://www.casel.org/</u>
- The Science of Happiness: Learn science-based principles and practices for a happy, meaningful life: <u>https://www.edx.org/course/science-happiness-uc-berkeleyx-gg101x-4</u>
- America Mindfulness Research Association (AMRA) created this site for accessing latest research; sign up for their monthly research roundup email: <u>https://goamra.org/</u>.
- Gallup created this tool to help understand and address teacher well-being. <u>https://www.gallup.com/education/316709/how-to-improve-wellbeing-in-education.aspx</u>
- Kaiser-Permanente published the School employee well-being collaboration guide: How school employees, their unions, and school administrators at all levels can create a better place to learn, work and thrive. <u>https://thrivingschools.kaiserpermanente.org/wp-content/uploads/2021/06/Wellbeing-Guides-Part-1-and-2_School_Employee_June-2021.pdf</u>
- The National Association for Family, School, and Community Engagement (NAFSE) created a set of activities to support teacher identity development: <u>https://cdn.ymaws.com/nafsce.org/resource/resmgr/media/Sample_Activities_to_Support.pdf</u>
- Organizing Engagement created this framework of six types of involvement, often referred to as the School-Family-Community Partnership model. <u>https://organizingengagement.org/models/framework-of-six-types-of-involvement/</u>

Resources for Working Across Differences:

- Annie E. Casey Foundation created the Race, Equity, and Inclusion Action Guide, a step-by-step guide to help schools advance and embed equity and inclusion. <u>https://assets.aecf.org/m/resourcedoc/AECF_EmbracingEquity7Steps-2014.pdf</u>
- Greater Good Science Center created the Bridging Differences Playbook, a tool for helping individuals and teams to work across differences. <u>https://greatergood.berkeley.edu/images/uploads/Bridging_Differences_Playbook-Final.pdf</u>
- Understood created a guide to help those who think and learn differently: <u>https://www.understood.org/</u>
- MIT Teaching Systems Lab created Becoming a More Equitable Teacher: Resources and Articles, a free online course to help teachers understand, honor, and work across differences to help students thrive. <u>https://openlearninglibrary.mit.edu/courses/course-v1:MITx+0.503x+T2020/about</u>

Resources for Youth and the Classroom

Well-Being, SEL, and Mindfulness Practices and Programs

- The Educating All Learners resource library brings together resources and practical approaches from best-in-class providers across education: <u>https://educatingalllearners.org/resource-library/</u>
- ClassDojo is a free online-based SEL program that gamifies building a positive classroom climate and is used by many teachers and schools: <u>https://www.classdojo.com/</u>
- The Random Acts of Kindness Foundation (RAK) provides free, downloadable evidencebased SEL lesson plans: <u>https://www.randomactsofkindness.org/for-educators</u>. This curriculum features complete developmentally appropriate, standards-aligned lessons for grades K-12 with handouts that teach kids important social and emotional skills.
- The Mood Meter is a research-based SEL application to build greater emotional awareness and regulation in teachers and students: <u>http://ei.yale.edu/mood-meter-app/</u>
- MindYeti is a free online mindfulness platform and mobile application for kids made by the creators of Second Step (The Committee for Children): <u>https://www.mindyeti.com/sessions</u>
- Mindful Teachers offers free tips and activities for implementing developmentally appropriate mindfulness practices in the classroom: <u>http://www.mindfulteachers.org/</u>
- Mindfulness for Teens has free audio and video recordings of practices appropriate for introducing mindfulness-based exercises to teens: <u>http://mindfulnessforteens.com</u>
- Paid theory-based and research-supported mindfulness and emotion skills training program for teens: <u>http://learning2breathe.org/</u>

Well-Being, SEL, and Mindfulness Information and Assessment

- The WestEd compendium provides resources for district leaders to consider as they seek to implement evidence-based supports to ensure social and emotional learning (SEL) is fully integrated into the educational experience of their students, families, staff, and community. While targeted to the district level, many of these resources may be useful to school leaders as well. <u>https://selcenter.wested.org/wp-</u> content/uploads/sites/3/2020/09/SELCenter_CompendiumofResources.pdf
- Social-Emotional Learning (SEL) Resource Finder: <u>http://www.selresources.com/sel-resources/sel-apply-resources/</u>. The Resource Finder provides a variety of resources to help you learn about SEL, to apply teaching methods, and to assess your efforts.
- Heart-Mind Online is an online-based resource portal to social-emotional learning lessons, practices, and information: <u>http://heartmindonline.org/</u>.
- The Early Development Instrument (EDI) is a free questionnaire that measures five core areas of early child development that are known to be good long-term predictors of adult health, education and social outcomes: <u>http://earlylearning.ubc.ca/edi/</u>
- The Middle Years Development Instrument (MDI) is a free questionnaire that asks children in Grade 4 and Grade 7 how they think and feel about their experiences both inside and outside of school, which is strongly linked to well-being, health and academic achievement: <u>http://earlylearning.ubc.ca/mdi/</u>

• The Classroom Assessment Scoring System (CLASS) was developed to help teachers improve what matters most in the classroom—the interactions that drive learning and development: <u>http://teachstone.com/classroom-assessment-scoring-system-class/</u>

Resources for Adult and Youth Mental Health Support

Please see below a set of resources to support your mental health as well as the mental health of the youth you work with. The Yale Center for Emotional Intelligence does not officially endorse any particular resource or organization. In the case of an emergency, always call 911 immediately.

Mental Health Support for Adults

- <u>Get Immediate Help</u>: If you are in crisis, and need immediate support or intervention, call 1-800-273-8255, or chat live online at <u>http://www.crisischat.org/</u>. Trained crisis workers are available to talk 24 hours a day, 7 days a week. Calls are toll-free and confidential.
- <u>Find a Health Care Provider or Treatment</u>: For general information on mental health and to locate treatment services in your area, call the Mental Health Services Treatment Referral Helpline at 1-800-662-4357. SAMHSA also has a Behavioral Health Treatment Locator on its website that can be searched by location: <u>https://findtreatment.samhsa.gov/</u>
- <u>Accessible Mental Health Information</u>: The HelpLine is a mental health information and referral service run by the National Alliance on Mental Illness (NAOMI). It can be reached by calling 1-800-950-6264 Monday to Friday 10 am 6 pm EST or by emailing <u>info@nami.org</u>. Also, their website provides helpful information on navigating mental health concerns: <u>https://www.nami.org/Find-Support/</u>.

Mental Health Support for Youth

- <u>Get Immediate Help</u>: If you are in crisis, and need immediate support or intervention, call 1-800-273-8255, or chat live online at <u>http://www.crisischat.org/</u>. Trained crisis workers are available to talk 24 hours a day, 7 days a week. Calls are toll-free and confidential.
- <u>Teenage Health Resource Line</u>: Confidential psychological and physical health information for teens by calling 1-888-711-8336 (7 a.m. 11 pm. All Week).
- <u>Accessible Mental Health Information</u>: The HelpLine is a mental health information and referral service run by the National Alliance on Mental Illness (NAOMI). It can be reached by calling 1-800-950-6264 Monday to Friday 10 am 6 pm EST or by emailing <u>info@nami.org</u>. Also, their website provides helpful information on navigating mental health concerns: <u>https://www.nami.org/Find-Support/Teens-and-Young-Adults</u>.
- <u>Young Women's Health Information</u>: <u>www.youngwomenshealthsite.org</u>. Young Women's Health is a website for teen girls and young women featuring up-to-date mental and physical health information.
- <u>Young Men's Health Information</u>: <u>www.youngmenshealthsite.org</u>. Young Men's Health is a website for teen guys and young men featuring up-to-date mental and physical health information.

References

- Cipriano, C. & Brackett, M. (2020, April 7). *Teachers are anxious and overwhelmed. They need SEL now more than ever.* EdSurge. https://www.edsurge.com/news/2020-04-07-teachers-are-anxious-and-overwhelmed-they-need-sel-now-more-than-ever
- Collaborative for Academic, Social and Emotional Learning. (2022). *Fundamentals of SEL*. CASEL. Retrieved from: https://casel.org/fundamentals-of-sel/
- Collie, R. J., Shapka, J. D., & Perry, N. E. (2012). School climate and social–emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology*, 104(4), 1189.
- Diener, E. (2009). *Assessing well-being: The collected works of Ed Diener*. New York, NY: Springer.
- Diliberti, M. K., Schwartz, H. L., & Grant, D. M. (2021). Stress Topped the Reasons Why Public School Teachers Quit, Even Before COVID-19. RAND.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405-432.
- Ferren, M. (2021). Social and emotional supports for educators during and after the pandemic. Center for American Progress. https://doi.org/10.7249/RRA168-1
- Gallup. (2014). State of America's schools: A path to winning again in education. Washington, DC: Author. Retrieved from http://www.gallup.com/services/178709/state-america-schools-report.aspx?aysn
- Greenberg, M. T., Brown, J. L., & Abenavoli, R. M. (2016). *Teacher stress and health: Effects* on teachers, students, and schools. State College, PA: Edna Bennett Pierce Prevention Research Center, Pennsylvania State University.
- Hamilton, L. S., Kaufman, J. H., & Diliberti, M. (2020). Teaching and Leading through a Pandemic: Key Findings from the American Educator Panels Spring 2020 COVID-19 Surveys. Data Note: Insights from the American Educator Panels. Research Report. RR-A168-2. RAND Corporation.
- Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, *61*, 121–140. doi: 10.2307/2787065
- Lyubomirsky, S. (2008). *The how of happiness: A scientific approach to getting the life you want.* New York, NY: Penguin.
- McIntyre, T., McIntyre, S., & Francis, D. (2017). Educator Stress. *New York, NY: Springer*, *10*, 978-3.

- Milkie, M. A., & Warner, C. H. (2011). Classroom learning environments and the mental health of first grade children. *Journal of Health and Social Behavior*, 52, 4-22. doi: 10.1177/0022146510394952
- National Commission on Teaching and America's Future [Carroll, T. G.]. (2007). *The High Cost of Teacher Turnover*. National Commission on Teaching and America's Future. Retrieved from: <u>https://nieer.org/wp-</u> <u>content/uploads/2015/06/NCTAFCostofTeacherTurnoverpolicybrief.pdf</u>
- Oberle, E., & Schonert-Reichl, K. A. (2016). Stress contagion in the classroom? The link between classroom teacher burnout and morning cortisol in elementary school students. *Social Science & Medicine*, 159, 30-37. doi: 10.1016/j.socscimed.2016.04.031
- Roorda, D. L., Koomen, H. M., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher–student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research*, 81, 493-529. doi:10.3102/0034654311421793
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55, 68-78. doi: 10.1037110003-066X.55.1.68
- Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52, 141-166. doi: 10.1146/annurev.psych.52.1.141
- Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies*, 9, 13-39. doi: 10.1007/s10902-006-9019-0
- Steiner, E. D., & Woo, A. (2021). Job-Related Stress Threatens the Teacher Supply: Key Finding from the 2021 State of the US Teacher Survey. Technical Appendixes. Research Report. RR-A1108-1. RAND Corporation.