

# Visual Learning Tools in the 21<sup>st</sup> Century

## THE EVOLUTION OF A SOLUTION



Technology captures all ages and levels of learners, and can allow for differentiation for various levels within a single group lesson. Photo credit: Jeff Richards

### The revolution and evolution of technology is rapidly transforming the face of education, including special education for autism

The choices of computer programs and apps available, both for general education and specific to autism, interactive boards and tables, response systems to track performance in classrooms, desktops, laptops and tablet computers, have multiplied exponentially and will continue to evolve as we learn about new ways to improve learning and outcomes for our students.

Meanwhile, teachers are required to monitor IEP goals and objectives, access state standards, choose evidence-based practices, modify curriculum, differentiate instruction, collaborate to promote generalization and, all the while, foster independence. On top of all that, how can you possibly keep up with and leverage all of the new technology?

The Monarch School for Children with Autism of Bellefaire JCB in Shaker Heights, OH, sought to find a consolidated solution to the ever-expanding needs of the students, the staff and the administration. In a collaboration with Dr. Howard Shane and Children's Hospital Boston/Harvard Medical School, visual language and technology

became the drivers of a visual learning solution for students on the autism spectrum (as documented in his book *Visual Language in Autism* [Plural Press, 2008]).

#### WHY VISUALS AND TECHNOLOGY?

Research has proven that individuals with ASD typically use visual processing as their dominant information processing mode, and, because of that strength, they usually possess a heightened interest in visual materials (Furth, 1981). Children on the autism spectrum have extensive interest in computers, television and video, and the majority choose to spend more time with electronic media than with all other forms of play combined (Shane & Albert, 2008). We have seen this at home, on the bus, in the community and in the classroom as technology becomes more portable and children are using cell phones, hand-held gaming systems and video on the go. But when it comes to learning concepts and content for higher learning, is technology better?



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What most parents and teachers will anecdotally attest to has been well documented: Children with ASD are more attracted to, and engaged by, materials presented interactively on a computer. For many children on the spectrum, that engagement is the key to success. In one of the many studies available, a group of children on the spectrum were attentive to a computer-generated lesson 97 percent of the time, learning 74 percent of the targeted nouns. The same material in a teacher-directed lesson engaged only 62 percent of the time, with only 41 percent of the targeted nouns acquired (Moore & Calvert, 2000). Technology can reach these students in ways nothing else can. Technology can be the difference between success and failure with children with ASD.

## THE EVOLUTION OF A SOLUTION

As the Monarch School began to evolve a Visual Language Program with Dr. Howard Shane and Children's Hospital Boston, it quickly became clear that harnessing newly developing technology was the key to transforming the research into practical applications. VizZle, a visual learning program, was born out of the research and need. Based in Shaker Heights, Ohio, Monarch Teaching Technologies, Inc. (monarchtt.com) committed to providing technology-enhanced solutions that provide effective, yet cost-efficient support for children with special learning needs. After almost four years of research and development at both Monarch and in public school special education classrooms, the company introduced VizZle Software for Visual Learners for the general market in 2009.

VizZle has evolved into an award-winning Web-based software that provides visual and interactive technology-based instruction for diverse learning needs. It aligns with and supports evidence-based practices



The VizZle player allows generalization into multiple settings on a wide variety of computer platforms including iPad and Android mobile tablets. Photo Credit: Adam Noble.

identified by the National Professional Development Center for Autism Spectrum Disorders. VizZle supports 18 of the 24 evidence-based practices, which should be chosen based on individual assessment and need. This list includes computer aided instruction, differential reinforcement, discrete trial training, naturalistic interventions, parent-implemented intervention, picture exchange communication (PECS), prompting, reinforcement, social narratives, social skills groups, structured work systems, video modeling, visual supports and more (<http://autismpdc.fpg.unc.edu/content/briefs>)

VizZle allows access to engaging differentiated curriculum in a peer-reviewed shared library, with lessons that can be used directly from the library or edited as needed. It also has flexible templates with an impressive array of in-program images (all approved by educators specializing in autism), videos and audio clips, and easy-to-use tools that allow you to create your own lessons. Features like tracking data by IEP goal, complete control over built-in reinforcers and celebrations, the ability to import images or videos from your computer or found on the Web and simple controls for adding voice or text-to-speech, make plain that this program was custom made for working with children with ASD, by hands-on educators with classroom experience.

And while most VizZle activities can be printed for tabletop use, they all take advantage of the intrinsic engagement of displaying interactively on any computer, touchscreen or electronic whiteboard connected to the internet. Just as important, VizZle can be used on a huge variety of hardware platforms (e.g. PC or Mac, iPad or Android) allowing you to create and organize from anywhere and play a lesson that can be generalized to any number of settings, without having to buy specific hardware to use it.

## VIZZUALIZING THE PROGRAM

VizZle is a visual language program. The idea is to support students across settings and experiences with visuals to promote communication and comprehension. Theoretically, visuals fall into three distinct categories.

Visuals for instruction include visuals to expand experiential learning and concept development, as well as accommodations and modification of curriculum, which help students process, comprehend and respond to information.


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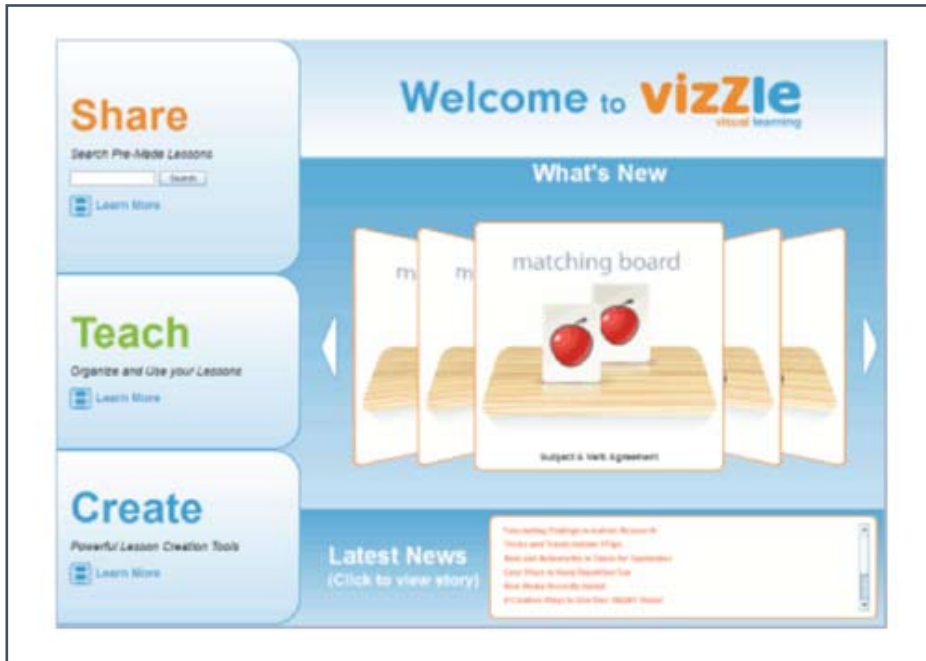
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## Technology to Transform the Autism Classroom

- Create visual learning supports using a 15,000+ item media library
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Vizzle's entry page lets you navigate quickly to any of the three sections of the program.

Visuals for expressive communication expand language and self-expression, including communicating wants and needs and expressing comprehension of new language tasks, which helps students understand information being expressed, as well as expressing information themselves.

Visuals for organization, probably the most familiar of all visual supports, like schedules, token boards and timers, help students understand the expectations of learning, reducing anxiety, improving compliance and behavior, as well as promoting comprehension of daily routines and activities.

Vizzle is a solution for managing all three kinds of visuals – drop in the student's IEP goals, search the shared library to find content to support the goals and objectives, modify content to differentiate instruction or create exactly what's needed. Once lessons are assigned, students can login and work independently, work 1:1 with an instructor or work in small or large groups, depending on the learning environment. Once lessons have been completed, reports are instantly accessible for data-driven decision making.

### THE PROGRAM ITSELF HAS THREE MAIN AREAS TO NAVIGATE, TEACH, CREATE, AND SHARE

**TEACH** provides the tools to organize and launch those individualized lessons and includes powerful data collection, either generally or by specific IEP goal or state standard – a feature unique to Vizzle. Add your students, customize their profile and drop lessons into a student player folder so each student has their own individualized experience on the iPad,



Images resident in Vizzle are all reviewed and approved by autism specialist, and are often uniquely suited to working with children with autism.

Android or computer. Network with others on the IEP team by using shared folders. If you choose, parents, as well as staff, can have access to a child's folder to reinforce and track data across environments to promote generalization, collaboration and communication.

**CREATE** lets teachers, parents or therapists create or edit any and every feature of a lesson for differentiated instruction of students with diverse needs. They can choose from thousands of images, audio and video clips in our database or drag-and-drop in their own media directly from the desktop. Each interactive lesson template has customizable reinforcers and rewards built in.

The templates were specifically designed to meet the needs of the students and the teachers, in order to foster learning and independence. They also align with the three areas of visual language to create a holistic approach.

Interactive books can be used to create social narratives or modified curriculum. Add a variety of comprehension questions and popups to differentiate instruction during a group activity to promote active participation at any level.

Matching Boards provide a question and answer format to facilitate assessment and instruction through combinations of images, audio, video or text. They can accommodate any level of learner, from very basic 1:1 matching and discrimination through the highest level learning concepts.

By their group nature, the game-type lessons facilitate social interaction, providing important practice of social skills during play. They, too, can be set up for any level of ability and in any topic from math to science, speech therapy to activities of daily living.

The tools in VizZle are great for student organization. Schedules increase communication about expectations in the classroom, during transitions, in the community or in the home, reducing anxiety and increasing time on task. VizZle goes beyond standard schedules though, introducing interactive timers, token boards and first-then boards that add a whole new level of communication about expectations.

Need to print pictures for a Picture Exchange Communication System or topic boards to incorporate new vocabulary into daily interactions, label the areas of the classroom for structured teaching or make activities for an independent work station? VizZle has more than 15,000 pieces of media that can be used interactively or printed, using a lesson or Pix-2-Go template. Printing allows for generalization of activities into multiple formats and for assessment of true skill mastery across settings and activities.

**SHARE** allows users to share and borrow adapted curriculum from a vast and ever-growing peer-reviewed shared library of effective materials. VizZle is also the fastest growing online community for authoring and sharing interactive visually supported lessons. The more shared, the less the need to create from scratch, saving a huge amount of time previously spent reinventing the wheel each time something was needed. All lessons in the Share library are editable, so you can make quick tweaks to lessons to target specific learning styles and needs.

### CLASSROOM OF THE FUTURE

It all seems to be evolving with lightening quickness – the lists of evidence-based prac-

tices, the needs in the special education classroom, what makes administrators feel secure in student learning and outcomes, and all of the new technology to support the changes. As educators, we are expected to somehow keep on top of all of these changing needs. VizZle supports that need to evolve, as well to succeed.

VizZle itself has evolved, and will to continue to do so, to meet these challenges with success. The goal of VizZle is to provide a program that grows with the child, the teacher, the classroom, the school and the technology. It provides rich multisensory experiences that give students access to the world at their fingertips. Whether it is helping them navigate independently, transition more smoothly or open doors to learning any content at any level, technology like this visual learning solution is what will transform our classrooms into the ideal future. ■

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