



**Supporting Mindfulness for the Next Generation**

Dorothy A. Sisk

Volume 9, numéro 1-2, août-décembre 2021

URI : <https://id.erudit.org/iderudit/1091473ar>

DOI : <https://doi.org/10.7202/1091473ar>

[Aller au sommaire du numéro](#)

Éditeur(s)

International Centre for Innovation in Education/Lost Prizes International

ISSN

2291-7179 (imprimé)

2563-6871 (numérique)

[Découvrir la revue](#)

Citer cet article

Sisk, D. (2021). Supporting Mindfulness for the Next Generation. *International Journal for Talent Development and Creativity*, 9(1-2), 99–106.

<https://doi.org/10.7202/1091473ar>

# Supporting Mindfulness for the Next Generation

**Dorothy A. Sisk**

The Gifted Child Center; Lamar University, Beaumont, Texas, U.S.A.

---

In a time of social and political unrest and challenge, teaching mindfulness skills to the next generation is a wise investment that will bring positive rewards to all of our futures as we become better able to meet life's challenges. Arnett (2011) said there is a growing awareness of the unique challenges faced by young people in “emerging adulthood.” Arnett coined this term for young adults from ages 18 to 29. In this stage, there is a strong drive for identity development and a need to address possible life directions and careers. With so many choices this can be overwhelming, particularly for gifted young adults as they ponder what seems to be endless career choices. The emerging adult stage is a time of exploration and change along with considerable stress.

The *millennials* born between 1982 and 2005 experienced the 9/11 terrorist attacks, the pandemic of 2020, increasing systemic racism and incidents of police brutality. In addition, the parents of these young people pressure them to achieve, and they feel an obligation to succeed, but lack the inner resources to manage the competing pressures they face and to make wise choices (Rogers & Mayan, 2019). The *iGeneration* or *Generation Z*, is the first generation to grow up immersed in smart phones and tablets, and as a group they are multitaskers, skeptical, with limited attention spans, and greater levels of anxiety and depression than the *millennials* (Twenge, 2017).

## Search for meaning and purpose

Maysless and Kerin (2014) said there is an innate human drive to find purpose and meaning that is intensified in the emerging adulthood stage due to socio-cultural changes. Greater numbers of young people are going to colleges and universities, and these students live with demands from the universities and from their own internalized expectations, and they need tools to help them cope. Anxiety and stress are the two most common reasons college students seek help from counseling centers (LeViness, Bershada, & Gorman, 2017). Mindfulness practices have been shown to decrease feelings of stress and anxiety, and this article will examine successful programs.

Arnett (2004) listed the self-knowledge emerging adults need to help them navigate through this stage. Questions that the young people want and need to address include: What do I value? What will make me happy? What sort of work will be meaningful for me? What sort of person do I want to become? What sort of person will make a good partner for me? All of these questions take place in the students' culture which impacts their decision making and behavior.

## Cultural context

Cultural differences affect the way young adults express themselves; for example, in most Asian cultures, emerging adults identify the importance of responsibility in taking care of their family (parents) as a characteristic of adulthood; whereas, young adults from the United States and Europe identify financial independence (Rogers & Maytan, 2010). Emerging adulthood also varies within a country, particularly across socioeconomic levels and racial and ethnic groups. African American young adults who have experienced oppression and racism need to overcome past and present negative assumptions held by others about young Black adults. In addition, emerging adults from immigrant families often experience conflicts between their family's culture and that of the United States, and the youth feel pulled between conflicting cultural values. The challenge for emerging adults is how to integrate and balance these differing values.

## Why mindfulness helps emerging adults

The search for meaning is one of the major developmental tasks of emerging adulthood. Mayseless and Keren (2013) said socio-cultural change has pushed the behavioral markers of adulthood to later in life, and enhanced the importance of psychological markers, such as assuming responsibility for behavior. During the emerging adult stage there is an emphasis on creating a life that feels purposeful and meaningful. Mindfulness practices help young adults in their search for meaning and growth in self-understanding. Paying attention to moment-to-moment awareness with mindfulness practices helps young adults clarify authentic wishes, needs and values. This self-understanding is essential in seeking a sense of purpose.

Some emerging gifted adults do quite well in the rapid pace of change and the wide array of opportunities, while others find this uncertainty leads to feelings of stress, worry and anxiety. Eagan (2017) reported the results of an annual survey that showed first year students in colleges and universities are frequently depressed and over one third reported frequently feeling anxious. Twenge (2017) said the rising generation of college students in the IGen or GenZ have increasingly high rates of depression, anxiety and loneliness. Given the characteristics of this age group, mindfulness and meditation are especially suited for promoting growth and change. Mindfulness based skills help students to quiet their minds and decrease their distress. Mindfulness practices teach the skills of present moment awareness, and with self-knowledge and peace of mind, emerging adults are able to deal with the challenges and choices.

## Mindfulness programs working with emerging adults

Feldman, Greeson and Senville (2010) focused on the negativity that emerging adults often report. Their participants, (190 undergraduates) in an all-women's college were divided into three groups to receive three different interventions: mindful breathing, loving kindness meditation and progressive muscle relaxation. The objective was to see if mindfulness training would help the students view their thoughts more objectively. After each intervention, the students completed measures of decentering (viewing their thoughts with objectivity). The students reported how often they had repetitive thoughts and how often they reacted negatively to these thoughts. Students in the mindful breathing group reported increased decentering compared to those in the loving kindness meditation and the progressive muscle relaxation.

Caldwell, Harrison, Adams, Quin and Greeson (2010) studied the effect of movement-based courses and their effect on self-regulation, self-efficacy, mood, stress and sleep quality in an effort to develop mindfulness in undergraduate college students. The participants were 166 undergraduate students enrolled in a 15-week program. At the beginning, middle and end of the semester, the students completed measures of mindfulness, self-regulation, self-efficacy, mood, perceived stress and sleep quality. The program included Pilates, and Taiji Quan. Results showed total mindfulness scores and mindfulness subscales increased overall. Greater changes in mindfulness were directly related to better sleep quality at the end of the semester. The researchers concluded that movement-based programs can increase mindfulness and increased mindfulness accounts for changes in mood and perceived stress.

Jain et al. (2007) examined the calming effects of mindfulness on emerging adults by comparing mindfulness meditation and relaxation training in college students. Eighty-three students who reported distress were divided into a control group, a relaxation group, and a mindfulness group. Jain and his researchers measured psychological distress, positive states of mind, distractive and ruminative thoughts and behaviors, and spiritual experience. The study found that both interactions of mindfulness meditation and relaxation training reduced distress and improved positive mood status. They noted that mindfulness training seemed to have a specific positive effect on reducing ruminating and distracting behaviors.

Doctoral students were studied by Barry et al. (2018) noting the effects of mindfulness practices on their mental health. Using a randomized control design, they compared graduate students

to a control group. There were 38 students in the control and 34 in the intervention. The experimental group experienced a 30-minute guided practice audio CD asking them to focus on the sound of their breath going in and out. In addition, the students were asked to listen to the CD daily and the average number of times the students listened was 35. Students who practiced mindfulness in the intervention reported a statistically significant reduction in depression and increased self-efficacy, hope, and resilience.

## **Koru: Mindfulness program for emerging adults**

Two Duke University Psychiatrists Holly Rogers and Margaret Maytan collaborated on developing a mindfulness program including meditation, yoga and loving kindness for emerging adults. They called it Koru, a Maori word meaning spiraled, referring to the spiral shape of the unfolding fern growing in New Zealand. Koru represents new life, growth, balance, and harmony. Rogers and Maytan conducted a pilot study of Koru in 2005 which was very successful. Over the years, the 4-week program and curriculum has expanded to include guided imagery, belly breathing, dynamic breathing, and the use of a gatha – a short Buddhist meditation poem. In 2014, a Center for Koru Mindfulness was established to provide training for teachers and hundreds of teachers have been trained. There are three components: Koru Basic, Koru retreat (1/2 day) and Koru.2 (Rogers & Maytan, 2019). Research reports improvement in physical and psychological health, and participants developed skills in meditation and mindfulness (Greeson, Juberg, Maytan, James, & Rogers (2014).

There is growing recognition that mindfulness can have a positive effect on all members of a university, and Carnegie Mellon University's Student Affairs Wellness initiative is one example of this recognition. Students, faculty and staff members receive a subscription to a program that includes a beginner's meditation course and hundreds of hours of content. The University also provides non-credit mindfulness courses and a mindfulness room for guided and drop-in meditation (Flaherty, 2019).

## **Mindfulness programs working with teens**

The American Psychological Association (APA) reports that teens have higher levels of stress than emerging adults and adults. In addition, 50% of teens identify the two strategies they use to deal with stress as playing video games and surfing the internet. *Breathe*, a mindfulness magazine for teens published in the UK includes articles on the need to detox technology, since these devices contribute to stress and distract teens from direct experiences. They suggest taking frequent breaks, perhaps a minimum of 20 minutes with no technology, no phone, no TV, no computer and no iPod. This would allow teens to disconnect from technology and reconnect with real experiences.

## **Inner kids**

*Inner Kids*, a teen program developed by Susan Kaiser Greenland focuses on attention, balance, and compassion. Inner Kids aims to develop awareness of inner experiences--thoughts, emotions, and physical sensations--together with awareness of outer experiences of other people, places, and things, and awareness of how these inner and outer experiences work together. *Inner Kids* is particularly helpful in working with the emotional issues gifted students have, such as the use of their intellectual power. Gifted students with speed of thought and higher-level thinking, questioning and comments often receive negative feedback or even rejection by classmates, and even teachers, and gifted students need help in understanding this rejection. *Inner Kids* provides time for students to reflect on the outer experiences of others and to reflect on their inner experiences as they reflect on their interaction (Sisk & Kane, 2018).

## **Learning to breathe**

Patricia Broderick developed the *Learning to Breathe program* which is widely used in Canada and the United States. The program is based on six themes and follows the acronym BREATHE. **B** is for body awareness; **R** is for reflection, understanding, and working with one's thoughts; **E** is for understanding and working with feelings; **A** is for integrating awareness of thoughts,

feelings, and bodily sensations; **T** is for tenderness, taking it as it is, and reducing harmful self-judgment; **H** is for habits for a healthy mind, integrating mindful awareness into daily life; and **E** is for empowerment. Several studies found the program produces positive results. Metz, Frank, Reibel, Cantrell, Sanders, and Broderick (2013) worked with a group of high school students who experienced *Learning to Breathe* activities as compared to a control group. The experimental group reported lower levels of stress, negative affect, and psychosomatic complaints, as well as increased levels of efficacy and emotional regulation (Sisk & Kane, 2018).

Georgetown Behavioral Health Institute provides a five-week Mindfulness Program for teens to help reduce stress and improve the ability to control thoughts and actions. The program works with students ages 16-18 who report stress and stress-related symptoms. It is an adaptation of Jon Kabat-Zinn's MBSR program at the University of Massachusetts Medical School. The students take 1.5-hour sessions once per week for 5 weeks experiencing guided instruction in mindfulness meditation practices and daily short home assignments that take about 10 minutes. They report benefits including: Improved focus and concentration, ability to deal with stress, better in taking tests at school, and dealing with parents.

### **Transformative life skills**

Jennifer Frank, a professor at Pennsylvania State University collaborated with Niroga Institute to develop the *Transformative Life Skills* (TLS) mindfulness program. TLS combines mindful yoga, breathing techniques and meditation. There are three core practices action, breathing and centering. A research study of TLS found that the program reduced stress and improved the well-being of 49 high-risk high school students. On self-report assessment, the students were measured on stress, well-being, and hostility before and after the program. Pre/post comparisons found significant reduction in anxiety, depression, hostility, and general psychological distress. Frank, Bose and Schrobenhauser-Clonan (2014) found reduction in students' rumination of anxious thoughts, intrusive thoughts, and physical and emotional arousal associated with the fight, flight, or freeze response (Sisk & Kane, 2018).

### **Kripalu Yoga in schools**

The *Kripalu Yoga in Schools* (KYSIS) program integrates yoga and mindfulness into regular high school programming to improve the well-being of teens as they learn social and emotional skills including stress management, self-regulation, self-confidence, and relationship skills. Noggle, Steiner, Minami and Khalsa (2002) worked with 51 junior and senior students registered for physical education. One group was assigned randomly to either KYSIS or regular physical education. The students in KYSIS and the regular physical education students completed self-report questionnaires before and at the end of the program. The KYSIS students showed improvement in mood disturbance and lessened anxiety in comparison to the students who attended regular physical education.

### **Mindfulness programs working with pre-k-8 students**

#### **MINDUP**

The *MindUP* program was developed by the Hawn Foundation in 2011 and was first introduced in British Columbia when actress Goldie Hawn lived in Vancouver. The program is included in the curriculum of most elementary schools in the southern mainland of British Columbia, Canada and was adopted by the city of Newark, New Jersey. The *MindUP* program increases pro-social actions, decreases aggressive behaviors, and improves academic achievement especially in math and language arts. There are 15 lessons in four units in Pre-K-8. In Unit 1 students are introduced to brain physiology and the concept of mindful attention. In Unit 2 *Sharpening our Senses* the students experience the relationship between our senses, our moving bodies, and the way we think (Mindful listening, seeing, mindful smelling, tasting, and movement). In Unit 3 *It's All About Attitude*, the students focus on understanding the role of our mind-set in how we learn and progress. This includes perspective taking, choosing optimism, and appreciating happy experiences. In Unit 4 *Taking*

*Action Mindfully*, students apply mindful behaviors to interactions with the community, including expressing gratitude, performing acts of kindness, and taking mindful action in the world.

Mahoney (2015) conducted an exploratory study with MindUP students from eight classrooms across seven public elementary schools in western Canada, asking what aspects of the program they liked or disliked, and would they recommend the program to others. She found 96% reported the mindfulness activities as a positive aspect of the program and most said they would recommend the program to others. Schonert-Reichl and Roeser (2016) reported that 86% of the students experiencing mindfulness reported being able to boost their well-being by using MIndUP, and 88% after learning MindUP said they use it at home, and 83% indicated improvement in pro-social behaviors.

## **Roanoke mindfulness program**

Hurt Park Elementary school conducted a mindfulness pilot program using the school intercom in which the nurse educator Laurie Seidel on every Thursday asked the students in the entire school to calmly, slowly, breathe in and out, relaxing their whole body. The pilot program on mindfulness was established through a partnership with Carilion Clinic where Seidel works and leads the initiative. Seidel uses the MindUP curriculum and said the purpose of the morning practice was to set the tone for the day, to be thoughtful and kind. The faculty had training on how to use mindfulness in the classroom and the program has had a positive impact on student behavior and the school as whole. Students use the mindfulness practice at any point to calm themselves, and teachers opt for a mindfulness session rather than sending a student to the principal's office. The positive nature of the program is resulting in an expansion of the mindfulness programs in Roanoke.

## **YogaKids for pre-school students**

Rachel Raza and her colleagues at Stanford used YogaKids in a program that blends yoga and mindfulness practices in a kid-friendly program. At the beginning of the school year, pre-school children's self-regulation was tested in two classes in ethnically diverse schools and their parents were asked how well their children demonstrated self-regulation. The YogaKids curriculum was integrated with mindfulness activities throughout the school day. In the class designated as an experimental group, the children did *sun* salutations during morning meetings, and practiced breathing exercises counting in and out for 10-30 minutes a day for six months. The control group of children experienced business as usual activities. At the end of the school year, the mindfulness group was less impulsive and better able to wait for a potential reward, and better able to sustain attention on certain exercises. Raza reports that positive mindfulness tools help build self-regulating behaviors and emotional control that will set them on a better life trajectory (Sisk & Kane, 2018).

## **Healthy minds mindfulness-based kindness curriculum for pre-school**

The Center for Healthy Minds and Healthy Minds Innovations, Inc. provides a Kindness curriculum with eight themes and twenty-four lessons for preschoolers. The themes include: Mindful bodies and planting seeds of kindness; I feel emotions on the inside; How I feel on the inside shows on the outside; Taking care of strong emotions on the inside and outside; Calming and working out problems; Gratitude; All people depend on each other and the Earth; and Gratitude and Caring for our World and Wrap-up. The curriculum is available from the Healthy Minds Innovations website at no cost, but they require full use of the curriculum with no modification.

## **Mindful pogis: A yoga and mindfulness program for pre-schoolers**

Mindful Pogis: A Yoga and Mindfulness program for pre-school children (ages 3.5 to 5) includes activities with the goal of creating harmony with the 3 B's, the body, brain and breath. Rachael Gonzalez the founder and teacher wants students to be successful and joyful. The classroom is playful, full of opportunities to learn to be imaginative, the use of yoga poses and mindful breathing. The program also uses music, art, storytelling and cooperative games and mindful movement. The

---

---

themes for the program include compassion, kindness, caring, helping others, taking care of the environment, gratitude, connection and creating peace.

### **School-based mindfulness program with 2<sup>nd</sup> - 3<sup>rd</sup> grade**

Flook, Smalley, Kitil, Galla, Kaiser-Greenland, Locke, Ishijima and Kasar (2010) reported a mindfulness program in which 2nd and 3rd grade (ages 7-9) were placed in an experimental or control group. The parents and teachers completed questionnaires on the children's ability in executive functioning. The mindfulness program was held for 30 minutes twice a week for eight weeks for the experimental group, and the control group had regular school activities. At the end of the eight weeks, both teachers and parents reported positive changes in behavioral regulation, metacognition, and overall positive global executive control. In addition, the improvements in the children's behavior generalized across settings including at home.

### **Tai Chi and mindfulness for middle school students**

Tai Chi and mindfulness-based stress reduction was used in a 5-week clinical program with middle school students. The students reported experiencing well-being, calmness, relaxation, improved sleep, less reactivity, increased self-care, self-awareness and a sense of interconnected or interdependence with nature. The teachers, counselors and nurses involved in the project were pleased with the results and plan to replicate the project.

### **Mindfulness programs with four to twelve-year olds**

Diamond and Lee (2010) conducted a meta-analysis of successful programs using mindfulness, yoga, aerobic, martial arts, games, and computerized training to improve the executive function of students. They reported that all of the successful programs provided repeated practice and progressively increased the challenge to executive functioning. Students with the least executive functions benefitted most in the programs. Diamond and Lee concluded that early training may avert widening achievement gaps later. The students were able to stay focused, gave considered rather than impulsive responses and had increased self- control.

### **Elementary student perspectives of learning mindfulness practices**

Ager, Albrecht, and Cohen (2015) addressed the research question of what students' perspectives on learning mindfulness practices in school are. They used thematic analysis to understand and interpret 38 elementary school students' mindfulness journals. Findings suggest that mindfulness enhances student well-being and helps children develop a greater awareness of their body, mind and emotions. The implications of these findings include providing time for the students to reflect on their experiences.

### **Conclusion**

The growth and interest in mindfulness since the early work of Jon Kabat-Zinn and the establishment of the MBSR clinic at the University of Massachusetts has been phenomenal. From one study on mindfulness reported in 1982 to hundreds published since that early initiative. Mindfulness is being implemented in the schools from Pre-K-12 and a myriad of programs for emerging adults are available. This article examined successful mindfulness programs and highlighted their individual approaches. What becomes apparent in reading about the various programs is the enthusiasm and vision of the individuals who planned and developed them, enriching the lives of their student participants as well as their own lives. The programs demonstrate that mindfulness practices encourage participants to experience the wonders of life in the here and now. To be aware mindfully is to open oneself to the activity of exploration and inquiry which is sorely needed by the emerging adults and all of us.

## References

- Ager, K., Albrecht, N., Cohen, P. (2015). Mindfulness in schools research project: Exploring students' perspectives of mindfulness, *Psychology* 6, 896-914.
- Arnett, J. (2011). Emerging Adulthood (s): The cultural psychology of a new life stage. In L.A. Jensen (Ed.), *Bridging cultural and developmental approaches to psychology* (pp. 255-275). New York, NY: Oxford University Press.
- Barry, K.M., Woods, M., Martin, A., Stirling, C. and Warnecke, E., 2019. A randomized controlled trial of the effects of mindfulness practice on doctoral candidate psychological status. *Journal of American College Health*, 67(4), 299-307.
- Caldwell, K., Harrison, M., Adams, M., Quinn, R., & Greeson, J. (2010). Pilates and movement: A qualitative study, *Journal of Dance Education*, 12(4), 123-130.
- Center for Healthy Minds & Healthy Minds Innovation, Inc. Link: [centerhealthyminds.org](http://centerhealthyminds.org)
- Diamond, A., & Lee, K. (2010). Intervention shown to aid executive function in children 4 to 12 years old. *Science*, p. 959-964.
- Eagan, M., Stolzenberg, E., Zimmerman, H., Aragon, M., Whang Sayson, H., & Rios-Aguilar, C., (2017). Los Angeles, CA: Higher Ed. Research Institute, UCLA.
- Feldman, G., Greeson, J., & Senville, J. (2010). Differential effects of mindful breathing, progressive muscle relaxation, and loving kindness meditation on decentering and negative reactions to repetitive thoughts. *Behavior Research and Therapy*, 48, 1002-1011.
- Flook, L., Smalley, S., Kitil, M., Galla, B., Kaiser-Greenland, S., Locke, J., & Kasari, C. (2010). effects of mindfulness awareness practices on executive functions in elementary school children. *Journal of Applied School Psychology*, 26, 76-95.
- Frank, J., Bose, B., Schrobrenhauser-Clonan, A. (2014). Effectiveness of a school-based yoga program on adolescent mental health, stress, coping strategies, and attitudes toward violence: Findings from a high-risk sample. *Journal of Applied School Psychology*, 50, 29-49. Georgetown Behavioral Institute. From: [www.georgetownbehavioral.com/blog/Mindfulness-for-teens/](http://www.georgetownbehavioral.com/blog/Mindfulness-for-teens/)
- Greeson, J., Juberg, M., Maytan, M., James, K., & Rogers, H. (2014). A randomized controlled trial of Koru: A mindfulness program for college students and other emerging adults. *Journal of American College Health Association*, 62(4), 222-233.
- Jain, S., Shapiro, S., Swanick, S., Roesch, S., Mills, P., Bell, I., & Schwartz, Gg. (2007). A randomized controlled trial of mindfulness meditation versus relaxation training: Effects on stress, positive states of mind, rumination, and distraction. *Annals of Behavioral Medicine*, 33(1)11-21.
- LeViness, P., Bershad, C., & Gorman, K. (2017). The Association for University and College Counseling Center Directors Annual Survey 2017. Indianapolis, IN: Association for University and College Counseling Center Directors.
- Mahoney, J. (2015). *Early adolescents' evaluating MindUp: A universal mindfulness-based social and emotional learning program*. Thesis: University of British Columbia
- Mayseless, O., & Kerin, E. (2013). Finding a meaningful life as a developmental task in emerging adulthood. *Emerging Adulthood*, 2(1), 63-73.
- Metz, S., Frank, J., Reibel, D., Cantrell, T., Sanders, R., & Broderick, P. (2013). The effectiveness of the Learning to BREATHE on adolescent emotional regulation. *Research in Human Development*, 10, 252-272
- Mindful Pogis (2020). A yoga and mindfulness program for pre-school children. La Canada Flintridge, CA: Sama Tree. From: <https://samatree.com/yoga/programs-yoga/mindful-pogis/>
- Raza, R. (2015). Enhancing preschoolers' self-regulation via mindful yoga. *Journal of Child and Family Studies*, 24(2) 372-385.
- Roanoke Mindfulness Program. Link: Mindfulness Meditation Group, Roanoke, Virginia; [blueridgesangha.ma@gmail.com](mailto:blueridgesangha.ma@gmail.com).
- Rogers, H. & Mayan, M. (2019). *Mindfulness for the next generation*. New York, N.Y., Oxford Press.



- 
- Sisk, D. & Kane, M. (2018) *Planting seeds of mindfulness*. Unionville, N.Y.: Royal Fireworks Press.
- Twenge, J. (2017). *iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy-and completely unprepared for adulthood--and what that means for the rest of us*. New York, NY. Atria Books.
- Noggle, J., Steiner, N., Minami, T., & Khalsa, S. (2012). Benefits of yoga for psychosocial well-being in a U.S. high school curriculum: A preliminary randomized controlled trial. *Journal of Developmental Behavioral Pediatrics, 33*, 193-201.
- 

### **About the Author:**

**Dorothy Sisk, Ph.D.**, specializes in the field of gifted education focusing on creative behavior and leadership development. She holds an endowed chair and is currently a professor in education at Lamar University, where she directs the C. W. and Dorothy Ann Conn Chair for Gifted Education. She has authored and coauthored numerous books, chapters, articles, and papers. She served as the director of the U.S. Office of the Gifted and Talented, playing an instrumental role in increasing the cadre of professionally trained consultants for the gifted, thereby expanding opportunities for students.

**e-Mail:** [siskda@lamar.edu](mailto:siskda@lamar.edu)