Providing Systematic Instruction

“Good teachers understand that for a child to learn, the teaching style must match the student’s learning style.” (Grandin, 2011, p. 26). It is the goal of every teacher to teach both neurotypical students and students with autism spectrum disorders (ASD) the academic and interpersonal skills they need to be functional in society. Teachers also aim at ensuring that students are not only taught at levels of instruction that challenge them, but also thought in a way that builds their confidence and provides them opportunities to succeed. Students with ASD may have different instructional needs because of their disability. Teachers should therefore make use of evidence-based practices (EBP) in their educational interventions. Evidence-based practice refers to “Educational Practices that have been demonstrated effective based on quality research.” (National Research Council, 2001).

The use of EBP involves applying the best available research evidence in the provision of health, behavior, and education services to enhance individual outcomes (Metz et al, 2007). One such evidenced-based instructional approach/strategy in teaching students with ASD is systematic instruction. As stated by Iovannone et al., and published on the website of the Chalkboard Project, systematic instruction “involves carefully planning for instruction by identifying valid educational goals, carefully outlining instructional procedures for teaching, implementing the instructional procedures, evaluating the effectiveness of the teaching procedures, and adjusting instruction based on data”. It is an instructor directed strategy where the instructor addresses a student’s needs and deficits. Students follow the instructor’s directions and acquire needed skills.
The following portion aims at defining and discussing systematic instruction. It will also provide examples of systematic instruction with particular references to discrete trail teaching, TEACCH, and PECS. A table of why these instructional strategies work with students with Autism Spectrum Disorder is also provided.

Systematic instruction is a way of teaching new skills in small steps. It involves pausing to check for the student’s understanding of the material being taught and requires active participation from the student (Rosenshine, B. n.d). According to Heflin & Alaimo (2011), systematic instruction requires planning for instruction by identifying valid educational goals, identifying and using effective instructional strategies to teach, evaluating the effectiveness of the instruction and modifying the instruction based on data collected. The authors further stated that, “It is the use of instructional technologies with demonstrated effectiveness, including those that meet the criteria of being applied behavior analytic” (Heflin & Alaimo, 2011, p.130). Applied behavior analysis (ABA) is a technique that promotes a change in behavior. The selected intervention must be meaningful and demonstrate effectiveness. It must also consider the influence of the environment on the behavior and incorporate techniques that will promote the use of the skill across different settings. Data collected must show that the interventional strategy used “is responsible for the change in behavior” (Heflin & Alaimo, 2011, p.180).

There are various forms of systematic instructional strategies. One such example of instructional strategy that is based on the principles of ABA is discrete trail teaching (DTT). DTT is an intervention strategy where instruction is given repeatedly on one-on-one basis. Functional skills are taught in small repeated steps with definite beginnings and endings. Antecedents and consequences are implemented and desired skills are
positively reinforced. Data are then collected for information and as support for decision making (National Professional Development Center on Autism Spectrum Disorders). The goal of DTT is to teach the student to respond “when directed and not to respond if not directed” (Heflin & Alaimo, 2011, p.181).

There are basic components to follow when conducting DTT. These are to obtain the student’s attention, followed by a presentation of the stimulus, then response, feedback and inter-trial feedback. The instructor must effectively attract the student’s attention the first time. A clear and concise direction within the student’s repertoire is given in a consistent manner. A wait time is allowed for the student to respond correctly, incorrectly or not respond. The student is reinforced based on the feedback or responds given. Another variation of DTT is to provide prompts with the stimulus to increase success. DTT uses a least-to-most prompting system starting form verbal to physical prompts. (Iovannone et al., 2003). Data from the trial is then recorded during the inter-trial interval. If the student is able to provide the correct answer three trials in a row, a new stimulus is then introduced (Heflin & Alaimo, 2011).

Another form of systematic instruction that optimizes learning support, behavior regulation and promotes learning in students with ASD is the Treatment and Education of Autistic and Communication- Handicapped Children (TEACCH).

TEACCH is an intervention strategy developed by Eric Schopler. The approach is a family-centered; and evidence-based practice for autism. (“Teacch Approach”, n.d). As published on the Autism Speaks website, TEACCH emphasizes a highly structured classroom environment and the use of visual learning. The classroom has clearly defined areas for each task. Students use schedules made up of pictures and/or words to help them
transition smoothly between activities. Advocates of TEACCH state that the program aims at developing the individual as a “whole being” rather than focusing entirely on the behavior. This is done through the use of visual information, structure and predictability (“TEACCH”, n.d.). In TEACCH, students may sit at a workstation and complete certain activities. The finished assignments are then placed in marked containers. Students may use picture communication symbols to answer questions and request items from the instructor. In the TEACCH program, individualized educational programs are designed for all students based on assessments. Stakeholders are also trained to work with professionals as co-therapists. This makes it possible for intervention process to be continued at home and other locations (What is TEACCH? n.d.)

The use of a Picture Exchange Communication System (PECS) is another way to help students diagnosed with ASD communicate, and for instructors to regulate instruction. PECS is a picture base augmentative alternative system (AAC) that assists students with ASD to communicate by exchanging pictures for desired items or activities. Students in the TEACCH program do not require prerequisite skills and the program may be used across different settings (Dogoe et al., 2010). PECS provides some flexibility to nonverbal and partially verbal students by encouraging them to initiate communication. Such individuals have to seek communication partners in order to exchange their picture for a desired item (Heflin & Alaimo, 2011).

Bondy & Frost, (1994) stated that, “there are six phases of training in PECS:

1. Requesting an item with a picture or object,
2. Distance between notebook, board, or picture is increased and student taught to retrieve the picture/object to express intent by exchanging it with someone in the environment,

3. Student is taught to discriminate between pictures so that they can have more choices,

4. To request,

5. To answer,


Two instructors are needed for the initial training in PECS: the communication partner and the prompter. However, the instructors could be different people. This may be because the goal of PECS is spontaneous communication with different people, across different settings (Heflin & Alaimo, 2011).

As discussed from the beginning, students/individuals with ASD may acquire information in different ways. Such individuals may have to be intentionally taught skills and concepts they need to function efficiently in society. The use of systematic instruction allows these skills and concepts to be taught in a small step by step manner. Selected instructional intervention must be based on ABA principles and make valid through data collection. Instruction is individualized based on the needs of the student. Data are collected and used to assess the student’s progress and used as support for decisions made. Below is a table of why the selected strategies mentioned above may be used.
<table>
<thead>
<tr>
<th>Instructional strategy</th>
<th>Why it is used</th>
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<tbody>
<tr>
<td>Discrete Trail Training (DTT)</td>
<td>One-on-one for more individual time; Instruction is delivered in small steps; Sentences are short with specific beginnings and endings; Responses are reinforced; Motivation level of the student is increased; Works well with the short attention span of the students; Each skill is taught until it is mastered; Provides a lot of practice time because of repetition</td>
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<tr>
<td>Picture Exchange Communication System (PECS)</td>
<td>Facilitates social instruction; Promotes and facilitates the emergence of spoken language; Encourages spontaneous initiation of communication with a variety of communication partners across settings; Can be used with all ages and disabilities; Used to construct simple sentences; Can be used both for asking and answering questions; Minimal training is required; Individual's peers may be trained as prompters; Intention of student is clear and understood; Communication is meaningful; Easy to prepare and portable; could be hand drawn; Ability to builds independence in students; Reduces maladaptive behaviors; Easily understood by peers; Has ability to help students generalize communication; Helps students builds functional communication</td>
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<tr>
<td>Treatment and Education of Autistic and Communication Handicapped Children (TEACCH)</td>
<td>Provides defined boundaries that may reduce sensory destructions; Encourages independence; Works well with students with organizational deficits; Promotes collaboration amongst parents and therapists; Provides structured teaching; Tailored to meet the need of the student</td>
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References


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