RESEARCH SUMMARY

Second Step® Elementary Digital Program

Helps kids develop:

- Executive-function skills
- Healthy peer and adult relationships
- Growth mindset and goal-setting skills
- Empathy
- Problem-solving skills

By teaching kids to:

- Build their attention, working memory, and impulse control
- Approach problems with a growth mindset
- Identify and manage their emotions
- Take others' perspectives
- Be kind
- Engage in social problem-solving

Brain Builders: Executive Function

- Elementary students' executive-function skills—the ability to focus attention, remember and use information, and control impulses—are vital for both their academic achievement and the development of their social-emotional competencies.[1,2] Executive-function skills encompass various interrelated cognitive processes that enable students to ignore distractions,[3] inhibit impulses,[4] shift between various tasks,[5] and solve complex problems.[5] Students with strong executive-function skills are less likely to engage in impulsive behavior[6] and more likely to demonstrate social-emotional skills like empathy,[7,6] emotion management,[6] and cooperative behaviors among peers.[4]

- The Second Step Elementary digital program supports the development of students' executive-function skills with short activities, called Brain Builders, that work to build students' attention, working memory, and impulse control. Embedded in Second Step Elementary digital program lessons in all grades, these fun, interactive activities were designed to directly challenge and provide practice in these important skills.

Unit 1: Growth Mindset & Goal-Setting

- Students who have a growth mindset—the belief they can improve with practice and effort—have higher course completion rates, handle school transitions better, and are less likely to show aggression than kids who believe that their abilities and personalities are fixed.[8,9] Individuals with a growth mindset tend to set goals focused on individual improvement, as opposed to comparative performance.[10] This goal-setting approach is associated with increases in self-efficacy,[11,12] positive personal relationships,[10,13] increased empathy,[10] and prosocial behavior (behavior intended to help others).[12,14,15]

- The Second Step Elementary digital program **supports the development of a growth mindset** by teaching students growth mindset strategies and providing opportunities to practice and apply growth mindset through activities, several of which are organized around goal-setting and achievement.

Unit 2: Emotion Management

- Teaching students to **recognize and identify emotions** helps them better manage their own emotions[16] and identify how others are feeling.[17] Teaching emotion-management skills can lead to improved attention, motivation, and academic performance.[18, 19] Strong emotion-management skills are also associated with other social-emotional competencies like goal-setting[20] and empathy.[21]

- In the Second Step® Elementary digital program, students learn how to use varied behavioral and contextual clues to **identify and label emotions in themselves and others**. Students also **learn and practice strategies for calming strong feelings**.

Unit 3: Empathy & Kindness

- **Empathy**, the ability to understand and feel how someone else is feeling, is linked to a diverse set of prosocial behaviors, including helping, comforting, and cooperating with others.[22] Empathy can also help students regulate aggression and other antisocial behaviors.[23]

- The Second Step Elementary digital program teaches students the importance of empathy and provides activities in which **students use contextual clues and perspective-taking strategies to have empathy for others and build positive relationships**.

Unit 4: Problem-Solving

- Being able to engage effectively in **social problem-solving** helps children choose prosocial solutions to their problems.[6] Students who know how to respond to common problem situations help create a safer, more respectful school climate where more students can learn and succeed.[24]

- The skills taught in the Second Step Elementary digital program are designed to **scaffold students' ability to handle interpersonal conflicts effectively**. This unit teaches students a step-by-step framework that builds on the emotion-management and perspective-taking skills students developed in prior units. Based on research on effective patterns of thinking,[25] students are taught to help themselves feel calm before following the STEP problem-solving process: **S**ay the problem, **T**hink of solutions, **E**xplore the outcomes, and **P**ick a solution. These steps lead children through constructive, prosocial thought processes to help them manage problems, weigh outcomes, and consider all parties' wants and needs to effectively handle interpersonal conflicts.

References

1. Eisenberg, N., Fabes, R. A., Guthrie, I. K., & Reiser, M. (2000). Dispositional emotionality and regulation: their role in predicting quality of social functioning. *Journal of personality and social psychology, 78*(1), 136–157. https://doi.org/10.1037/I0022-3514.78.1.136

2. Shaw, D. S., Gilliom, M., Ingoldsby, E. M., & Nagin, D. S. (2003). Trajectories leading to school-age conduct problems. *Developmental psychology, 39*(2), 189–200. https://doi.org/10.1037/I0012-1649.39.2.189

3. Klenberg, L., Korkman, M., & Lahti-Nuuttila, P. (2001). Differential development of attention and executive functions in 3- to 12-year-old Finnish children. *Developmental Neuropsychology, 20*(1), 407– 428. https://doi.org/10.1207/S15326942DN2001_6

4. Ciairano, S., Visu-Petra, L., & Settanni, M. (2007). Executive inhibitory control and cooperative behavior during early school years: A follow-up study. *Journal of Abnormal Child Psychology, 35*(3), 335–345. https://doi.org/10.1007/s10802-006-9094-z

5. Zelazo, P. D., Müller, U., Frye, D., Marcovitch, S., Argitis, G., Boseovski, J., Chiang, J. K., Hongwanishkul, D., Schuster, B. V., & Sutherland, A. (2003). The development of executive function in early childhood. *Monographs of the Society for Research in Child Development, 68*(3), vii–137. https://doi.org/10.1111/j.0037-976x.2003.00260.x

6. Riggs, N. R., Jahromi, L. B., Razza, R. P., Dillworth-Bart, J. E., & Mueller, U. (2006). Executive function and the promotion of social–emotional competence. *Journal of Applied Developmental Psychology, 27*(4), 300–309. https://doi.org/10.1016/j.appdev.2006.04.002

7. Decety, J., & Svetlova, M. (2012). Putting together phylogenetic and ontogenetic perspectives on empathy. *Developmental Cognitive Neuroscience, 2*(1), 1–24. https://doi.org/10.1016/j.dcn.2011.05.003

8. Yeager, D. S., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational Psychologist*, *47*(4), 302–314. https://doi.org/10.1080/00461520.2012.722805

9. Yeager, D. S., Miu, A. S., Powers, J., & Dweck, C. S. (2013). Implicit theories of personality and attributions of hostile intent: A meta-analysis, an experiment, and a longitudinal intervention. *Child Development*, *84*(5), 1651–67. https://doi.org/10.1111/cdev.12062

10. Poortvliet, P., & Darnon, C. (2010). Toward a more social understanding of achievement goals: The interpersonal effects of mastery and performance goals. *Current Directions in Psychological Science*, *19*(5), 324–328. https://doi.org/10.1177/0963721410383246

11. Bong, M. (2009). Age-related differences in achievement goal differentiation. *Journal of Educational Psychology*, *101*(4), 879–896. https://doi.org/10.1037/a0015945

12. Hulleman, C. S., Schrager, S. M., Bodmann, S. M. & Harackiewicz, J.M. (2010). A meta-analytic review of achievement goal measures: Different labels for the same constructs or different constructs with similar labels? *Psychological Bulletin*, *136*, 422–449. https://doi.org/10.1037/a0018947

13. Rodkin, P. C., Ryan, A. M., Jamison, R., & Wilson, T. (2013). Social goals, social behavior, and social status in middle childhood. *Developmental Psychology*, *49*(6), 1139–1150. https://doi.org/10.1037/a0029389

14. Ohtani, K., & Okada, R. (2018). Relationship between classroom social goal structures, gender, and social outcomes in Japanese elementary school children. *School Psychology International*, *39*(5), 435–453. https://doi.org/10.1177/0143034318788120

15. Yang, F., Frye, D., & Dubow, Eric F. (2018). When preferences are in the way: Children's predictions of goal-directed behaviors. *Developmental Psychology*, *54*(6), 1051–1062. https://doi.org/10.1037/dev0000490

16. Lipsett, A.-B. (2011). Supporting emotional regulation in elementary school: Brain-based strategies and classroom interventions to promote self-regulation. *LEARNing Landscapes, 5*(1), 157–175. https://doi.org/10.36510/learnland.v5i1.539

17. Grinspan, D., Hemphill, A., & Nowicki, S., Jr. (2003). Improving the ability of elementary school-age children to identify emotion in facial expression. *The Journal of Genetic Psychology: Research and Theory on Human Development, 164*(1), 88–100. https://doi.org/10.1080/00221320309597505

18. Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist*, *57*(2), 111–127. https://doi.org/10.1037/0003-066X.57.2.111

19. Kwon, K., Hanrahan, A. R., & Kupzyk, K. A. (2017). Emotional expressivity and emotion regulation: Relation to academic functioning among elementary school children. *School Psychology Quarterly*, *32*(1), 75–88. https://doi.org/10.1037/spq0000166

20. Liff, S. B. (2003). Social and emotional intelligence: Applications for developmental education. *Journal of Developmental Education*, *26*(3), 28–34.

21. Bengtsson, H., & Arvidsson, Å. (2011). The impact of developing social perspective-taking skills on emotionality in middle and late childhood. *Social Development*, *20*(2), 353–375. https://doi.org/10.1111/j.1467-9507.2010.00587.x

22. Imuta, K. Henry, J. D., Slaughter, V., Selcuk, B., & Ruffman, T. (2016). Theory of mind and prosocial behavior in childhood: A meta-analytic review. *Developmental Psychology*, *52*(8), 1192–1205. https://doi.org/10.1037/dev0000140

23. Feshbach, N. D., & Feshbach, S. (2009). Empathy and education. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 85–97). MIT Press. https://doi.org/10.7551/ mitpress/9780262012973.003.0008

24. Orpinas, P., & Horne, A. M. (2006). *Bullying prevention: Creating a positive school climate and developing social competence.* American Psychological Association.

25. Naglieri, J. A., & Rojahn, J. (2004). Construct validity of the PASS theory and CAS: Correlations with achievement. *Journal of Educational Psychology, 96*(1), 174–181. https://doi.org/10.1037/0022-0663.96.1.174