# **Engineering Ambassadors** College of Engineering and Computer Science & SRC



Compiled by: The Engineering Ambassadors Coordinator Team



A Literacy Initiative of the: Mary Ann Shaw Center for Public & Community Service (Shaw Center) Syracuse University College of Engineering & Computer Science (E&CS) Syracuse City School District (SCSD) With Additional Support From:





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# History

The mission of the Mary Ann Shaw Center for Public & Community Service (Shaw Center) is to promote, support, facilitate, and recognize public and community service as a fundamental part of the teaching and learning experience for students, faculty, and staff. The Shaw Center Literacy Initiatives are the foundation of its civic engagement programs which include:

- *SU Literacy Corps*, a service learning experience mobilizing SU students to tutor at elementary and secondary schools as well as community based organizations.
- *Balancing the Books*, a financial literacy initiative in collaboration with the Whitman School of Management, the Shaw Center, Huntington School and Henninger High School that provides mentoring and tutoring opportunities for Whitman students to fulfill their 35 volunteer hour graduation requirement.
- *Campus Advisory Board for First Book*, a national nonprofit organization that distributes books to low-income children.
- College of Engineering SRC Engineering Ambassadors (Engineering Ambassadors), a partnership between the Syracuse University College of Engineering and Computer Science, the Shaw Center, SRC, Clary Middle School, Hillside Work-Scholarship Connection, Edward Smith K-8 School, Hurlbut W. Smith K-8 School, Grant Middle School that provides mentoring and tutoring opportunities for ECS and SCSD students.
- *Nutrition Initiatives*, a mentoring and tutoring experience consisting of three separate programs named Books and Cooks, Cooking on the Hillside, and Food Busters, that focus on implementing nutrition and cooking into literacy and cultural education.

... and several other literacy related initiatives that provide Syracuse University students with learning experiences while meeting community literacy needs.

## Program

The Shaw Center, in partnership with the Syracuse University College of Engineering and Computer Science (ECS), the Syracuse City School District (SCSD), and with support from SRC Inc., formerly Syracuse Research Corporation (SRC), proposed developing a mentoring program focused on working with sixth to eighth grade students at Clary Middle School, Hillside Work-Scholarship Connection, Edward Smith K-8 School, Hurlbut W. Smith K-8 School, and Grant Middle School in the Syracuse City School District. This pilot program, developed during the 2005-2006 academic year, will ultimately evolve into a community-based service learning requirement for E&CS students. Volunteer students from the College of Engineering and Computer Science, which we like to call "Ambassadors," work one-on-one or in small groups, with sixth to eighth grade students at the sites, helping students improve their computing, math, reading, and science skills as they prepare for and navigate the difficult transition into high school. The Engineering Ambassadors program seeks to help students develop their language and literacy skills, in addition to other life skills necessary for students to achieve their goals in school and after graduation.

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During the COVID-19 global pandemic, Engineering Ambassadors is taking the appropriate precautions to ensure the safety of students, teachers, volunteers, and coordinators. We believe that as an outreach organization, we must hold ourselves accountable to do our part in minimizing the spread of COVID-19 not only amongst the Syracuse University campus, but to all the school sites we work closely with. All that said, we are changing several of our guidelines to closely follow Syracuse City School District, NY state, and CDC protocols.

### Prior to arrival to site:

Firstly, we are asking our volunteers to be wearing a mask when on site. This means fully covering the nose and mouth and can even include "double masking" if the volunteer feels they may need more protection. This policy is not tethered to the campus wide, color monitoring system, as when we leave the Syracuse campus, we are no longer following campus policy as we are moving to Syracuse City School District (SCSD), CDC and NY state policy.

Secondly, there has been an update to the check-in policy with the school sites. When we check in at site, volunteers are expected to show proof of COVID vaccination in the form of the vaccination card given to you after you have received both or singular dose of the COVID vaccine. Site coordinators will be checking with volunteers that they have either the original or copy of their vaccination card, prior to leaving to session. If the volunteer does not bring the original or a copy of their vaccination card, they would not be able to participate in session for that day.

## While at site:

We do ask to maintain proper social distancing when working amongst the students. We do ask to be at least 6 feet apart from the students and when there is a circumstance that you might be closer (in distance) to the student, we ask to minimize any contact with the student. For instance, the student may need an extra hand to hold or support a structure they are working on. Once the student no longer needs your help, we ask that you sanitize any shared materials and your hands as well.

If you have any further questions, please feel free to reach out to us at <u>litinits@syr.edu</u> or to your site coordinator.

The Shaw Center describes the tutoring experience as one of service learning. The experience of engaging a community which translates into service learning incorporates three components: reciprocity, reflection, and a community defined need (Kendall, 1990).

With this in mind, the Shaw Center designed a training program that meets the literacy needs of the various community sites and the educational goals of SU students. The Shaw Center provides Ambassadors with preliminary training prior to engaging the community. In an effort to respond to various learning styles and model a variety of teaching strategies, training employs a variety of teaching methods, such as:

- Lecture
- Reflection
- Small Group Discussion

Understanding classroom content is imperative to a successful tutoring session. It requires observation of the classroom as a whole and of individual students and their respective learning styles. Training topics include, but are not limited to:

- Administrative Logistics
- Cultural Awareness and Diversity
- Inclusion in the Classroom
- Teaching Methods and Strategies
- Site Overviews

Each Ambassador is provided with this training manual to use during training and as a reference while at their site.

# **Expectations and Policies**

The Ambassadors tutor position is a unique, challenging, and rewarding learning opportunity. In addition to assisting the community with various learning initiatives, Ambassadors develop life and workplace skills. The Shaw Center has worked collaboratively with the program sites to develop a set of tutoring expectations. Ambassadors are encouraged to develop a set of expectations for their own learning and should keep in mind that the students with whom they work with develop their own set of expectations as well. They come to rely on Ambassadors for social and academic support. This emphasizes how Ambassadors provide assistance with academic skills and act as role models. With this in mind, Ambassadors should be aware of the messages their behaviors convey to the students.

Successful Ambassadors demonstrate:

- An ability to work with and understand students from diverse backgrounds.
- Dependability in keeping to committed hours and punctuality.
- An appropriate level of professionalism and an encouraging attitude.
- An ability to demonstrate empathy and genuineness with students.
- An ability to work collaboratively with colleagues and students.
- Adaptability to unexpected events.
- The ability to take and respond positively to constructive feedback.

The time that Ambassadors spend in direct contact with students at the program sites is only one part of the tutoring position. While Ambassadors spend time working with students oneon-one and in groups at their sites, they are also responsible for learning outside of the classroom. The other responsibilities Ambassadors have include promoting personal and professional development and helping sharpen their tutoring skills. This section includes an overview of the policies of the program, the expectations of Ambassadors, and the procedures that support the success of the program.

Ambassadors hold different roles that depend on the work environment: volunteer, employee, role model, student, etc. Various expectations and codes of conduct exist based on these roles. This section outlines the policies and procedures Ambassadors should follow. Ambassadors are expected to always act professionally and responsibly and, most importantly, remember that as Ambassadors, they are influential role models for their students.

#### 1. Appearance

The dress code for Ambassadors is casual but professional. It is inappropriate to wear revealing or tasteless clothing, including clothing alluding to alcohol, drugs, violence, etc. Ambassadors who work in the SCSD are expected to follow all of the policies of the district, including, but not limited to the prohibition of hats, headbands, and other headwear.

#### 2. Attitude and Demeanor

While individuals certainly have their own personality and teaching/learning styles, we ask Ambassadors to convey an attitude of professionalism, enthusiasm, and sincere interest in the task at hand. This is also conveyed in how Ambassadors approach the next policy, communication.

#### 3. Communication

Because of the large number of Ambassadors and the need to keep everyone up to date on program happenings, the Shaw Center uses syr.edu e-mail to communicate (syr emails required from University). The Shaw Center maintains an e-mail distribution list for all Ambassadors (our listserv). You are expected to <u>check your e-mail daily</u> and update the Shaw Center if your e-mail address changes. For site, you are expected to fill out the survey before the deadline and communicate cancellations as soon as possible.

#### 4. Confidentiality

Ambassadors work closely with students, teachers, guidance counselors, school administrators, and site supervisors. As part of their position, Ambassadors might be privy to confidential and sensitive information while tutoring and should hold in complete confidence any personal information they learn. Similarly, for an ambassador's privacy and safety, Ambassadors are prohibited from disclosing their personal contact information. If a student wishes to communicate with an Ambassador, they may do so by contacting the Shaw Center. While on site Ambassadors are not allowed to be on social media or take out their cell phones or any other technology. If photos are required for class, Coordinators can take pictures of you volunteering and can send them to you over email.

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## 5. Professionalism

Ambassadors are expected to behave in a professional manner at all times. This includes contact with program staff, Coordinators, site supervisors, and other school personnel. When at a site, Ambassadors must adhere to rules specific to the site and be working with students. Personal business may not be handled during volunteer hours. This includes cell phone use, schoolwork, napping, and other inappropriate behaviors. All Ambassadors are expected to give their full effort and attention while at their site. Professionalism is taken seriously by the initiative since Ambassadors represent more than just themselves, but the Shaw Center and even SU. Therefore, any unprofessional action is taken seriously as relationships between the initiative and SCSD sites can be harmed.

### 6. Commitment

Ambassadors are expected to follow through when they have confirmed to attend a session, unless a reasonable excuse is communicated to their site's coordinator in a timely manner.

## **Violation of Expectations and Pillars**

The Engineering Ambassadors initiative is built upon its six pillars guiding its volunteers and coordinators. Engineering Ambassadors monitors the Engineering Ambassadors expectations and policies given to them through an initial training and in this manual, Shaw Center Policies, and Syracuse University Expectations and Policies outlined in the student handbook. In cases where it is determined by the professional staff of the Shaw Center, Program Coordinator, Outreach Coordinator, and Site Coordinators that a volunteer has continuously violated any of the previously described expectations and policies, consequential actions will be taken. The typical progression of the violation policy is meeting with the volunteer, placing them on probation, and, in extreme cases, termination.

Upon learning about a volunteer issue or violation of any expectation or policy, whether it be at the middle school site, campus, or off-campus, the volunteer will be reached out to via email to come in to the Shaw Center for a meeting regarding the issue. This meeting will take place with the Program Coordinator, Outreach Coordinator, and one of the Shaw Center Professional Staff. During the meeting, the Coordinators will outline which expectations and policies were violated, develop improvements for the volunteer to make, and support that can be given from the Coordinators. A probation form will be completed and signed during the meeting.

Probationary period will typically last one month but can be shortened or lengthened for individual volunteers at the discretion of the Coordinator team at any point in time. A volunteer on probation may be suspended from attending one or more sessions as determined necessary by the Coordinator team. While on probation, the volunteer will be monitored on site. The Staff or Coordinator will submit a write up of the volunteer's performance for each session and submit this to the Program Coordinator. The Program Coordinator will collect all information throughout the process including all related notes, email exchanges, and write ups.

At the end of the probationary period, the Coordinator team and Professional Staff will discuss the future participation of the volunteer. All information collected up to this point will be displayed by the Program Coordinator, and discussion about the violations will progress. The team must have a unanimous vote in favor of termination to progress to the termination process. If a unanimous vote is not received, then the probationary period will be completed, but can be extended in certain cases.

Termination of a volunteer is rare. The volunteer will be brought in to meet with the Program Coordinator, Outreach Coordinator, Shaw Center Associate Director, and Shaw Center Director. They will be informed of what policies they have continued to violate and told of their termination as a volunteer. The termination form, signed by staff, will be held on file. Once a volunteer is terminated, they will not be allowed back into the initiative under any circumstances. The Coordinators and Professional Staff also reserve the right to skip the probationary period and immediately terminate a volunteer. Termination may also occur without a termination meeting if the volunteer does not respond to the initial email.

The Engineering Ambassadors program connects Syracuse University to the greater Syracuse community. Ambassadors work in a variety of settings including Syracuse University, the community, and Syracuse City schools. As a result, there are a variety of expectations in each setting and this section familiarizes with some aspects of the settings.

# The City of Syracuse

In order to work best in a learning environment, it is important to have a basic understanding about the culture of the site and surrounding community. Simply put, culture is the shared set of perspectives, values, and behaviors of a social group or community.

The City of Syracuse is a medium-sized city located in the Finger Lakes region of Upstate New York and is home to over 143,000 people (U.S. Census Estimate, 2017). Located in Onondaga County, this diverse community offers an array of rich experiences through various attractions and cultural events such as the New York State Fair, Festival Latino Americano, La Festa Italiana, and the Salt City Pow Wow.

Another indication of Syracuse's diversity is the racial/ethnic breakdown of the city:

City of Syracuse		SCSD	
White	55%	African American	49%
African American	29%	White	23%
Hispanic	7%	Hispanic	13%
Asian	7%	Asian	8%
Native American	1%	Native American	1%
Other	1%	Multiracial	5%

Knowing the diversity and culture about the community we are engaged in allows us to become aware of our cultural competence when we enter these environments. By being culturally understanding, we can lead ourselves into respect and increase our intercultural competence.

In the last decade, the city's population has decreased as a result of suburban sprawl, devalued housing stock, and a diminishing tax base. While the City of Syracuse does have a range of people living at different socio-economic levels, the poverty rate is significant. The poverty rate in Syracuse for 2016 was 34%. 50% percent of those living in poverty are children below the age of 18 (U.S. Census, 2016). 81% of students in the Syracuse City School District are eligible for reduced and free lunch.

While this information does not intend to create a negative picture of the City of Syracuse, the poverty rate is important to consider as it directly correlates to literacy and academic achievement. Social class differences have been recognized as creating conditions that can lead to reading difficulties. As Snow, Burns, and Griffin (1998) explain, "Low income level can be

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accompanied by other factors that place children at risk, for instance, attending a school that has low academic achievement."

The Syracuse City School District (SCSD) consists of 31 schools serving over 20,084 students (2015). Over 1,000 teachers, paraprofessionals, and administrators are employed in the school district. The SCSD is one of five school districts in the state that has been designated by the State Education Department as having high student needs relative to district resource capacity. Despite this deficit, SCSD strives to meet these needs.

The current mission of the SCSD is:

"To build, support, and sustain school communities that provide all students with a highquality education that prepares them to graduate as responsible, active citizens ready for success in college and careers and prepared to compete in a global economy." (SCSD, Great Expectations, 2015)

One way to assess student achievement is by examining state testing scores. While standardized tests are only one measure of a student's ability, they are useful as indicators of student need. For instance, the New York State Education Department provides public information about student and district performance based on test scores of students in the areas of English language arts, math, and science. This information can then be used to improve instruction and services for students. According to the 2017 results of this assessment, the majority of middle school and elementary school students in the Syracuse City School District who took the English Language Arts performance test are performing at Level 1 and 2 (New York State Education Department). A Level 1 standing is interpreted to mean that students show a degree of academic deficiencies and a Level 2 standing is interpreted to mean that students need extra help to meet the state educational standards and to pass the Regents exam in this subject area. The following charts show the distribution of middle school students across the four rank levels:

## 2017-2018 SCSD English Language Assessment Test (ELA) Results

	6 <sup>th</sup> grade	7 <sup>th</sup> Grade	8 <sup>th</sup> grade
Exceeded Standards (Level 4)	7%	2%	5%
Met Standards (Level 3)	9%	10%	10%
Need Extra Help (Level 2)	18%	22%	28%
Have Academic Deficiencies (Level 1)	65%	66%	56%

## 2017-2018 SCSD Mathematics Assessment Test Results

	6 <sup>th</sup> grade	7 <sup>th</sup> Grade	8 <sup>th</sup> grade
Exceeded Standards (Level 4)	3%	3%	0%
Met Standards (Level 3)	8%	8%	1%
Need Extra Help (Level 2)	17%	16%	11%
Have Academic Deficiencies (Level 1)	71%	74%	87%

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# The Importance of Literacy

According to Literacy Volunteers of America, Inc. (2002), adult literacy can be defined as "the ability to read, write, and speak English proficiently, to compute and solve problems, and to use technology in order to become a life-long learner and to be effective in the family, in the workplace, and in the community.".

Literacy is more than a benchmark of academic achievement. Literacy Volunteers of America explains that very few adults are truly illiterate, yet there are many adults with low literacy skills. Considering the amount of text encountered in daily life, it is clear that being literate is an empowering life skill.

The following are nationwide statistics about literacy taken from Play an Active Role (2002):

- For 39% of 4<sup>th</sup> graders, access to the world of words is endangered because they read below the basic achievement level, lacking even partial mastery of the reading skills needed for grade-level work. (NAEP 2005 Reading Report Card)
- People in the United States who are illiterate represent 75% of the unemployed, 85% of the juveniles who appear in court and 60% of prison inmates. (International Dyslexia Association)
- 78% of today's jobs require at least a 9<sup>th</sup> grade reading level. (National Institute of Literacy, 2001)

With these statistics in mind, the following speaks to the impact of literacy education:

• As many as two-thirds of reading disabled children can become average or aboveaverage readers if they are identified early and taught appropriately. (Vallutino et al. 1996; Feltcher & Lyon, 1998)

Literacy development begins in early childhood with a child's interaction with books and reading materials. It then progresses to direct experience with written text and the teaching of literacy skills both in and out of the classroom. As Snow, Burns and Griffin (1998) explain, professionals who have direct interactions with young children play a major role in the prevention of reading difficulties and the cultivation of literacy skills.

# **Observing the Tutoring Environment**

One of the first things an Ambassador should do when entering a new teaching/learning situation is gain an understanding of the environment of the school or community-based organization. In order to interact effectively in an environment, Ambassadors need a clear understanding of the behaviors, motivations, strengths, and needs of the individuals in the setting. It is also imperative to identify and acknowledge assumptions in one's own culture, which are closely tied to ones values and beliefs.

Engineering Ambassadors encourage the use of the OSEE tool (pronounced Oh-See) to understand the process for moving beyond assumptions and is based on the scientific method. Using the tool to reflect more objectively, as engineers and scientists do, on a cross-cultural situation in various environments will lead to respect and understanding of other individuals, moving away from negative stereotypes. Assessing culture involves suspending judgment, while attempting to understand the beliefs and norms that influence behaviors and experiences. The OSEE tool is broken down into the following:

- O Observe and listen to what is happening
- S State objectively what is happening
- E Explore different explanations for what is happening
- E Evaluate which explanation(s) is the most likely one(s)

Making assumptions is an inherent part of the human experience. As we develop skills to move beyond assumption we must start by observing and listening to really become aware of what is occurring in various situations. Observing and listening is a key skill in becoming understanding within your tutoring environment. Moving from this starting point to stating, as objectively as possible, what is happening is the next step. From this statement of the situation you must see different explanations for what is happening. Explanations can be singular in nature or be a combination including physical, environmental, or personal explanations. Evaluation of the situation can be done in various ways as well depending on the context of the situation you find yourself in. OSEE helps you begin to learn a fundamental lesson by discovering the rationale that underlies others' behavior.

The following are further suggestions for how to assess the culture of the teaching/learning environment:

- Make the familiar strange we don't see things as they are; we see them as they are. Realize your own lens when approaching someone of a different background.
- Recognize that a rich picture of culture requires a joint exploration by insiders and outsiders. Listen to what insiders have to say. The fish does not recognize his dependency on his own environment until he is out of water. But expanding your tank to an ocean is key in creating a strong cultural competence.

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- Understand that subcultures exist within larger cultures, onions have layers. Resist the temptation to align yourself or others with one layer, as everybody is complex and shaped by a number of layers.
- When we think of others, we just see the tip of the iceberg. However, the basic way individuals think comes from deeper levels that we have to evaluate to understand the drivers behind the actions and behaviors of another.
- Consider written documents, room set-up, interactions, who makes decisions, the leadership style of those in charge, rituals, etc.
- One of the most important ways to work in a diverse setting such as the SCSD is to be self-aware and understand how your values, beliefs, and experiences affect your point of view and use tools like OSEE to move past your assumptions.

## **Working with Adolescents**

Although teenagers grow and develop at different rates, having knowledge of some developmental benchmarks of teenagers will allow Ambassadors to effectively address the unique needs of students. This section provides information about differences in learning styles, understanding disabilities of students and information on adolescent development. Use the following sections to develop mentoring sessions that meet the needs of your student.

An Ambassador is a trusted friend, mentor, tutor, and role model. Ambassadors are kind, concerned adults – young and old and from all walks of life that offer youth support, guidance, and encouragement. An Ambassador seeks to help young students navigate through the everyday challenges of school, society, and the community by drawing upon his/her greater knowledge and experience, and genuine concern. (Balancing the Books Program Manual)

Traits of an Ambassador:

- Leadership
- Caring
- Understanding
- Compassion
- Dependability
- Kindness
- Open-Mindedness

Goals of an Ambassador:

- Focus your goals with the program guidelines and your student in mind.
- Be there for the student(s) you are working with.
- See all sides of issues.
- Be a positive role model.
- Help students realize and develop their strengths.
- Achieve a greater understanding of the student's surrounding community.

# **Adolescent Development**

While working with teenagers, Ambassadors can face extremely challenging situations among periods of rewarding success. Physical, social and emotional changes in the adolescent body trigger great change that may affect the student's performance in school. During adolescence the idealized attachment to parents recedes. There is recognition of adult deficits accompanied by an increased sense of vulnerability, isolation, and/or loss. Teens sometimes fear regression and passivity and act out in order to feel powerful and release tension. Teens often can't recognize the repercussions of their actions, no matter what kind of well-intentioned advice they get. Below are two lists that describe both coping mechanisms and needs teenagers display during their development.

To cope, teenagers often turn to:

- 1. Self-centeredness.
- 2. Intense peer group/cultural hero attachment.
- 3. A push to action and search for intensity to fill the emptiness and reinforce a sense of being "real."

Teenagers need:

- 1. To feel powerful (in charge of self, effective).
- 2. Stimulation and intensity (to feel alive, due to neuro-chemical changes).
- 3. To discharge tension.
- 4. To affiliate strongly with others as a means of separating from parent figures (but adults are needed for healthy boundary formation and limit setting, i.e. something to push up against). (Charney, as cited in Nan Songer's course reader SPE 653)

Teens still need adults to relate to, but in a different way than they did when they were younger. They need successful role models who can help them understand life choices rather than someone to pal around with or act as a buddy.

# **Different Voices - Bridges Out of Poverty Model**

Many kids in poverty need to act as the parent in their own household. This makes it especially difficult for them to negotiate in a non-threatening manner. As a tutor, the adult voice is very important because it allows for negotiation, instead of sparking anger in children.

Child- defensive, victimized, emotional, whining, impatient, strongly negative, non-verbal.

- Quit picking on me.
- You made me do it.
- I hate you.

**Parent** – Authoritative, directive, judgmental, evaluative, win-lose mentality, demanding, punitive, sometimes threatening.

- You shouldn't do that.
- Life's not fair. Get busy.

Adult – Non-judgmental, free of negativity, non-verbal, factual, often in question format, winwin attitude.

- In what ways could this be resolved?
- What are choices in this situation?
- I would like to recommend
- Options that could be considered are \_\_\_\_\_
- These are the consequences of that choice/action: \_\_\_\_\_.

The descriptions of the Child and Parent voices often occur in conflicting or manipulative situations and impede resolution.

# **Understanding Disabilities of Students**

#### **Rethinking Disability**

The word "inclusion" denotes both a philosophy and a policy. Inclusion creates a climate of acceptance of everyone and focuses on strengths, abilities, possibilities, and support. Disability is a part of the variety of human experience and makes up the wide range of our diversity. Disability is only a "problem" because society makes it a problem through prejudice against disabled people, inaccessible spaces, and other barriers. Disability is not something that needs to be fixed or cured.

Ambassadors are likely to work with students who have a variety of disabilities. These needs fall into categories such as physical, cognitive, emotional and behavioral. According to Snow, Burns, and Griffin (1998), a number of conditions contribute to the reading development of students including support for reading related activities and the presence of an instructional environment that is conducive to learning; individual attention and interaction with reading materials help support successful literacy development. The following list presents an overview of some of the disabilities of students so that Ambassadors will have a better idea of what to expect when working with adolescents.

#### **Learning Disabilities**

Students with learning disabilities constitute the largest group of students receiving learning disability education services (Schmidt, 2002). Students with learning disabilities (LD) may exhibit a wide range of traits, including difficulties with reading comprehension, spoken language, writing or reasoning ability, and organization skills. Hyperactivity, inattention, and perceptual coordination problems are sometimes associated with LDs, but are not examples of LD.

Generally, a student who has been diagnosed with a learning disability will have an Individualized Educational Plan (IEP) that outlines the services and accommodations that will help the student reach his/her personal potential (i.e. extended time, use of a calculator or computer, etc.). However, often times students with LD issues are often times highly developed in some areas while deficient in others. (NICHCY, Learning Disabilities, 1995)

#### Strategies for Ambassadors working with students with Learning Disabilities

If you work with a student with learning disabilities, someone may tell you what kinds of things this individual needs to attend to schoolwork and make continued progress. If suggestions are not provided for you, some helpful strategies can be:

- Provide high structure and clear expectations.
- Allow some flexibility in classroom procedures to accommodate the different learning styles of students (see Learning Styles).
- Find ways to engage student's strengths to bolster weaknesses.

### **Emotional and Behavioral Disorders**

The category of Emotional and Behavioral Disorders includes a wide range of diagnoses including adjustment disorders, anxiety disorders, and conduct disorders among others. Children's

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behaviors exist on a continuum and there is no specific line that separates "normal" behavior from a diagnosable disorder (PACER Center, 2003). A problem can range from mild to serious and the criterion for a diagnosis is that the behavior is severe, chronic, and pervasive. There may be an inability to learn that cannot be explained by intellectual, sensory, or health factors. Although there are a large range of characteristics associated with Emotional and Behavioral Disorders, students with whom we've worked are often hyperactive, explosive, anxious, aggressive, and/or easily distracted and have experienced academic problems connected with their behavior.

# Students with Emotional and Behavioral Disorders may:

- Be depressed and withdrawn.
- Be prone to inappropriate types of behaviors or feelings under normal circumstances.
- Have difficulty building or maintaining satisfactory interpersonal relationships with peers and teachers.

# Strategies for Ambassadors working with students with emotional and behavioral disorders:

- Focus on helping the student learn self-control.
- Provide more individualized attention during academic work.
- Work on social skills and appropriate communication.

(Tilton, 1997)

# **Attention Deficit/Hyperactivity Disorder:**

Attention Deficit Disorder, commonly referred to as ADD, is a diagnosis applied to children and adults who consistently display certain characteristic behaviors over a period of time. The most common core features of a child diagnosed with ADD include:

- Distractibility (poorly sustained attention to tasks).
- Impulsivity (impaired impulse control and delay of gratification).

Attention Deficit Hyperactivity Disorder (ADHD) is a separate diagnosis. The symptoms of ADHD are similar to that of ADD but ADHD is also characterized by hyperactivity (excessive activity and physical restlessness). (Fact sheet on attention deficit hyperactivity disorder, 1998)

In order to be diagnosed, these behaviors must be excessive, long-term, and pervasive, disrupting the person's daily life. The behaviors must appear before age 7, and continue for at least 6 months. Clinical experience has shown that the most effective treatment for ADHD is a combination of medication (when necessary), and therapy or counseling to learn coping skills and adaptive behaviors.

# Strategies for Ambassadors working with students with ADD or ADHD:

- Display a positive and upbeat attitude.
- Be highly ready to problem solve.
- Provide the student with a structured and predictable environment.

## Some things disabled people want others to know:

- Don't use them as your inspiration. This can be demeaning, especially when they are doing everyday things.
- Treat everyone with the respect they deserve.
- Talk directly to the person with a disability and not their support person, even if they have limited communication or communicate in alternative ways.
- Give extra time when needed, especially for communication.
- Ask before helping. Don't just assume someone wants you to push their wheelchair or help with something. Don't be afraid to ask either.
- Disabled people have the same feelings as everyone else.
- A lot of people with disabilities often feel excluded or isolated. Inclusion is important.
- Talk to disabled people at age level that they are. Many disabled adults get spoken to like children. Many children with disabilities get spoken to like babies.
- Be an ally! The disability rights movement is always evolving.

(Fowler, 1995)

Meeting an Ambassador for the first time can be a little intimidating and unnerving. The following includes tips and an interview guide on what to discuss with students when you first meet them. Your student(s) will be more excited to work with you if you establish a sense of trust, respect and high expectations.

Ambassadors should take some time to get to know their student, establish trust, and increase the student's comfort level with you. It is a good idea to tell the student a little bit about yourself, including your reason for working with them and when you will be there, while not overwhelming the student by talking too much. Let the student have a chance to ask questions and get to know you. Be sure to make eye contact and smile. If you aren't in the mood to be mentoring, students will know. It is helpful to get to know your student's hobbies, sports, family, favorite books, music, school performance and career aspirations. The following questions can aid you in getting acquainted with your student. You may add questions to the list that you believe will reveal information that you can use to develop a closer relationship with your mentee and plan lessons to spark his/her interest, but do so with caution. You may find it works well to invite the mentee to ask questions of you while you work.

## **General Questions**

- 1) What do you like to do in your spare time? With whom?
- 2) Do you participate in any extracurricular activities at school? If so, tell me a little about them.
- 3) What kind of music, movies, and/or television shows do you like? Why?
- 4) Tell me a little about your family. Who do you live with? Who's important in your life?
- 5) What do you see yourself doing in 10 years? What colleges, professions, or life choices attract you the most?

(Chandler-Olcott & Hinchman, 2005)

Good questioning and good listening will help students make sense of different subjects, build self-confidence, and encourage thinking and communication. A good question expands a problem and supports different ways of thinking about it. Here are some questions you might try; notice that none of them can be answered with a simple "yes" or "no".

# **Getting Started:**

- What do you need to find out?
- What do you need to know?
- How can you get that information?
- Where can you begin?
- What terms do you understand or not understand?
- Have you solved similar problems that would help?

## While Working on a Problem:

- How can you organize the information?
- Can you make a drawing or model to explain your thinking?
- Are there other possibilities?
- What would happen if...?
- Can you describe an approach or strategy you can use to solve this problem?
- What do you need to do next?
- Do you see any patterns or relationships that will help solve this?
- Can you make a prediction?
- What assumptions are you making?

## **Reflecting about the Solution:**

- How do you know your solution is reasonable?
- How did you arrive at your answer?
- How can you convince me that your answer makes sense?
- What did you try that did not work?
- Has the question been answered?
- Can the explanation be made clearer?

Engineering Ambassadors

Everyone learns in different ways. Techniques that help one student learn may not be as effective for another student. Ambassadors may be able to assess a student's learning style through observation, interaction with the student, experimentation with different activities, and consultation with teachers and/or site supervisors. Further activities can then be tailored for that student.

No one learning style is "correct" and a student may use a variety of learning techniques depending on the activity or the learning environment. The following is a list of five learning styles and some suggestions for how to utilize the preferred learning style:

- **Reading** Some students store and retrieve information more easily when they can see it and read it themselves.
  - Motivating Tips Encourage the student to create his/her own word problems. Have the student dictate a story to you and watch while you write it or type it – then the child can share it with you. Use activities that require more reading than listening.
- Writing Often students learn information more easily when they write it down or make illustrations of concepts and ideas.
  - Motivating Tips "Pencil read" with students by having him or her underline important information as it is covered. Have a student jot down the steps necessary to complete a project. Try writing a letter with your student or keeping a dual entry journal.
- Listening/Speaking Students often learn more effectively by listening to a teacher's lesson or dialoging with a tutor about a book or lesson.
  - Motivating Tips Have the student repeat information aloud. Discuss concepts and ideas with your student or bring in other students to discuss a story with one another.
- Visualizing Some students learn most easily through images, by picturing complex concepts and "seeing" what they remember.
  - Motivating Tips Use board games and memory devices to create visual patterns. In reading, suggest visual clues. Have the student visualize the tasks for an activity to more clearly understand what they need to do. The student may want to try to "see" the word they need to spell before writing it.
- **Manipulating** Physical action is the key ingredient to stimulating students who learn in this way. The student learns by handling objects and manipulating the environment.
  - Motivating Tips While reading, let the child be mobile (within reason). Use numerous hands-on activities and experiments, art projects, nature walks, or acting out stories.

Engineering Ambassadors

A Literacy Initiative of the Shaw Center,

# 20 Ways to Say "You're Great!"

Terrific!	You learned that fast!
Outstanding!	Awesome!
Great idea!	Let's try that again!
I'm proud of you!	That was phenomenal!
You did a great job!	Exactly right!
Way to go!	You are a ray of sunshine!
Can you show me how to do that?	Nice going!
Perfect!	That was beautiful!
Fantastic!	I knew you could do it!
Wonderful!	Excellent!



Read each case and analyze them as a group using the OSEE tool (refer to page 11-12).

**O** Observe and listen to what is happening

S

- State objectively what is happening
  - In other words, describe what you observed impartially
- **E** Explore different explanations for what is happening
  - What social or personal issue was touched upon in the anecdote?
  - What tutoring strategies were used, and how effectively?
  - How did different behaviors and attitudes influence the actions taken?
- **E** Evaluate which explanation(s) is the most likely one(s)
  - Place yourself into the situation from the different perspectives
  - Everybody makes decisions based on who they are, how did a part of someone's personality influence their decision-making process
  - Would you have done anything differently in the tutoring process? And if so, what influenced you to choose a different decision?

1) Sarah was working with a student named Charlie during a Friday session and noticed that he was having trouble understanding the concepts presented. She decided to try having the student draw out a design to see if that helped but found that it wasn't an effective strategy either. She decided to talk to the classroom teacher who then informed her that the student was actually autistic. The teacher then went with her to the student and they all worked together on the lesson. Once Sarah felt confident in some new tips and tricks that the teacher taught her to use while working with Charlie, she decided to give the lesson another try with him on her own. Charlie made great progress, and although he wasn't able to completely finish the lesson on time, Sarah made sure to let him know that he did a great job and gave him some tips on finishing up the lesson at home.

2) Andrew was paired up with a student named Hector, whom he'd never worked with before. Hector did not seem happy to be there for the Friday session and was very reluctant to be a part of the lesson. Andrew decided to skip to the procedure after many failed attempts at getting Hector to read through the lesson's background information and answer the pre-procedure questions. Hector seemed a bit more interested in completing the procedure but became defensive when Andrew tried to help him through it. Andrew began to feel uncomfortable and told the site coordinator about this. The site coordinator spoke to the classroom teacher who took Hector aside and told him that if he wasn't interested in being there, he could leave but if he was, he had to behave and cooperate. Hector said he wanted to stay and returned to work with Andrew. Hector's behavior improved, but Andrew still felt uncomfortable working with him, as Hector was still being rude to him. Andrew decided after that session that he would not return as a volunteer for the remainder of the year.

**3)** During a particular Friday session, the number of Ambassadors was shorter than usual, so Julie had to work with two students at a table by herself. The lesson plan started and both students decided to work together. Halfway through the activity the two students started yelling at each other, so Julie turned to the site coordinator for help and told him what was happening. The coordinator then told her to calmly ask them to quiet down and continue the activity. The students stopped the yelling and moved on. A few minutes later, they started arguing again but now with bad words. Julie was not sure what to do now, she did not want to disturb the coordinator again with the same situation, so she tried to control it, but the students were not listening to her anymore. After a few minutes, Julie realized she could not do anything else to stop them. Finally, she decided to tell the coordinator again. The coordinator then went to the classroom teacher who talked to the students outside the classroom and the situation was resolved.

**4)** Justin has been volunteering with Engineering Ambassadors for a year now. One day, Stephen, the student he works with during every session, decides to tell him a secret. Stephen confessed to Justin that he was not very happy at school and he wasn't feeling like doing anything at the moment. Justin tried to cheer him up but was realizing he wasn't making much progress. Stephen then told Justin that he was being bullied by another student in school and that is why he was not in the mood for doing anything during the lesson plan. Justin brought up the situation to the site coordinator. The site coordinator spoke to the classroom teacher about the issue who said he would make sure the school handled the situation. However, Stephen did not return to the program the following week because he felt that Justin had betrayed his trust by sharing his secret.

**5)** Judean had been working with a student, Cameron, during a Friday session. They finished the lesson plan early so Cameron decided to draw in his journal which he enjoys doing in his free time. Cameron asked Judean for a suggestion on what to draw, so Judean suggested that Cameron draw something he likes to do. When Cameron finished his drawing, he proudly showed it to Judean. Judean's eyes widened in shock because Cameron had drawn an explicit picture of himself and someone else holding guns. Judean asked Cameron to explain his picture. Cameron mentioned that he and his brother enjoy playing video games at home that involve shooting. Judean proceeded to explain that while there's nothing wrong with playing video games, they are fantasy, and that engaging in real-life violence is not a joking matter and will not be tolerated in or out of school.

# **Distinguished Engineering Ambassadors Performance Award**

The Distinguished Engineering Ambassadors Performance Award is a yearly honor given out to those who go above and beyond the expectations, pillars, and policies of the Shaw Center and the Engineering Ambassadors Initiative. This award is signed by the CEO of SRC, the company responsible for the continuation of Engineering Ambassadors, the Director of the Shaw Center, and the Dean of Engineering and Computer Science. While volunteering for the initiative is already a fantastic addition to your resume, the Award is a great talking point during interviews.

The volunteer needs to demonstrate excelled performance at **all** of our outlined pillars:

- 1. Appearance
- 2. Attitude and Demeanor
- 3. Communication
- 4. Confidentiality
- 5. Professionalism
- 6. Commitment

# How does an Ambassador receive this award?

*Who:* Super volunteers who exceed our expectations

When given: End of every spring semester

*Qualification:* 2 consecutive semesters of volunteering, (special circumstances for those going abroad/co-op)

*How we choose:* The awardee has to have great attendance for their last 2 consecutive semesters volunteering, stellar attitude & demeanor, excellent bonds with the kids and Coordinators, a great representative of the initiative and SU on and off site, helping out the initiative, always eager to learn, etc. Candidates are proposed and selected by the EA Coordinator team.

## Transportation

The Shaw Center transports over 400 students to various Syracuse City schools and community-based organizations in the community every week. Students participating in the Engineering Ambassadors program do not need to provide their own transportation. Volunteers meet on campus at a specified site for each Friday session. Transportation will be provided to and from the sites.

Volunteers are asked if they are willing to drive their own automobile that can hold other volunteers for session. Engineering Ambassadors utilizes Shaw Center Transportation when there is an influx of volunteer numbers. The Shaw Center and Engineering Ambassadors follows the Risk Management Guidelines given and must oversee all transportation to and from site. This will be clearly communicated on a weekly basis.

### Weekly Responsibilities of Volunteers

On the Monday before session, an email will be sent out to all volunteers on the listserv with a Qualtrics survey link to sign up for session on Friday. This survey is to be filled out by a specified time on Wednesday, which is clearly stated in the Monday email. If a volunteer fails to sign up by the deadline, but still wants to volunteer for the week, they may email the initiative with understanding they are not ensured placement at site that week. The coordinators will determine if there is space open for the late volunteer to be placed in for that session. No reasoning beyond missing the sign-up deadline is required to be given to the volunteer if they are not placed.

A Wednesday email will be sent out with assignments for the Friday session. The meeting time and location will be outlined in this email. Ambassadors are responsible to text the site coordinator with any cancellations as soon as possible. On Friday, please meet at the specified location at the given time. Ambassadors are reminded to be professional on and off site including communication with the Initiative and Site Coordinators.

#### Weather Related Cancellations

During winter months, SCSD may cancel classes due to extreme weather conditions. Ambassadors should watch the major TV stations or listen to the radio stations to determine if the schools have been closed. Ambassadors should call 315-443-3051 and press "1" for weather related cancellation information. The Shaw Center reserves the right to cancel transportation when road conditions are poor even if SCSD remains open. If the Shaw Center does cancel transportation independent of SCSD, Ambassadors who provide their own transportation are not expected to go to their sites. All this will be clearly communicated to our volunteers.

## Lesson Plan: Newspaper Chairs

#### **Objectives:**

• To construct a chair out of newspaper sturdy enough to support a person.

#### **Background Information:**

**Structural engineers** have a very important role in building design and construction. Their responsibilities include choosing appropriate construction materials and making sure that the **joints** and



**members** of the building are sturdy so that it does not fall down. Structural engineers also need to predict potential problems that could affect the structure in the future. For example, if it is constructed in an area that is prone to earthquakes or hurricanes, the engineer must plan for this, making sure the structure will be able to withstand these additional stresses.



Structural design is a very mathematical process and there are several elements of design that are therefore commonly used. A **truss** is a structure comprising of one or more triangular units constructed with straight slender members whose ends are connected at joints referred to as **nodes**. The individual members are only acted upon by either compressive or tensile forces. A **compressive** force tends to cause buckling where as a **tensile** force tends to pull a member apart.

Today, you will use this knowledge and the knowledge you already have to build a chair using only tape and newspaper. However, construction is expensive, so try not to use more materials than you absolutely need. Determine the best design and be creative! The goal is to be able to support your weight using the least possible amount of materials.

### **Key Words:**

- Truss: A structure comprising of straight members arranged in triangles connected at nodes.
- **Tension**: A force that tends to pull a member apart.
- **Compression**: A force that acts towards the center of a member and causes buckling.
- **Buckling**: A failure mode characterized by a sudden failure of a structural member subjected to high compressive stresses.
- **Structure**: An outdoor immobile construction. Examples include buildings, bridges, radio towers, and dams.
- Node: A place where several members connect.

## Materials:

- Newspaper \$10 each
- Tape \$5 per yard

#### **Procedure:**

- 1. Using only newspapers and tape, design a chair that can support your weight while being as inexpensive as possible.
- 2. Need ideas? Think about what shapes make bridges sturdy and if you can incorporate any of those trusses into your chair...

## **Reflection:**

1. What shapes ended up being the strongest in your design? What shapes (if any) experienced buckling?

- 2. How many nodes are in your design? Could you have used fewer?
- 3. What materials, besides newspaper and tape, do you think would have made your chair stronger? Why was the newspaper difficult to work with?

**Comments:** Any ideas to improve this experiment?

Engineering Ambassadors

A Literacy Initiative of the Shaw Center,

# The School: 1613 James St, Syracuse NY 13203



# Location



# Background

• Home to the Building Men program. The mission of the Building Men Program is that young men in Syracuse will see themselves as part of a larger fellowship of men who, have excellent attendance in school and in after-school programs, graduate from high school and college and career education, participate in community in some level and have the ability to make a significant impact upon society.

Engineering Ambassadors

A Literacy Initiative of the Shaw Center,

# The School: 101 East Ave. Syracuse, NY 13224





# Background

- Hillside Work-Scholarship Connection is a center for after-school programs supporting six SCSD middle schools and four SCSD high schools.
- The high school graduation rate of students attending Hillside is about twice the rate of the district average, and of these graduates, between 70 and 80% attend college.

Engineering Ambassadors

A Literacy Initiative of the Shaw Center,

# The School: 157 Fellows Ave, Syracuse, NY 13210





## Background

• A recent renovation of the school and library now allows students to have an online database of all the books available at the school to every student.

Engineering Ambassadors

A Literacy Initiative of the Shaw Center,

## The School: 1130 Salt Springs Rd, Syracuse, NY 13224



## Location



## Background

• Partners with the Peaceful Schools Enrichment Program. The Peaceful Schools Enrichment Program aims to help students develop social competence, reduce incidences of youth violence, and establish value in and connection to their community. Peaceful Schools is committed to giving everyone the power to be peaceful.

Engineering Ambassadors

A Literacy Initiative of the Shaw Center,





## **Background:**

• Community partner with the Red House Art Center. Red House is a not-for-profit arts center, dedicated to providing professional theatre of the highest caliber, innovative arts based education, and community enrichment through cultural engagement.

Engineering Ambassadors

A Literacy Initiative of the Shaw Center,