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Introduction

In 2021, mobile video gaming (i.e. gaming on a tablet, cell phone, or other mobile device) accounted for 51% of global video gaming revenue (Statt, 2022).

For children with disabilities, mobile gaming can be a primary play, leisure, and social occupation, especially those with complex motor and communication profiles who rely on assistive technology (AT) (Lane & Bundy, 2012).

While there are resources for general mobile technology accessibility, as well as console gaming accessibility, there is a lack of resources for mobile video gaming.

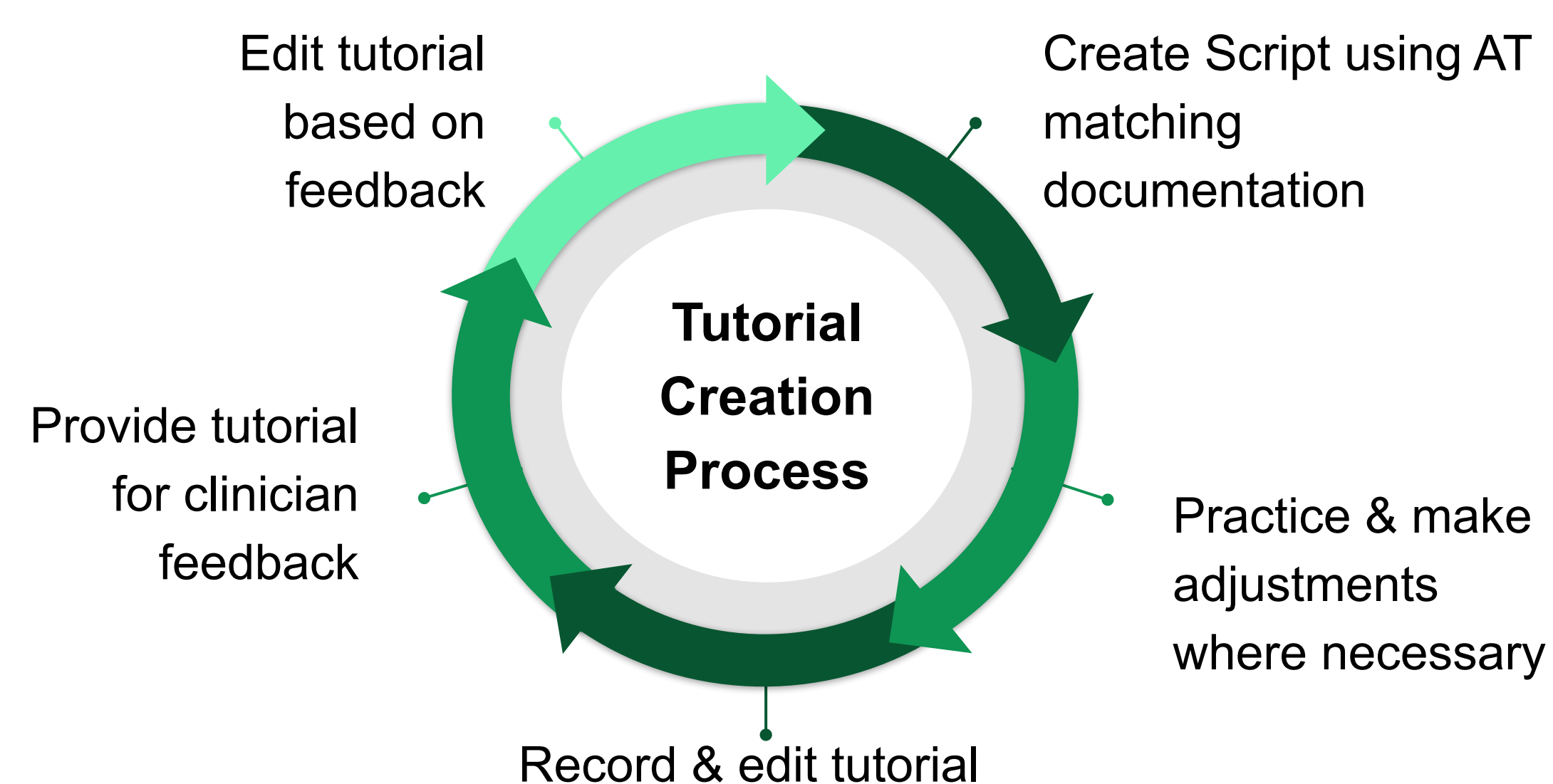
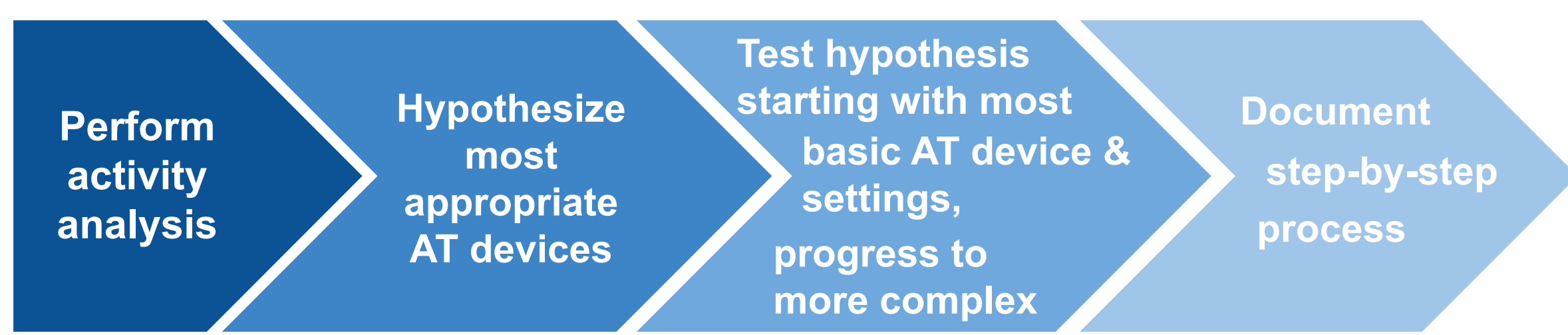
Purpose: address the gap in resources that support alternative access to mobile games

Aims

- Create video tutorials demonstrating the set-up and use of alternative access devices in mobile games
- Make tutorials available for free public use
- Provide clients with occupational engagement and greater quality of life

Methods

The AT matching process involves many steps and a systematic 'trial-and-error' approach



Participants

Occupational therapists at the ACP tested the tutorials and provided feedback.




Types of conditions most often seen

Cerebral palsy
Congenital myopathy
Spinal muscular atrophy

Muscular dystrophy
ALS

Results

Alternative Access Technologies in Mobile Games for Independent Engagement

Devices	Tested With Success	Not Tested but Success Likely
<p>Single Button Switch</p>  <ol style="list-style-type: none"> 1. No 1:1 battles; Requires custom recipes 2. Pokémon Go! mechanics based on this game; may require custom recipes 	<p>Pokémon Go!¹ Solitaire PBA Bowling Angry Birds Reloaded Words With Friends Illustrated Candy Crush Friends Saga Candy Crush Saga</p>	<p>Ingress² Crush the Castle Patterned Hearts Bejeweled Day of the Tentacle The Journey Down</p>
<p>Eye Tracking on iOS³</p>  <ol style="list-style-type: none"> 3. Games played using eye tracking must be playable in landscape 	<p>Candy Crush Saga Illustrated Words With Friends Solitaire Angry Birds Reloaded</p>	<p>Crush the Castle Patterned Hearts Bejeweled Day of the Tentacle The Journey Down</p>
<p>Ablenet Rock Joystick</p>  <ol style="list-style-type: none"> 4. External switch recommended 5. No 1:1 battles; Requires custom gestures; External switch recommended 6. External switch recommended 7. May require custom gestures 	<p>Mario Run⁴ Candy Crush Saga Candy Crush Friends Saga Illustrated Angry Birds Reloaded Sneaky Sasquatch Pokémon Go!⁵ Solitaire Words With Friends</p>	<p>Mr. Jump⁶ Day of the Tentacle The Journey Down Bejeweled Hearts Patterned Crush the Castle Ingress⁷ PBA Bowling</p>

Catching pokémon with a switch



Candy Crush with a switch



Illustrated with a pointer



Super Mario Run with a joystick



Discoveries

- iOS does not have all the capabilities needed to access a variety of games with ease.

↑ game complexity = ↑ programming complexity

- A single change to many games could have a great effect on playability.

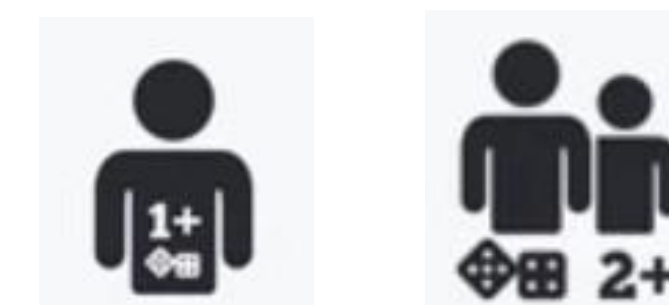


VS.



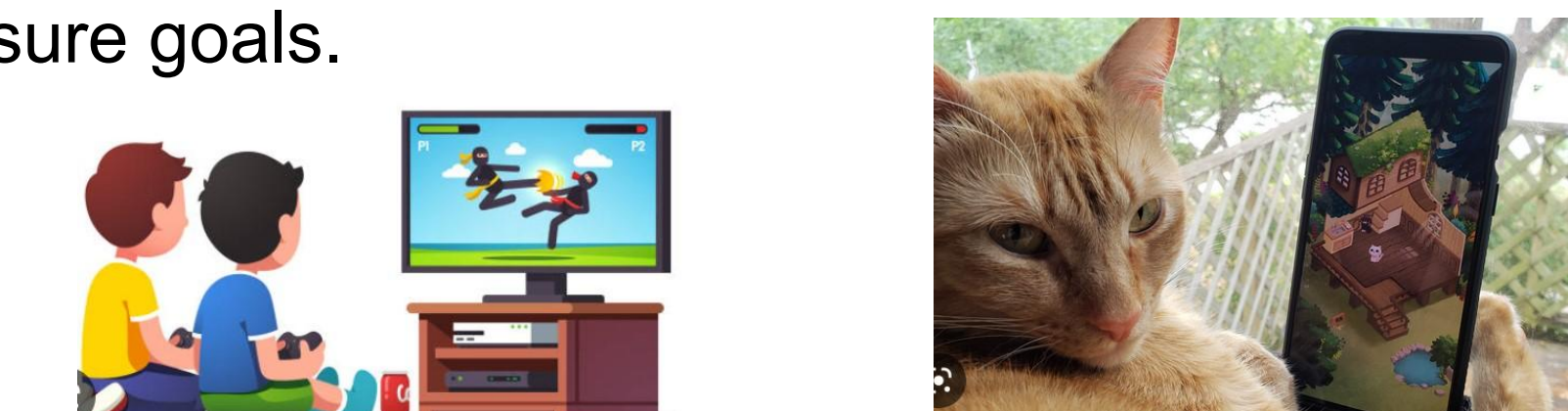
- Internet access is required for many games to function.

- Independent play is not always the goal.



Conclusion

- Gaming is a lifespan occupation for many people and occupational therapists are uniquely positioned to support play & leisure goals.



- Client-centered care = ↓ risk of AT abandonment (Lauer, Longenecker, & Smith, 2016)

- Resources like this are greatly needed.

↑ demand on clinicians = ↓ ability to provide this service

- Game developers could use a **universal design** approach to game creation which would increase opportunities for everyone to play their games.

- Device designers could **collaborate** with mobile game developers and allied health professionals to reduce barriers to gameplay for people with disabilities

Tutorial playlist →



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References

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