Technology Training for the Autistic Mind

Dan Selec – nonPareil Institute

nonPareil.

"A person or thing so excellent as to have no equal or match"

Abstract:

Autism affects 1 in 150 children today.

As parents, educators and researchers of autistic children, we are familiar with the diversity of needs, talents and unique world views these children possess. Much effort has been invested in furthering our understanding of this altered mind set and its effect on those who live with autism.

At nonPareil, we have dedicated ourselves to technology research, training and provision that can positively impact the lives of the families and children[i] that must answer the fundamental questions that make up our day to day existence. These questions are both familiar, and yet esoteric; easy to ask, hard to answer.

"What kind of future do these children have?"

"How will these children be provided for?"

"What life fulfilling events should these children expect to experience?"

"What abilities do these children possess that can be a benefit to them and to society in general?"

We do not expect to be able to answer these, nor most, of life's questions about our children's futures. But it is beneficial to ask these questions. Better to look for what answers we can.

This paper will be targeted at those interested in learning about the vision and direction for implementing technology training and technology solutions as tools to better the lives of those who are autistic and the families that support them. In the long term, we envision

endless possibilities to address some of these challenges. For nonPareil, we are at the beginning of this journey.

Key Terms: autism, special education, educational research, game design, code development, artistic learning, social knowledge construction, informal learning

Ask the Right Questions

While nonPareil will be conducting various forms of technology research and use in autism, our first phase will be conducting research into non-verbal assessment and evaluation, systems of learning, behavioral motivation and environmental needs and construction for autistics.[ii] To accomplish this, the right questions must be asked.

"How do these children learn?"

"What motivates them to engage in an activity?"

"Can the desire to accomplish be imparted, given the proper analysis of their abilities?"

"What special environments will be most conducive to their learning?"

Establishing the tools, building the curriculum, and displaying the results are a less difficult task than answering the above questions. In order for this phase of our program to meet with success, we must provide an environment and a methodology in which these students can thrive. The spectrum of autism is wide and varied. What can our realistic expectations be regarding these individuals and as a group? And finally, a supposition in the form of yet another question: will engaging our students with things they like to do increase their interest in learning new things?

Many of us, parents and educators alike, have seen behavioral patterns during leisure activities in these children. They have preferred methods of play, types of play and environments in which to play. This often takes the form of computer or console games, use of the Internet to search for things they are interested in, or others may find fun through reading. These activities could be expected to take place apart from the rest of the

environments activities, in a private or semi-private setting. Could this be an indication of where they are most open to new ideas? If so, this would certainly be a valid entry point for furthering the educational process.

So many difficult questions, but educators and parents around the world are seeking to answer each and every one. And answered they must be if we are to provide life fulfilling experiences for these children. We must seek to give children living with autism the ability of self expression; of thought, and dream. This very thing makes us who we are. Our thoughts uniquely communicate who we are, both to the world and to ourselves. The loss of this ability is perhaps the most grievous of all disability known to mankind.[iii]

With this said, the Phase 1 foundation for nonPareil Institute will be based on building a culture crafted for our students needs. These will be a:

1. **Culture of Belonging (team)**
2. **Culture of Mutual Respect (safe)**
3. **Culture of Discovery and Growth (learning by seeing)**
4. **Culture of Community (NPI as a whole)**
5. **Culture of Mental and Physical Health (daily exercise and mental health class)**
6. **Culture of Accomplishment (results produced)**

It is our fervent desire that the aspects of this culture will serve to provide life long, fulfilling experiences that they can leverage every day. We intend that each student would eventually graduate from student, to instructor, to resident. Our facilities would represent a home of sorts throughout their lifetime, or at least a place of community and belonging. In conception, this could even include assisted living facilities in a campus like environment at some point in the future. Obviously, much will depend on the financial support we will be able to raise over the years. We look to industry, government and family to help us see this dream for our special children fulfilled.

Basis of Belief – Technology in Autism

Much has been said recently about using technology for use in autism research, learning and life improvement. Visit any of the major sites on autism and you will find some mention of this. This is the founding principle at nonPareil, that we would not only make use of available technologies, but that we would teach these technologies to those with autism. Imagine what they would produce!

If you had a tool installed on your PC that allowed your "inner artist" to flourish, at least in digital works of art; would the works expressed therein be considered self expression? Of course they would. Many of us already make use of such tools, when editing photos, posting to a blog, or even composing an email.[iv] Simply teaching a child to edit photos or write an email would be considered for some a great outlet for self expression. This is a very easy thing to do, perhaps even for many special needs children. And we must agree that this is the most basic and common of our tools that are available today.

When looking at a video game, what do you see? To many not so accustomed, they can be too loud, too fast, and too overwhelming to warrant consideration. Computer gaming itself has largely been seen as a bane to society, something to be dealt with even at government levels. And for some games, and genres, they may well be correct. The content to our kids must be filtered to what is appropriate; perhaps even more so in children with disabilities. Why is it then that kids, special and otherwise, and a large growing number of adults worldwide can spend countless hours at the screen of this huge and growing market? Is this a growing social problem or a paradigm shift in how we play? More and more, some are asking if this could even be a shift in how we *learn*.[v] Some of the latest works coming out on games as social tools are casting games in a new light, very different from the traditional views of the past.[vi] Certainly, take any game throughout history, (Go, chess, etc) and you will find that each has undergone evolutions in play style and strategy. Each generation attempts to surpass the other in sophistication of strategy and style. Indeed, players of today's games continue to evolve learning systems, many times in social settings, in which

to better understand and conquer these game environments. Especially in the case of massively multi-player online games, social interaction (verbal and nonverbal), team work, strategy and focus are attributes enhanced. Watching a 12 year old run a team of five other players to accomplish a mission (again, both verbally and nonverbal) is a unique form of social skills development. Keyboarding skills (what we called typing) are now an assumed ability rather than something learned through the school system. At the very least these things are an interesting display of how technology is engaged in the life of children. At best, it is a display of how gaming is changing the way our kids learn. Children being children, those affected with autism also find PC and console games to be enjoyable. Many have already made attempts to engage at this level to enhance learning. Would the games and programs written by our kids be unique and perhaps beneficial to others? At nonPareil, we certainly think so.

It is important to understand; a computer game of any sort is simply a collection of digital works. An artist builds digital works that represent the imagery in the game. Musicians compose sound tracks as well as in game sound effects. Many others use tools to construct levels, scene elements and various game interactions. Writers craft the storyline and give purpose to the play. Developers build the core code engine that pulls all artistic elements into a playable compilation we call a game. For our purposes, the game is the motivation for learning. The skills taught are very world relevant, regardless of the context.

Again, giving these kids the training they need to self express through digital works is our Phase 1 goal.

First Thoughts on a New Way to Help our Children

As stated in our vision, we assign no limits to what we can do, or how much we can accomplish with this institute. But we must begin somewhere. The following are the concepts and ideas we are initially intending to move forward with in Phase 1.

NONPAREIL AS A PLACE OF BELONGING

I really can't remember how many times I walked into a room only to see my son separated from those around him. I can only think of one birthday party he has ever been invited to by his school peers. I can only imagine the hardships he has faced alone, and will in the years to come, for being different than those around him.

One of the first experiences we will provide at nonPareil is one of team. Keeping with our social gaming formula, each student will be assigned to a "guild". Together, they will choose their own name, craft their own emblem and build their first projects. For us, this would be a statistical group through which we could monitor and track movement through our programs. For the student, this may very well be the first time they are accepted as a functioning member of an established group of peers. During some of our fun sessions, guilds will compete against each other. This will be one controlled social environment where we can teach sportsmanship, challenge, and the rewards of competition. Helping them learn to socialize in an environment they find fun and natural is an important part of this process. It is further intended that much of the content they construct in their projects would be integrated into the gaming environment in which they compete. This would further add a component of strategy in what they choose to build and how they build it. They would also have the satisfaction in seeing their own works put to use in something they can relate to.

This may sound strange to many who read this paper. But research being done today is proving the viability of this methodology, at least in normally functioning children. This is also a part of our vision: To seek out unique and inventive methods of building character, growth and belonging.

Those employed by us will not be seeking a "clock punching" position. We will expect and demand each to spend their days in thought and examination. In order to impart the skills needed to accomplish these goals, a large amount of personal commitment will be required.

In addition, many of those we employ will come from industry, and could make a better living working in for-profit endeavors. We will attempt to be competitive where we can, but will likely not be able to compete in dollars for these talented and sought after people. For those who do sign on, it will be a personal choice about how they choose to use their talents. This may well be one of the most difficult positions any will ever hold in their lifetime. But we have no doubt, it be the most rewarding, for they too will belong.

LEARNING MUTUAL RESPECT AT NONPAREIL

Every day may begin with our touchstone. Every Discovery Center (our learning labs) will have a plaque by the door with the word: NONPAREIL. Each student will learn that this is how we view them, as a person so exceptional, as to have no equal or match. It will be a point of pride as each enters the room to touch the plaque to remind them of who they are to us. It will also serve as a reminder of how we see the others around them as well. And through that, we must give others the same respect given to them. We must strive to expand their view from self, to others. From their world, to our world. Much work will be required to further expand and support the practical deployment of this concept.

Our staff will operate under a very specific set of procedures and conditions. Our student's personal safety must be held paramount above all other concerns. The patience and diligence required to accomplish their daily goals will not always be easy. There exists a wide range of behavior and ability in this group of people. Each must be addressed individually. Monitoring, safety and functionality must be designed into the facilities we construct.

DISCOVERY AND GROWTH AT NONPAREIL

Imagine a team of autistic students designing, creating and publishing their own version of a PC game. The creativity expressed therein would be very interesting to see. We have the tools to teach these skills to these students today. The gap that must be closed is more of a

"process of instruction", rather than the skills themselves. Many of the tools available today make the entry point very low, very accessible for new comers to the business. The games produced by such an endeavor would have a unique viewpoint, like their authors, but also could be very applicable to the autistic community and those who serve it. The interesting thing about the tools that are used in game construction is that they are completely applicable to many other profitable endeavors, such as website construction, application development of all kinds and database design. We intend to use gaming as the motivation for learning. We can show how to create, modify and insert new art and development creations into many of today's outstanding game titles.

Through the use of tools like Microsoft Expression, Microsoft Visual Studio, Microsoft XNA, Microsoft Surface, Adobe Photoshop, Maya, 3DMAx, Valve's Hammer and Epic's Unreal Editor, to name a few, we can open a whole new world of discovery and learning for these students. Websites, game content, artwork, 3D modeling, and modification become possible. We believe this group of uniquely minded individuals is specially suited to making use of these tools.

We must be careful in choosing reasonably responsible games to work with, and promote positive creativity where we can. Some games these days are increasingly dark, and will not be appropriate for nonPareil instruction. This type of content will be discouraged, and our training culture will promote design of smart, responsible content for our students.

There may be those who have no real barometer for gauging what we are speaking of when it comes to these things. Much of what you believe will have been inherited from the news, friend's comments or in passing from other sources. We will help define and demonstrate what is available today, and seek to educate the parent in this regard as well. We understand they will trust their child's development to us, and we will not intentionally betray that trust.

NONPAREIL AS COMMUNITY

We intend to build a place of community, not only for our students and staff, but also the families that will be part of this program. Dedicated swimming facilities, play areas, game rooms should be a part of our structure. We will host events for students and their families alike. Our facilities must impart a sense of calm and thought. They must be constructed from the viewpoint of our children's needs. We will be seeking input and expertise when we are ready to begin moving toward a permanent facility.

PROMOTING MENTAL AND PHYSICAL HEALTH AT NONPAREIL

Every student must learn to become exceptional, at least in their view of self. They must learn to exceed the expectations they have for themselves. We must invoke a positive mental outlook in each student in order to move forward. This may take little effort in some, while others may need a very long period of personal coaching and reinforcement. We would welcome thought, comment and study on engaging our students in this area. To build exceptional talent technically and not address their mental well being would be a disservice to our students. This is important due the statistics involving older, post school autistics and their mental health state.[vii]

ACHIEVING ACCOMPLISHMENT AT NONPAREIL

Much of what will be produced during the course of the student's education will be consumable by the public as well. We will provide many of our works through Internet downloads as free content to demonstrate what is being produced at nonPareil. This may open doors with game studios, publishers and industry in general. It will certainly be a visible means of accomplishment for our students.

We will also promote individuals as they progress through our programs. Ceremony will exist as a way to share their accomplishments together with their families and friends.

Challenge and Need

Today, there is not much in the way of opportunity for those that struggle with ASD. Many are attempting real world answers to these issues, and are achieving positive results that benefit those with autism and the families that support them. We laud their efforts in every way. At nonPareil, it is our desire to build upon the works that have preceded us. We are simply taking the next step. We will continue their education in a way that will be of great benefit our student's and allow them to contribute to the human conversation. We must demand more than simple provision for these special people. They too have Hopes, Dreams and Talent. Technology is one way we can tap that talent. We have seen so much change in life enhancing technology over the past 10 years. What we have seen thus far is a shadow of what is to come. Prepare to be amazed. This institute exists solely to create solutions and training that will benefit the lives both for those with autism and others around the world.

---

[i] Throughout this paper, children or students will refer to the autistic children of parents, the primary target for this paper. It is to be understood that these children will have completed their formal education as required by their state. We are attempting to address their continuing growth and education in their post-school years.

[ii] While our focus at nonPareil will be those with autism, it is not beyond the possibility that we may enroll asperger's students as well. Depending on the available student pool, some of these special needs, higher functioning individuals could very well provide additional ability to our talent pool.

[iii] In the mind of the author at least; I beg for the allowance of my own opinion in this.

[iv] Though some would say we write an email and compose a book…

[v] See Steinkuehler and Duncan (2008). Scientific Habits of Mind in Virtual Worlds, http://website.education.wisc.edu/steinkuehler/mmogresearch.html

[vi] See Pew Internet Project (2008). Teens, Video Games, and Civics http://www.pewinternet.org/pdfs/PIP_Teens_Games_and_Civics_Report_FINAL.pdf

[vii]See columns like: http://www.autismvox.com/autism-and-depression/, Dev Med Child Neurology 1994; 36: 441-8, E. Muller, A. Schuler, and G. B. Yates
Social challenges and supports from the perspective of individuals with Asperger syndrome and other autism spectrum disabilities
Autism, March 1, 2008; 12(2): 173 - 190.