



## OVERVIEW OF THE EVIDENCE SUPPORTING CHARACTERSTRONG

### **General Discussion of Definitions of Evidence-Based**

There are multiple definitions of evidence-based and no single definition has emerged as superior to the rest. One definition narrowly defines evidence-based as only programs that have been investigated using large-scale rigorous designs, such as randomized controlled trial designs. Only when programs have been evaluated using such designs can a given program rise to the level of being recognized as evidence-based. This is a limited definition of evidence-based as only those programs that are fortunate enough to secure substantial grant resources to fund such a large-scale evaluation are able to reach designation as evidence-based. Many scholars and educators have raised concerns about this narrow definition considering the average large-scale randomized trial costs roughly 2-3.5 million dollars and these grants are finite and highly competitive to obtain, as less than 5% of all applications receive funding (see Institute of Educational Science Goal 3 efficacy).

Another definition defines programs as evidence-based when they are intentionally designed to integrate common elements of effective practice that research has causally linked to improved outcomes of interest (see Sutherland et al., 2018). Although the program as a whole has been unable to secure the resources to conduct a large-scale randomized trial, developers have aligned the program content and practices with defensible evidence regarding what previous research has demonstrated works to improve specific outcomes of interest. In this case, a careful analysis of the program reveals that there is strong evidentiary support for the specific practices and content included in it. In this way the program, based on the inclusion of specific common elements of effective practice with strong evidentiary support, is considered evidence-based. Many programs claim to be evidence-based in this way but developers base the practices and content included in their program on correlational—not causal—evidence. This is problematic because correlational evidence implies an association but does not demonstrate a causal relationship. For example, while grit has been shown to be correlated with positive results, there is no causal evidence suggesting that teaching students to have more grit is linked to improved student outcomes. CharacterStrong was developed based on common elements of effective practice for which there is causal evidence—not just correlational evidence—that demonstrates the link between included practices and student outcomes.

### **CharacterStrong's Evidentiary Support**

*CharacterStrong* meets the latter definition of evidence-based, as the practices and content infused throughout it were carefully selected as common elements of effective practice that research has causally linked to improved social, emotional, and behavioral outcomes at schoolwide and individual student levels. *CharacterStrong* was built upon the premise that the delivery of evidence-based practices depends on evidence-based implementation. Considering this, CharacterStrong possesses two levels of evidentiary support: (1) Inclusion of evidence-based implementation strategies and (2) Inclusion of evidence-based practices. Below is a dissection of the evidence-based implementation strategies and evidence-based practices that combine together to create CharacterStrong and the evidence supporting each of these areas.



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### Evidence-Based Implementation Strategies

Implementation Strategy	Description	Research Evidence
<b>Principal Leadership</b>	Meetings with and assessment of principal leadership and their efforts to exhibit strategic implementation leadership behaviors that drive successful implementation	<p>Jacob, R., R. Goddard, M. Kim, R. Miller, and Y. Goddard (2015). Exploring the Causal Impact of the McREL Balanced Leadership Program on Leadership, Principal Efficacy, Instructional Climate, Educator Turnover, and Student Achievement. <i>Educational Evaluation and Policy Analysis</i>, 37 (3), 314–332.</p> <p>Leithwood, K. and Louis, K.S. (2011), <i>Linking Leadership to Student Learning</i>, Jossey-Bass, San Francisco, CA.</p>
<b>Leadership Team</b>	Support to establish a leadership team that owns responsibility for CharacterStrong implementation and engages in a continuous improvement process to incrementally advance the delivery of CharacterStrong practices with fidelity.	<p>Gravois, T. A., &amp; Rosenfield, S. A. (2006). Impact of instructional consultation teams on the disproportionate referral and placement of minority students in special education. <i>Remedial and Special Education</i>, 27(1), 42–52.</p> <p>Newton, J. S., Horner, R. H., Algozzine, B., Todd, A. W., &amp; Algozzine, K. (2012). A randomized wait-list controlled analysis of the implementation integrity of team-initiated problem solving processes. <i>Journal of School Psychology</i>, 50, 421–441</p>



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<p><b>Staff Buy-In</b></p>	<p>In-person presentations and identification of key opinion leaders to disseminate information about CharacterStrong as a key factor that supports the adoption and delivery of CharacterStrong practices.</p>	<p>Atkins, M., Frazier, S., Leathers, S., Graczyk, P., Talbott, E., Jakobsons, L.,...Gibbons, R. (2008). Teacher key opinion leaders and mental health consultation in low-income urban schools. <i>Journal of Consulting and Clinical Psychology</i>, 76, 905–908.</p> <p>Cook, C., Lyon, A. R., Kubergovic, D., Browning-Wright, D., &amp; Zhang, Y. (2015). A Supportive Beliefs Intervention to facilitate the implementation of evidence-based practices within a multi-tiered system of supports. <i>School Mental Health</i>, 7, 49–60.</p>
<p><b>Fidelity Rubric to Facilitate Data-Driven Action Planning</b></p>	<p>CharacterStrong Implementation Inventory (CSI) was developed as a way of gathering data on the fidelity with which constituting CharacterStrong are delivered with fidelity. These data provide feedback to schools and are used by teams to spur action planning to incrementally improve the implementation of CharacterStrong over time.</p>	<p>Brownson, R.C., Colditz, G.A., Proctor, E.K., (2018). <i>Dissemination and implementation research in health translating science to practice</i>. 2nd ed. New York: Oxford University Press.</p> <p>Durlak, J. A., &amp; Dupre, E. . P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. <i>American Journal of Community Psychology</i>, 41, 327– 350.</p>



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### Evidence-Based Practices

Practices	Description	Research Evidence
<b>Adult Relationship Practices</b>	This is a core component of CS that involves practices that adults deliver to promote positive, predictable interactions with students, as well as model the types of behaviors that educators wish to see in their students take ownership over and exhibit.	Kincade, L. & Cook, C.R. (in press), Meta-Analysis and Common Practice Elements of Universal Approaches to Improving Student Teacher Relationships. Review of Educational Research.
4 at the door + 1 more	This practice involves positively greeting students at the door as they transition into the classroom	<p>Allday, R. A., Bush, M., Ticknor, N., &amp; Walker, L. (2011). Using teacher greetings to increase speed to task engagement. <i>Journal of Applied Behavior Analysis</i>, 44, 393–396.</p> <p>Allday, R. A., &amp; Pakurar, K. (2007). Effects of teacher greetings on student on-task behavior. <i>Journal of Applied Behavior Analysis</i>, 40, 317–320.</p>
Establish, Maintain, Restore	This is a collection of practices that involves teachers intentionally building, maintaining, and restoring relationships with students to ensure that all students feel a sense of belonging and connection to school.	<p>Cook, C. R., Coco, S., Zhang, Y., Fiat, A., Duong, M., Renshaw, T., Long, A.C., &amp; Frank, S. (2018). Cultivating positive teacher-student relationships: Evaluation of the establish, maintain, and restore (EMR) method. <i>School Psychology Review</i>, 47, 226-243.</p> <p>Duong, M. T., Pullmann, M. D., Buntain-Ricklefs, J., Lee, K., Benjamin, K. S., Nguyen, L., &amp; Cook, C. R. (2019). Brief teacher training improves student behavior and student-teacher relationships in middle school. <i>School Psychology Quarterly</i>.</p>
Proximity, Redirection, Ongoing Monitoring, Teaching Interaction	This practice involves responding to student behavior progressively and with empathy as a way of simultaneously preserving relationships with students while correcting perceived problem behavior.	<p>Cook, C.R., Duong, M., McIntosh, K., *Fiat, A., Larson, M., &amp; McGinnis, J. (2018). Addressing discipline disparities for Black Male students: Linking malleable root causes to feasible and effective Practices. <i>School Psychology Review</i>, 47-2, 135-152.</p> <p>Okonofua, J. A., Paunesku, D., &amp; Walton, G. M. (2016). Brief intervention to encourage empathic discipline cuts suspension rates in half among adolescents. <i>Proceedings of the National Academy of Sciences, USA</i>, 113, 5221–5226.</p>



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Temperature Check	This practice involves ongoing collection of information from students to provide students with opportunities to have voice and input and allow teachers to understand how students are doing to be more responsive to their needs.	<p>Bell, L. M., &amp; Aldridge, J. M. (in press). Investigating the use of student perception data for teacher reflection and classroom improvement. <i>Learning Environments Research</i></p> <p>Gehlbach, H., Brinkworth, M. E., Hsu, L., King, A., McIntyre, J., &amp; Rogers, T. (2016). Creating birds of similar feathers: Leveraging similarity to improve teacher-student relationships and academic achievement. <i>Journal of Educational Psychology</i></p>
<b>Advisory Curriculum</b>	This is a core component of CS that involves practices that adults deliver regarding curriculum and instruction for all students to promote acquisition of social, emotional, and character competencies.	<p>Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., &amp; Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. <i>Child Development</i>, 82, 405–432.</p> <p>Taylor, R. D., Oberle, E., Durlak, J. A., &amp; Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A metaanalysis of follow-up effects. <i>Child Development</i>, 88(4), 1156-1171.</p>
Direct, explicit instruction of social-emotional skills	The advisory curriculum uses an evidence-based explicit, direction instructional process that adheres to a tell (describe)-show (model)-do (independent performance)-feedback (reflection and debrief on application of knowledge / skill).	<p>Coughlin, C. (2014). Outcomes of Engelmann's Direct Instruction: Research Syntheses. pp. 26-53 in Stockard, J. (ed.) <i>The Science and Success of Engelmann's Direct Instruction</i>. Eugene, OR: NIFDI Press.</p> <p>Hattie, John A.C. (2009). <i>Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement</i>. London and New York: Routledge; pp. 206-7.</p>



## OVERVIEW OF THE EVIDENCE SUPPORTING CHARACTERSTRONG

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Practices	Description	Research Evidence
<p>Generalization and experiential learning to facilitate application of skills beyond lessons</p>	<p>One of the hallmarks of the CharacterStrong advisory lessons is the inclusion of CharacterDares, which are intentionally designed as strategies that promote the generalization of learning beyond the lessons and provide experiential learning opportunities that enable students to apply and then later reflect on why and how particular knowledge, skills, and dispositions are meaningful and relevant to their lives.</p>	<p>McIntosh, K., &amp; MacKay, L. D. (2008). Enhancing generalization of social skills: Making social skills curricula effective after the lesson. <i>Beyond Behavior</i>, 18, 17–24.</p> <p>Burch GF, Batchelor JH, Heller NA, Shaw J, Kendall W, Turner B (2014). Experiential learning—what do we know? A meta-analysis of 40 years of research, <i>Developments in Simulation and Experiential Learning</i> 41, 279.</p>
<p>Knowledge, skills, and dispositions</p>	<p>The content of the advisory curriculum includes the knowledge, skills, and dispositions that are taught. The content was incorporated into advisory lessons based on the evidence supporting the connection between particular knowledge, skills, and dispositions and positive social, emotional, behavioral, and academic outcomes. The content includes the following: interpersonal skills to increase prosocial behavior, emotion management and regulation, mindfulness-based strategies, growth mindset, character virtues, values, and traits, and goal setting to drive future orientation.</p>	<p>Brackett, M. A., &amp; Katulak, N. A. (2006). Emotional intelligence in the classroom: Skill-based training for teachers and students. In J. Ciarrochi &amp; J. D. Mayer (Eds.), <i>Applying emotional intelligence: A practitioner’s guide</i> (pp. 1–27). New York: Psychology Press.</p> <p>Cook, C. R., Gresham, F. M., Kern, L., Barreras, R. B., Thornton, S., &amp; Crews, S.D. (2008). Social skills training for secondary students: A review and analysis of the meta-analytic literature. <i>Journal of Emotional and Behavioral Disorders</i>, 16, 131–144.</p> <p>Diggs, C. R., &amp; Akos, P. (2016). The promise of character education in middle school: A metaanalysis, <i>Middle Grades Review</i>, 2(2), 1–19.</p> <p>Duckworth, A. L., Kirby, T., Gollwitzer, A., &amp; Oettingen, G. (2013). From fantasy to action: Mental contrasting with implementation intentions (MCII) improves academic performance in children. <i>Social Psychological and Personality Science</i>, 4, 745–753.</p> <p>Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C., Tipton, E., Schneider, B., Hulleman, C. S., Hinojosa, C. P., Paunesku, D., Romero, C., Flint, K., Roberts, A., Trott, J., Iachan, R., Buontempo, J., Yang, S. M., Carvalho, C. M., Hahn, P. R., Gopalan, M., Mhatre, P., Ferguson, R., Duckworth, A. L., and Dweck, C. S. (2019). A national experiment reveals where a growth mindset improves achievement. <i>Nature</i>.</p>



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Dosage of lessons	CharacterStrong lessons were designed to ensure that students receive exposure to the amount of instruction and support that research has demonstrated represent the optimal dosage to produce an effect. This is called dose-response relationship. Over the course of the year, students receive over 600 minutes of instructional support to acquire, apply, and reflect on social, emotional, and character knowledge, skills, and dispositions.	<p>Gresham, F. M., Cook, C. R., Crews, S. D., &amp; Kern, L. (2004). Social skills training for children and youth with emotional and behavioral disorders: Validity considerations and future directions. <i>Behavioral Disorders, 30</i>, 32–46.</p> <p>Low, S., Smolkowski, K., &amp; Cook, C. (2016). What constitutes high-quality implementation of SEL programs? A latent class analysis of Second Step® implementation. <i>Prevention Science, 17</i>(8), 981–991.</p>
<b>Leadership Curriculum</b>	This is a core component of CharacterStrong that is delivered with a sub-group of students in the building who are socially connected to the various social networks in the building and serve to enact a servant-leadership model that aims to improve peer culture and climate.	Conway, J. M., Amel, E. L., & Gerwien, D. P. (2009). Teaching and learning in the social context: A meta-analysis of service learning's effects on academic, personal, social, and citizenship outcomes. <i>Teaching of Psychology, 36</i> , 233–245.
Generalization and application of servant leadership	The Leadership Curriculum has its own set of CharacterDares that are designed to promote the generalization of servant leadership principles and practices to promote a positive, welcoming climate for all students.	<p>McIntosh, K., &amp; MacKay, L. D. (2008). Enhancing generalization of social skills: Making social skills curricula effective after the lesson. <i>Beyond Behavior, 18</i>, 17–24.</p> <p>Burch GF, Batchelor JH, Heller NA, Shaw J, Kendall W, Turner B (2014). Experiential learning—what do we know? A meta-analysis of 40 years of research, <i>Developments in Simulation and Experiential Learning 41</i>, 279.</p>



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Leadership knowledge, skills, and dispositions	The Leadership Curriculum has a range of learning activities that are designed to promote servant leadership knowledge, skills, and dispositions, which include values clarification, practicing gratitude, cultivating sense of purpose and future disposition, and prosocial leadership behaviors.	<p>Davis, D. E., Choe, E., Meyers, J., Wade, N., Varjas, K., Gifford, A.,... Worthington, E. L., Jr. (2016). Thankful for the little things: A meta-analysis of gratitude interventions. <i>Journal of Counseling Psychology</i>, 63, 20–31.</p> <p>Liden, R.C., Panaccio, A., Meuser, J.D., Hu, J., &amp; Wayne, S.J. (2016). Servant leadership: Antecedents, processes, and outcomes. In Day, D.V. (Ed.) <i>The Oxford handbook of leadership and organizations</i>. Oxford, England: Oxford University Press.</p> <p>Mosconi, J., and Emmett, J. (2003). Effects of a values clarification curriculum on high school student's definitions of success.</p> <p>Yeager, D. S., &amp; Bundick, M. J. (2009). The role of purposeful work goals in promoting meaning in life and in schoolwork during adolescence. <i>Journal of Adolescent Research</i>, 24, 423–452.</p> <p>Yeager, D. S., Bundick, M. J., &amp; Johnson, R. (2012). The role of future work goal motives in adolescent identity development: A longitudinal mixed-methods investigation. <i>Contemporary Educational Psychology</i>, 37, 206–217.</p>