

STRUT

In just 12 years, by 2030, 50% of children will be either failing in schools or not in schools. Help us optimize learning delivery by integrating adaptive emotional intelligence within education technology. We will unlock and maximize the potential of the individual.

The need for social emotional learning technology

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Executive Summary

The Necessity of SEL EdTech

Social emotional learning (SEL), popularly known as emotional intelligence, plays a vital role in fostering an individual's development so that s/he can become knowledgeable, caring, and responsible. This can contribute to their academics and professional success, ability to develop and maintain positive relationships, and motivation for participating in civic activities to make communities better.¹ In the 21st century, education is heavily driven by digital technology, which is playing the role of a catalyst for pedagogical engagement and change.² SEL edTech will play a pivotal role in fostering SEL efficiently and cost-effectively in a personalized, individualized, and authentic manner.³

SEL Benefits



• Benefits for Students

- For every 1-point increase in a child's social competence score in kindergarten, s/he was 54% more likely to earn a high school diploma, and 46% more likely to have a full-time job at the age of 25.⁴
- SEL programs yield an average gain of 11 to 17 percentile points on academic and achievement test scores.⁵



• Benefits to Schools

- For every \$1 spent on effective SEL programming yields an investment of \$11 in long-term benefits to students, schools and communities.⁶
- Effective SEL school culture enhances parent involvement at home and school, which is equivalent to more than \$1,000 in per-pupil spending on teaching.⁷



• Benefits in Personal Life

- People with a higher degree of emotional intelligence make an average of \$29,000 more per year.⁸
- Emotional Intelligence also leads to happiness, personal achievement, and professional success.⁹



• Benefits to Communities

- SEL program reduces dropout among students quite significantly.¹⁰ If the high school male graduation rate increased by only 5%, the nation could save as much as \$18.5 billion in annual crime costs¹¹ and \$7.3 billion in annual Medicaid spending.¹²
- SEL encourages individuals to get involved with volunteering and community services.¹³ In America, volunteers produce services worth \$113 billion to \$161 billion annually.¹⁴



• Benefits in Business

- Productivity increased by 90 percent for those who received SEL training.¹⁵
- 71% of hiring managers opined that they valued emotional intelligence in an employee over IQ.



• Benefits for Military

- Studies show that effective combat soldiers had significantly higher scores on emotional intelligence (EQ) measures than low performers.¹⁶
- Persons with higher emotional intelligence are less likely to suffer from PTSD symptoms.¹⁷

The Need for SEL EdTech



- SEL EdTech can facilitate the teaching of 21st-century skills like creativity, collaboration, and persistence.
- SEL EdTech can also help increase self-awareness, empathy, social awareness, and problem solving.¹⁸

Challenges of SEL Implementation



- Lack of familiarity with the current assessments for measuring SEL (only 17% of Principals stated that they are fairly familiar with this)
- Lack of teacher training (60% of Principals pointed to the lack of teacher training as a big challenge)
- Teacher stress (61% of the educators indicated that they find their positions to be stressful¹⁹)

Our Vision

Development of SEL EdTech that provides meaningful data and recommendations in real time.²⁰



The use of assistive technologies to help predict emotional or behavioral stress



Development of integrated 21st century SEL technology standards and practices.



Development of modular, customizable, SEL programming integrated into standard core content areas.



Overview of SEL

Social Emotional Learning (SEL) is the process of acquiring core competencies for recognizing and managing emotions, e.g. emotional intelligence (EQ), setting and achieving positive goals, establishing and maintaining positive relationships, making responsible decisions, appreciating the perspectives of others, and constructively handling interpersonal situations.¹ The goal of SEL is to foster caring and responsible, effective learners, resulting in their academic and professional success, ability to develop and maintain positive relationships, and motivation for participating in civic activities to make communities better.² Unlike regular intelligence, EQ can be learned, developed, and optimized.^{3,4}

Key Components of SEL

The Collaborative for Academic, Social, and Emotional Learning (CASEL) has identified the following five core components for social and emotional competency:⁵



SEL Objectives

Illinois State Board of Education (ISBE) identified three broad learning goals of SEL:⁶

Learning objectives for Chicago Public Schools (CPS):⁷



Developing self-management and self-awareness skills for achieving success in the school and the entire life

Develop supportive school communities and relationships



Using interpersonal skills and social awareness for establishing and maintaining positive relationships

Promote students' social and emotional development through Multi-Tiered Systems of Support (MTSS)



Demonstrating responsible behaviors and decision-making skills in personal, school, and community contexts

Foster staff mindsets and skills to respond to student behaviors compassionately, restrictively and equitably

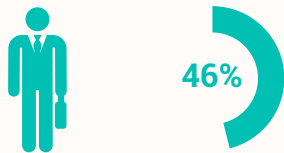


Impacts of SEL

Benefits for Students

Children's early social and emotional skills predict their well-being in early adulthood.⁸ For every 1-point increase in a child's social competence score in kindergarten, s/he was:

46% more likely to have a full-time job at the age of 25.



2 times more likely to attain a college degree in early adulthood.



54% more likely to earn a high school diploma



Well planned and implemented SEL programming can lead to:⁹

10% decrease in emotional distress, such as depression and anxiety.



9% improvement in attitudes about self, others, and school.



23% improvement in the management of emotions.



For every 1-point decrease in a child's social competence score in kindergarten, s/he had a:

67% higher chance of having been arrested by early adulthood.



82% higher rate of recent drug use.



82% higher chance of being in or on a waiting list for public housing.



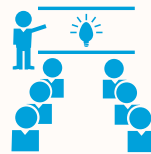
Benefits to Schools

For every **\$1 spent** on effective SEL programming yields an investment of **\$11 in long-term benefits** to students, schools and communities.¹⁰



SEL programs yield an average gain of **11 to 17 percentile** points on academic and achievement test scores.¹¹

SEL intervention showed a **9% improvement** in school and classroom behavior¹². It has enhanced the success of the students through improved attendance, prosocial behaviors, and school connectedness and have reduced aggression, disruptive conduct, and violence.



Emotional intelligence is positively related with the academic success of a student and **need to be integrated into all levels of the curricula** and school culture.^{13 14 15}

SEL practices and cultures reduce educator and staff stress and burnout, and also assist with retention and **learning continuity**.¹⁶



Effective SEL school culture enhances parent involvement at home and school, which is integral to student's academic success.^{17 18} This effect is equivalent to more than **\$1,000** in per-pupil spending on teaching.¹⁹

Benefits in Personal Life

People with a higher degree of emotional intelligence make an average of **\$29,000 more per year**.²⁰ The link between emotional intelligence and earnings is so direct that every point increase in emotional intelligence adds **\$1,300** to an annual salary.²¹



There is a **significant relationship between emotional intelligence and job satisfaction**.²² People with higher emotional intelligence have higher level skills to manage stressful situations through controlling emotions.²³



Emotional intelligence ensures that people are able to **communicate effectively** with others to meet the necessary requirements and accomplish their goals.²⁵



Emotional Intelligence also leads to **happiness, personal achievement, and professional success**.²⁶

The relationship between marital satisfaction and emotional intelligence was found to be positive and significant.²⁴ **Managing emotions, understanding and respecting the feelings of family members, trustworthiness, and showing empathy** were identified as the most important factors influencing the marital relationship.



Benefits to Communities

SEL assists people and groups to be equipped with **skills, attitudes, and beliefs that are essential to make healthy, ethical, caring, and responsible** decisions within a community. It can also be vital to avoid negative behaviors that influence a community such as substance abuse, violence, and bullying.²⁷



SEL program reduces dropout among students quite significantly.²⁹ If the high school male graduation rate increased by only **5%**, the nation could save as much as **\$18.5 billion** in annual crime costs.³⁰ The nation would also see a decrease in annual incidences of assault by nearly **60,000**; larceny by more than **37,000**; motor vehicle theft by more than **31,000**; and burglaries by more than **17,000**.³¹



Individuals with SEL proficiency have less emotional distress and reduced behavioral problems, and also show **positive attitude** toward others.²⁸

SEL encourages individuals to get involved with volunteering and community services, which help children develop healthy self-identities.³³ In America, volunteers produce services worth **\$113 billion to \$161 billion** annually.³⁴



Cutting the number of high school dropouts in half nationally would save **\$7.3 billion** in annual Medicaid spending.³²

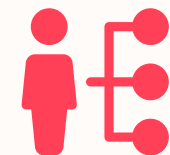


Benefits in Business

Productivity increased for **90 percent** of those who received SEL training.³⁵ Studies show that emotional intelligence improves interaction with colleagues and the ability to cope with workplace stress.^{36 37}



Employer's identified **16 skills** as important for the 21st century workplace. Out of these, **10 are social and emotional skills**.^{38 39}



70% of employees indicated the emotional intelligence of the managers plays the most important role for developing a positive motivating organizational culture.⁴⁰



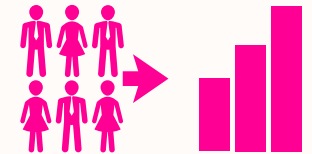
Research outcomes showed that 85% of our financial success is due to skills in "human engineering," personality, and the ability to negotiate, communicate, and lead; only 15% is due to technical ability.⁴¹

90% of top performers have high emotional intelligence.⁴² It was also found that emotional intelligence is the strongest predictor of job performance, accounting for 58% of success in all types of jobs.⁴³



71% of hiring managers opined that they valued emotional intelligence in an employee over IQ; 75% said they were more likely to promote a highly emotionally intelligent worker; and 59% claimed they would pass up a candidate with a high IQ but low emotional intelligence.⁴⁴

There is positive association between low emotional intelligence and increased employee job turnover.⁴⁵ The estimated cost of turnover is equal 213% of the worker's annual compensation.⁴⁶



Benefits for Military

Self-discipline, decision making, and mindfulness practices are an integral part of military training.⁴⁷ Individuals proficient in SEL excel in military training.



Studies show that effective combat soldiers had significantly higher scores on emotional intelligence (EQ) measures than low performers.⁴⁸



Major General Eaton (Retired) stated that effective relationship skills facilitate decision-making and team-oriented activities which are critical for being an effective soldier.⁴⁹



Higher levels of emotional intelligence can help mentally process and speed recovery from traumatic or stressful events.^{51 52}



It is also argued that persons with higher emotional intelligence are less likely to suffer from post-traumatic stress disorder (PTSD) symptoms, an important issue for the military.⁵⁰

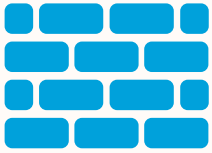


Veterans skilled in emotional intelligence can easily build relationships, transition into civilian life, and plan for the future appropriately.⁵³

Military spouses, children, and families also benefit from strong emotional intelligence. Particularly, emotional intelligence helps them manage anger, depression, anxieties and avoid sleep disorder and domestic violence.⁵⁴



Challenges of SEL Implementation



State standards for social and emotional development substantially vary across the US. Lack of coordination among the states is also creating major barriers.⁵⁵



In some cases, schools are not provided with sufficient funding and resources for the effective implementation of SEL programs. The rising cost of SEL implementation has also become a barrier, which make many schools reluctant to implement such programs.⁵⁶



Only 17% of Principals stated that they are fairly familiar with the current assessments for measuring the SEL skills of the students.⁵⁹



Absence of a positive, supportive, and healthy climate and culture inside the school creates a barrier for school administrators, teachers and parents to dedicate their efforts to foster SEL. Furthermore, the lack of sensitivity to cultural and ethnic diversity found in some SEL programs has negative consequences and impedes fostering SEL in different institutions.

Administrators, teachers, and even the parents are often biased toward emphasizing only the academic achievements of the students and ignore their social and emotional developments.⁶⁰ 71% of Principals said that teachers "not having enough time" is a big challenge in implementing SEL skills.⁶¹



SEL can assist the educator manage stress and better cope with classroom management. Studies show that teacher stress negatively affects the SEL developments of the students.⁶⁴ Also, 61% of the educators indicated that they find their positions to be "always" or "often" stressful.⁶⁵



60% of Principals pointed to the lack of teacher training as a big challenge for ensuring social and emotional development of the students.⁶² Only 45% of them felt that teachers in their schools are prepared to teach SEL successfully.⁶³



An efficient SEL program requires a wide range of software and technology products for both the educators and children, higher levels of funding and resources, a set of complementary and comprehensive training programs for parents, children and teachers, and widespread agreement and standardization of metrics. Arranging all these can become a big challenge for those schools who are implementing SEL.⁶⁶



Educational Technology

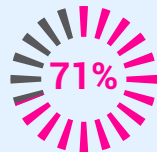
In the 21st century, education is heavily driven by digital technology, which is playing the role of a catalyst for pedagogical engagement and change.⁶⁷ The students are regularly using laptops, smart-phones, tablets, and other digital devices as learning tools. As the usage of technology outside of academic settings is shaping the learning preferences and strengths of students, teachers are also finding it hard to offer deeper learning opportunities without employing technology.⁶⁸ Content experts and innovative educators leverage technology to enhance student experiences which advance creativity, learning, and innovation.⁶⁹ In fact, technology should already be integrated into all content areas: English, math, science, and social science. Education technology can increase engagement, personalize learning, and reinforce, complement, and extend learning.⁷⁰

Educational Technology Impacts

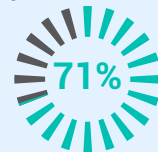
74 percent of school leaders said technology provides timely data for decision making;



71 percent said it improves support staff efficiency;



71 percent said it increases administrators' productivity;



70 percent said it improves communications among parents, teachers and the community;



61 percent said it increases teacher productivity.⁷¹



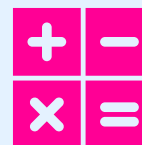
Mobile devices make education more engaging, dramatically improve learning, and enhance critical thinking and problem-solving skills.⁷²



Students scored 8 percent higher on technology administered achievement tests than traditional tests.⁷³



Gains in mathematics scores from pretest scores to post-test scores for students who used the technology were significant. For Algebra there was a 17 percent gain in student scores.⁷⁴

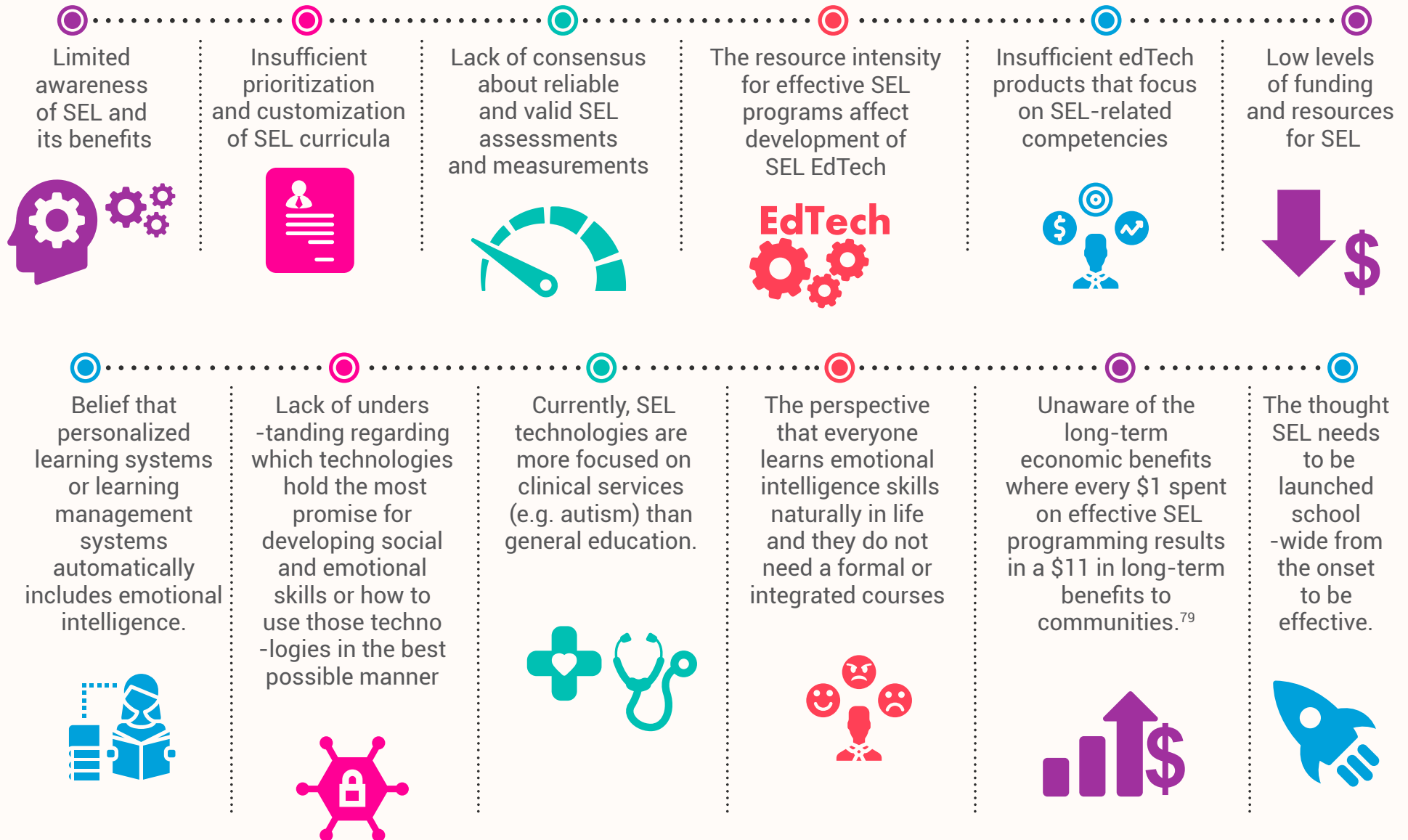


Computer and video games can develop the creative problem-solving skills of the students, which can help them become active thinkers, improve higher order thinking, and problem solvers within their community.^{75 76} Players can also customize games to suit their learning styles, which encourages creativity.⁷⁷



SEL edTech Limitation

Research on SEL EdTech is still at the nascent stage, and the best possible ways to implement technology in SEL and the possible outcomes are still unknown by researchers. Furthermore, the following issues are creating barriers to implement effective and meaningful EdTech in SEL:⁷⁸



The Need for SEL EdTech

The primary need for SEL EdTech is to overcome the many barriers for effective implementation and program continuation. They include a lack of onsite expertise, training, funding, and execution bandwidth. However, SEL EdTech has the potential to play a pivotal role in fostering SEL efficiently and cost-effectively in a personalized, individualized, and authentic manner.^{80,81} Education technology can be uniquely deployed to facilitate the teaching of 21st-century skills like creativity, communication, persistence and collaboration, which are integral components of SEL.⁸² SEL EdTEch can also provide meaningful data and recommendations for all levels of stakeholders (administrators, teachers, students, and parents) in real time.⁸³

Limited SEL EdTech in Practice

It has been mentioned that digital games like Ripple Effects and The Social Express can help increase self-awareness, empathy, emotional regulation, cooperation, social awareness, and problem solving while decreasing the number of behavior referrals and in-school suspensions.⁸⁴



The interactive online learning games available in the site 'Tynker' show potential to foster not just technological literacy but also competencies such as creativity, problem-solving, collaboration and persistence.⁸⁵



An Internet-based, computer-delivered parent-training intervention, called Infant Net, has proved to be effective for increasing social engagement for the infants.⁸⁶



A number of tools, like Google Apps for Education, One Note, social networking tools like Facebook, and sites like Ponder are helping students develop competencies such as communication and collaboration by facilitating group work, peer-to-peer learning and peer feedback but still need formal pedagogy to be effective.⁸⁷



Different study results have revealed that video modeling supplements can be used for increasing the frequency of social interaction for both normal children and the children with social difficulties.⁸⁸

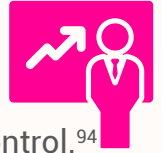


The Future of SEL EdTech

Through Learning Management Systems (LMSs), students will be able to interact with each other and also with digital content in controlled, meaningful ways, which will help them develop 21st century skills like communication and collaboration.⁸⁹ LMSs will help students set learning goals with the freedom to focus in areas they choose at any given time, which will increase independence and satisfaction.⁹⁰



A movement from external to internal rewards systems will increase self-confidence, self-efficacy, and a locus of control.⁹⁴



SEL organizations will start collaborating with game and technology developers for creating more games or gamified learning strategies that will incorporate SEL competencies.⁹¹



Wearable devices, virtual reality, augmented reality and applications will enable students to enhance important social and emotional skills while inspiring new personal learning strategies.⁹²



SEL practices will integrate with mainstream content areas such as English language arts, math, science, and social studies through technology allowing authenticity and engagement.⁹³



Greater awareness and funding for technologies that integrate emotional intelligence competencies to ensure healthy development of the whole child and to combat social isolation, emotional anxiety, and addiction that often develop with increased technology use.

Our Vision

Development of SEL EdTech that provides meaningful data and recommendations for all levels of stakeholders (administrators, teachers, students, and parents) in real time.⁹⁶



Development of modular technology components to enhance all education technologies for engagement, personalization, and emotional development.



Development of integrated 21st century SEL technology standards and practices that address the differences that exist with the implementation of SEL practices through technology as well as the benefits that exist by integrating SEL into all education technology.



Development of modular, customizable, SEL programming integrated into standard core content areas.



The use of assistive technologies, like wearable heart rate monitors and electrocardiograms (EKGs), will be used to help predict emotional or behavioral stress, provide feedback and alerts, and assist with calming and refocusing.⁹⁵



We need your help to make learning lifelong, meaningful, engaging, and transformative.