



Tech Tuesday

Gaming and Disability

Danny Housley & Ben Jacobs
Tools for Life

www.amacusg.org

Outline



The following presentation will cover the following topics

- A brief overview of AMAC and Tools for Life
- Reasons why play is important to everyone
- Benefits of gaming for people with disabilities
- Gaming through history and examples
- Solutions to overcome barriers to gaming
- Other information

Tools for Life



We're here to help Georgians with disabilities gain access to and acquisition of assistive technology devices and assistive technology services so they can live, learn, work, and play independently in the communities of their choice.



AMAC Accessibility



AMAC creates practical solutions that work, with a focus on utility, ease of use, and high quality.

- **Accessibility Consulting** focuses on organizational accessibility needs with evaluation, technical assistance, customer support, and website accessibility solutions.
- **Braille Services** produces customized projects from both print materials and electronic text including partial books and chapters or graphics only using cutting-edge technology.
- **Captioning Services** makes classrooms, meetings, labs and other audio environments fully accessible for deaf or hard-of-hearing.
- **Professional E-Text Producers** provide high-quality e-text in many formats such as PDF, DOC, DAISY, and HTML.
- **Certified Assistive Technology team** provides on-site and remote assessments, demonstrations, training and technical assistance for education, work, and daily living environments.

For more information, please visit our website at www.amacusg.org



Tools for Life

Georgia's Federal AT Act Program



- Tools for Life is a program of AMAC Accessibility Services, Georgia Tech
- We serve individuals of all ages & disabilities in Georgia
- TFL Network
 - Assistive Technology Resource Centers/Outreach Sites
 - Lending Libraries
 - Training and Demonstrations
 - AT Reuse
 - AT Funding Education/Assistance and Resources
- Online Resources
 - www.gatfl.org



Tools for Life Network



Tools for Life Website



- TRAINING
- FUNDING
- PUBLICATIONS
- TFL WIKI
- MEET THE TFL TEAM
- MEET THE ADVISORY COUNCIL
- DIRECTIONS/MAP
- JOIN OUR MAILING LIST
- SCHEDULE A TOUR

Welcome AT Services Try AT Get AT AT Guides Research

Find or Donate Your Gently Used AT & DME



Welcome to Tools for Life

Tools for Life, Georgia's Assistive Technology Act Program, is dedicated to increasing access to and acquisition of assistive technology (AT) devices and services for Georgians of all ages and disabilities so they can live, learn, work and play independently and with greater freedom in communities of their choice.

2015 IDEAS CONFERENCE

JUN 1 Epworth by the Sea, St. Simons Island

2015 GATE SEMINAR

DEC 4 Georgia Tech Student Center

WEBINARS

MAY 7 Exploring College and Career Readiness through Assistive Technology

- Current Webinar Schedule
- Webinar Archives

TOOLS FOR LIFE APPFINDER



...for Living, Learning, Working, and Playing.

AT ONLINE EXCHANGE



Objectives of the TFL Gaming Lab



The primary objective of the TFL Gaming Lab is to demonstrate to individuals that through the use of existing technology, a disability does not automatically exclude you from enjoying everything that mainstream games have to offer.

Other objectives include but are not limited to:

- Raising awareness of the benefits of playing games
- Advising developers on best practices for designing games to be more accessible
- Identifying and sharing adaptations and tools for accessibility with the public
- Consulting with manufacturers of adaptive controllers to create better products

Quotes about play



“Life is more fun if you play games.”

~ Roald Dahl, My Uncle Oswald

“We do not stop playing because we grow old, we grow old because we stop playing”

~Benjamin Franklin

“I like video games, but they’re really violent. I’d like to play a video game where you help the people who were shot in all the other games. It’d be called ‘Really Busy Hospital.’”

~Demetri Martin

Reasons why play is important to everyone



Play allows “children” to use their creativity while developing their imagination, dexterity, and physical, cognitive, and emotional strength.

Play is important to healthy brain development.

Play is one of the first ways that “children” engage and interact with the world around them.

Play teaches people how to work in groups, share, negotiate, resolve conflicts, and learn self advocacy.

Myth #1



- Playing video games is a wasteful past time with no real benefits and is detrimental to one's health and mental well being.

Benefits of playing videogames



The next few slides discuss studies in which exposure to videogames was shown to benefit people of varying ages with a wide array of disabilities and conditions.

Research is ongoing, but the vast majority of studies have conclusively shown that even a small amount of exposure to videogames helps with hand-eye coordination, cognitive function, memory, attention, mood, decision making, social interaction and so on.

Dyslexia



Research points to attention difficulties in being a key component of dyslexia. One study has shown that people with dyslexia improved their reading comprehension following sessions of games heavy on action.

It is believed the constantly changing environments require more intense focus.

<http://www.scientificamerican.com/article/video-games-make-treat-dyslexia/>

Vision



In one study, 10 weeks of play was associated with a greater ability to discern between different shades of grey.

Another study required participants to play games using only their non-dominant eye with the dominant eye obscured. Participants showed significant improvement in the non-dominant eye.

<http://www.improveeyesighthq.com/video-games-improve-eyesight.html>

Aging



“Brain games” have been shown to have a positive benefit on older players. One study had participants play for just 10 hours. This led to increased cognitive function in participants older than 50. This improved function lasted for several years.

<http://www.scientificamerican.com/article/brain-games-do-they-really/>

Pain Management



As we immerse ourselves and focus on other tasks, pain is minimized. Furthermore, playing videogames produces an analgesic response in higher cortical systems. The more immersive the experience, the better the pain relief.

<http://psychcentral.com/news/2010/05/10/video-games-help-relieve-pain/13660.html>

Improved Decision Making



Some videogames display new information constantly during gameplay. Players are forced to adapt quickly, increasing their ability to parse information and make quick decisions.

A study showed players immersed in fast paced games were 25 percent faster in responding to questions than non players.

<http://www.rochester.edu/news/show.php?id=3679>

Addiction Disorders



A study of individuals who overate, smoked, or drank regularly, showed that when playing videogames, their desire to eat, smoke, or drink was reduced by 24 percent.

<http://www.sciencedirect.com/science/article/pii/S0195666314000828>

Stress Reduction



Games are a relaxing past time. Even stressful games played over time can reduce overall stress. A study conducted over six months, measured the heart rate of individuals as they played. The results show that the adrenaline response was reduced in individuals by over 50 percent.

<http://www.tamtu.edu/newsinfo/7-08-10/article5.shtml>

Autism



Gamers using systems that utilize the entire body to control onscreen movement have been shown to be more engaged in celebrating victories with their peers. This is contrary to the idea that people with autism have reduced communication skills.

Another study showed that sharing a space with multiple players led to increased social interaction in those diagnosed with autism.

<https://tocaboca.com/magazine/autism-video-games/>

Social Connectedness



A common myth is that gamers are isolated. The opposite is true.

The rise of multiplayer experiences online has given way to a new form of socializing in which players work together to solve problems.

Research has shown approximately 70 percent of all videogame players play with friends at least some of the time.

<http://www.apa.org/monitor/2014/02/video-game.aspx>

Shirley Curry



- Shirley is an 80 year old grandmother who loves to play a role playing video game called Skyrim.
- She operates a youtube channel where she uploads her gameplay and commentary to share with the world
- Her videos have over 5 million views and she has 200k subscribers.



Advocacy and Escapism



Josh Straub is the founder of D.A.G.E.R.System, a website that reviews mainstream games with a focus on the accessibility of the game.

Josh contacted developer Naughty Dog about the accessibility in their Uncharted franchise. As a result, Naughty Dog added many new accessibility features into their latest installment Uncharted 4: A Thief's End. Many of the features are built in and transparent to the user, to users with disabilities, all of the features are beneficial.

https://www.youtube.com/watch?v=Ls_CD4mB42s

Myth #2



- Games are an invention of the modern age, our ancestors didn't play games. They were always productive and found better ways to spend their time.

History of games



Games are not a new invention. Games have been a part of our history since the first ancient human civilizations. They are integral to all cultures and are one of the oldest forms of socialization.

Examples of Ancient Games



The Royal Game of Ur - This racing game played with knucklebone dice dates back to 3000 B.C. and was played widely in Egypt.

Senet – A board game that has been found in predynastic burial sites dating it back to 3500 B.C. The game adopted the religious culture of the time, the pieces represented human souls and gameplay reflected how the souls moved through the afterlife.

Backgammon – Predecessors of this game have been excavated in Iran dating the pieces used back to 3000 B.C.

Chess

Chess – Originated in India sometime between the years 280-550. The modern rules were developed in Italy and Spain in the 15th century. Chess has been THE strategy game to play ever since. Chess is often used to teach real life war strategies, and is recognized as a sport by the International Olympic Committee.

“The Game of Chess is not merely an idle amusement; several very valuable qualities of the mind, useful in the course of human life, are to be acquired and strengthened by it, so as to become habits ready on all occasions;”

~Benjamin Franklin “The Morals of Chess”

Modern Board Games



Monopoly – An early predecessor patented in 1904, “The Landlord’s Game” was designed to illustrate laws of rent and taxes. By 1933, Parker Brothers created a board game nearly identical to modern Monopoly.

Chutes and Ladders – Originated in India in the late 18th century as Gyan Chauper or Moksha Patam. It was designed to teach the consequences of karma and good or bad actions.

Diplomacy – Created in 1954 and favored by John F Kennedy and Henry Kissinger focuses on forming and betraying alliances and the strategy of doing so.

Card Games



Cribbage - A card game created in the early 17th century. Score is kept on a cribbage board with pegs moved around the “Streets”. Involves a complex scoring system that lends itself to using different tactics and strategies to best defeat your opponent.

Poker - This American card game dates back to 1829. The first World Series of Poker was played in 1970. Professional players have to demonstrate skill in several areas, how bets are placed, reading other players, calculating odds and bluffing.

Collectible Card Games



Collectible Card Games – Originated in 1993, CCG's set themselves apart from other card games in that you could not purchase all of the cards at once. A starter pack is bought and then booster packs are added to it to create your own unique deck of cards to play against others with. Building your deck is equally as important as how you use it.

- Magic The Gathering
- Pokemon
- Yu Gi Oh
- A Game of Thrones

Miniature Wargaming



Miniature Wargaming started as a variant of The King's Game which itself was a predecessor to modern Chess. The first version included a board with 1666 squares of terrain with various military units moved around the board to simulate the movements of armies and how battles could play out. These games included simulations of Land, Air, and Sea battles.

- Warhammer 40k
- Axis and Allies
- HeroClix

Role Playing Games

Participants in role playing games assume the role of characters and collaboratively create stories featuring those characters. Participants control the actions of their characters based on their own imagination while staying within the parameters of a rule system. The system rules determine the outcome of attempting actions. As long as they stay within the rules, players can improvise as they wish.

- Comedia dell'arte
- Clue
- Dungeons & Dragons

Other Games

Indoor Games –

- Billiards/Pool/Snooker
- Table Tennis
- Dominos
- Mahjong

Outdoor Game –

- Lacrosse
- Soccer
- Bocce
- Football

Xbox One with Kinect



- Control your entertainment with your voice
- Netflix, Skype, Youtube, Internet Browser, Music, Television, etc.
- Gesture Control
- Price varies depending on bundle.
- Xbox One ~ \$350 \$299
- Kinect ~ \$100

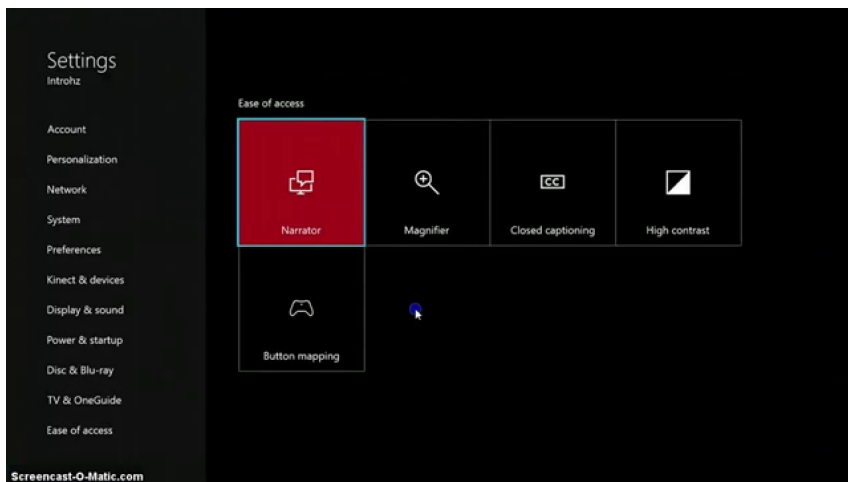
FRU



- FRU is a puzzle platformer that features an innovative use of Kinect, in which your silhouette becomes a "portal" between two worlds.
- Encourages physical movement, activity, and cognitive function.
- Can be played individually or cooperatively.
- <https://www.youtube.com/watch?v=pH2zzMEBb7E>

Xbox One Accessibility

- Narrator
- Magnifier
- Closed Captions
- High Contrast
- Button Mapping
- “Copilot” Coming Soon!
 - Allows two controllers to act as one
 - Play games with a partner
 - Use a controller in each hand or feet, chin, nose, whatever works!



Xbox One Elite Wireless Controller



- First party controller with accessibility features.
- Modular construction includes multiple thumbsticks, directional pads, and paddle buttons.
- Remap any input to any button.
- Highly customizable.
- \$150

XOGO



- The first fully customizable adapter that connects people with disabilities to consumer technology.
- Compatible with USB and HID devices, switches, game controllers, and Bluetooth.
- Control for your console as well as cable boxes, media devices, and smart home technology.

QuadStick



- Mouth operated game controller for Quadriplegics.
- Joystick, four sip and puff sensors and a lip position sensor.
- Compatible with PS3, Android, and PC.
- USB adapter allows control of Xbox 360, Xbox One and PS4.

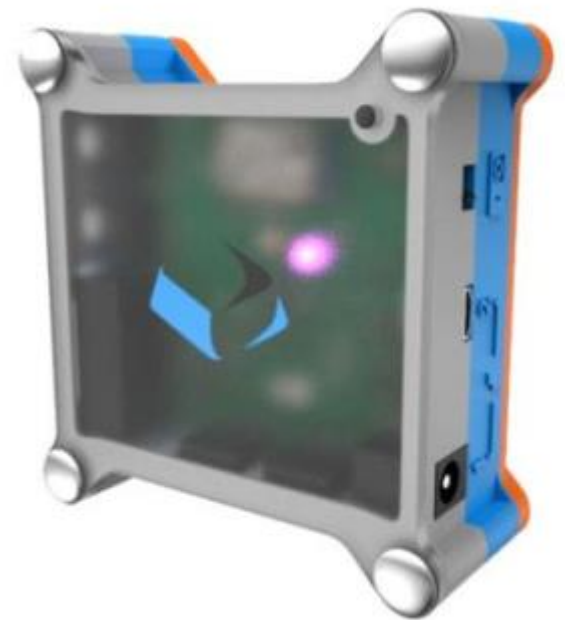
TrackIR



- TrackIR is an optical motion tracking game controller for Microsoft Windows
- Tracks head motion with up to 6 degrees of freedom.
 - Forward/Backward
 - Left/Right
 - Up/Down
 - Roll
 - Pitch
 - Yaw

Tecla Shield

- Wireless device that controls smartphones and tablets using your external switches or the driver controls of your power wheelchair
- The only switch interface that works with both iOS® and Android mobile devices.



Boogie Dice



- First self rolling, sound activated, programmable dice.
- Activated using sound.
 - Clap, snap, thump
- Set roll duration, LED colors and more.
- Smartphone app can also be used to activate the dice.

Games Done Quick



Awesome Games Done Quick, and Summer Games Done Quick are two annual video game speedrun charity events put on by the community Games Done Quick on Twitch.tv.

Speedruns are playthroughs of games where a player utilizes skill, as well as a deep knowledge of the way games are made, to complete the game as quickly as possible.

The event takes place in front of a live audience and is also broadcast 24/7 nonstop marathon style online at Twitch.tv.

Viewers are encouraged to donate for incentives during the stream such as naming characters in a run, having the runners attempt more difficult challenges, or winning prizes.

Games Done Quick Fundraising



Awesome Games Done Quick 2017 took place January 8th – 15th in Herndon, VA. The event raised \$2.2 million for the Prevent Cancer Foundation.

Games Done Quick has generated over \$10 million of donations for charities including Doctors Without Borders and the Prevent Cancer Foundation.

The next event is Summer Games Done Quick 2017 and takes place July 2nd – 9th.

DragonCon



- We are pleased to announce we will be presenting 3 panels on Gaming with Disabilities at DragonCon this year!



- Gaming with a Disability
- Developing Accessibility in Games
- Gaming with Disability Demo



**My Question to you:
What have you learned today?**

The Tools for Life Team



Carolyn Phillips

Director, Tools for Life

carolyn.phillips@gatfl.gatech.edu



Sarah Endicott

Research Scientist

sarah.endicott@design.gatech.edu



Tori Holder

Outreach Specialist

tori.holder@gatfl.gatech.edu



Danny Housley

AT Funding & Resource Specialist

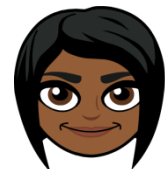
danny.housley@gatfl.gatech.edu



Justin Ingham

Support Specialist

jingham3@gatech.edu



Asha Kumar

Intern, Tools for Life

asha.kumar@gatfl.gatech.edu



Ben Jacobs

Accommodations Specialist

ben.jacobs@gatfl.gatech.edu



Krista Mullen

Speech Language Pathologist

krista.mullen@gatfl.gatech.edu



Samantha Peters

Program Specialist

samantha.peters@gatfl.gatech.edu



Liz Persaud

Training Coordinator

liz.persaud@gatfl.gatech.edu



Martha Rust

AT Specialist

martha.rust@gatfl.gatech.edu



Rachel Wilson

AT Specialist

rachel.wilson@gatfl.gatech.edu



