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## iPads for Autism A Web Based Professional Learning Community for Teachers to Support Tablet Usage in Autism Classrooms

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## Background and Significance

Since its emergence in 2010 the mobile technology of the iPad has excited both parents and teachers for its potential in the classroom. The portability of networked mobile technologies has helped students of all abilities to discover, influence, and examine knowledge as well as interact with educators and other students across the world.<sup>1</sup> While many school students have access to iPads, simply having technology in the school environment does not ensure teachers are ready to use it to their full potential.<sup>2</sup>

Teachers need sufficient professional development to align knowledge of technology, pedagogy, and learning content.<sup>3</sup> This professional development should occur over time and before, during, and after implementing the tool in the classroom<sup>4</sup>. It should include specific professional development on the features of the iPad and Apps, and how to use the Apps in their lesson.<sup>5</sup>

*iPads to Support Students with Autism* was created by an occupational therapist (first author) to address the underutilization of iPad as a teaching tool in her school district; to move from a restricted pattern of use, for recreation and reward, to a balanced and comprehensive pattern that promotes achievement of academic outcomes (Figure 1).

**PURPOSE:** To establish *iPads to Support Students with Autism* as a valid mode of professional development for teachers.

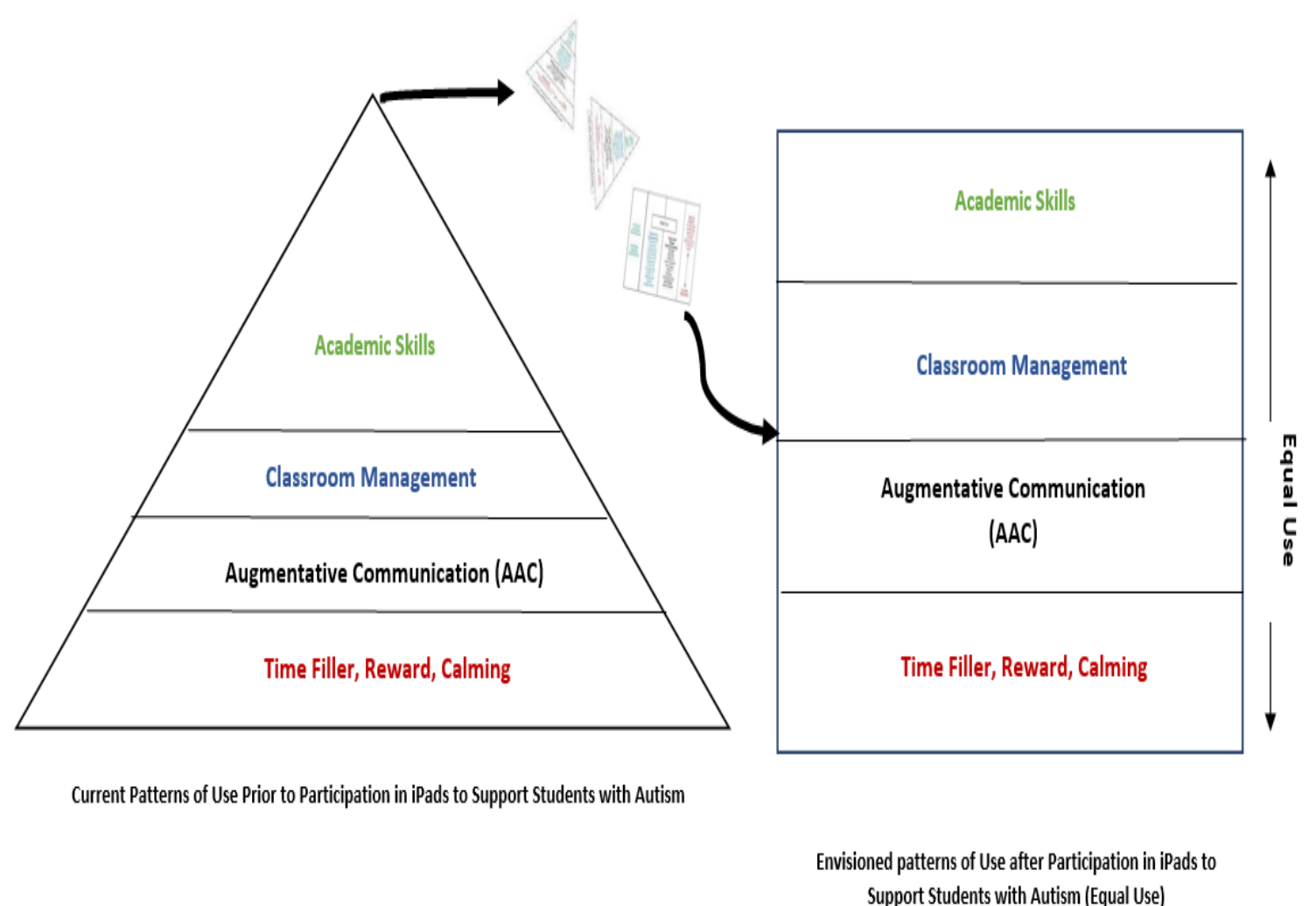
AIM 1: *iPads to Support Students with Autism* adheres to principles of Heutagogy

AIM 2: *iPads to Support Students with Autism* adheres to principles of Professional Learning Communities (PLC)

AIM 3: *iPads to Support Students with Autism* uses evidence-based tools for students with Autism

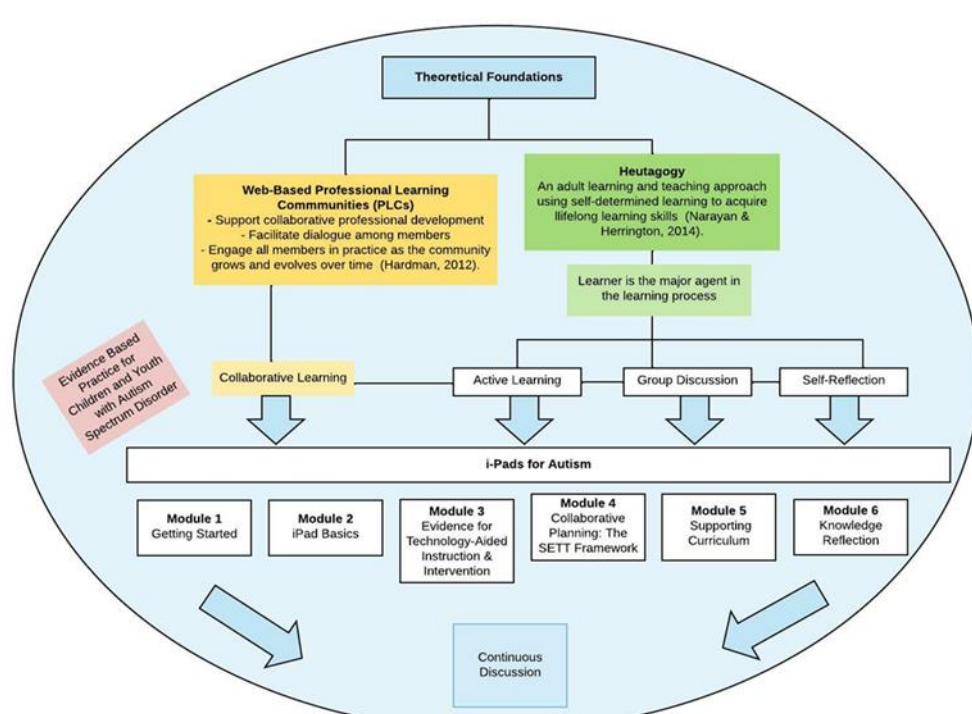
AIM 4: Teachers agree that *iPads to Support Students with Autism* is acceptable and usable

**Figure 1**  
*Current and Envisioned Patterns of iPad Use*



## Platform Development

**Figure 2**  
*Platform Development Schematic*



*iPads to Support Students with Autism* is unique as it offers opportunities for collaboration, as well as interactive educational content. This educational PLC was designed using the principles of Heutagogy, an online education theory, as described by Narayan & Herrington<sup>6</sup> and using the principles of PLC as described by Hardman.<sup>7</sup> The content was rooted in best evidence for supporting students with autism. Participants in *iPads to Support Students with Autism* apply content through active learning and self-reflection while engaging in group discussion (Figure 2)

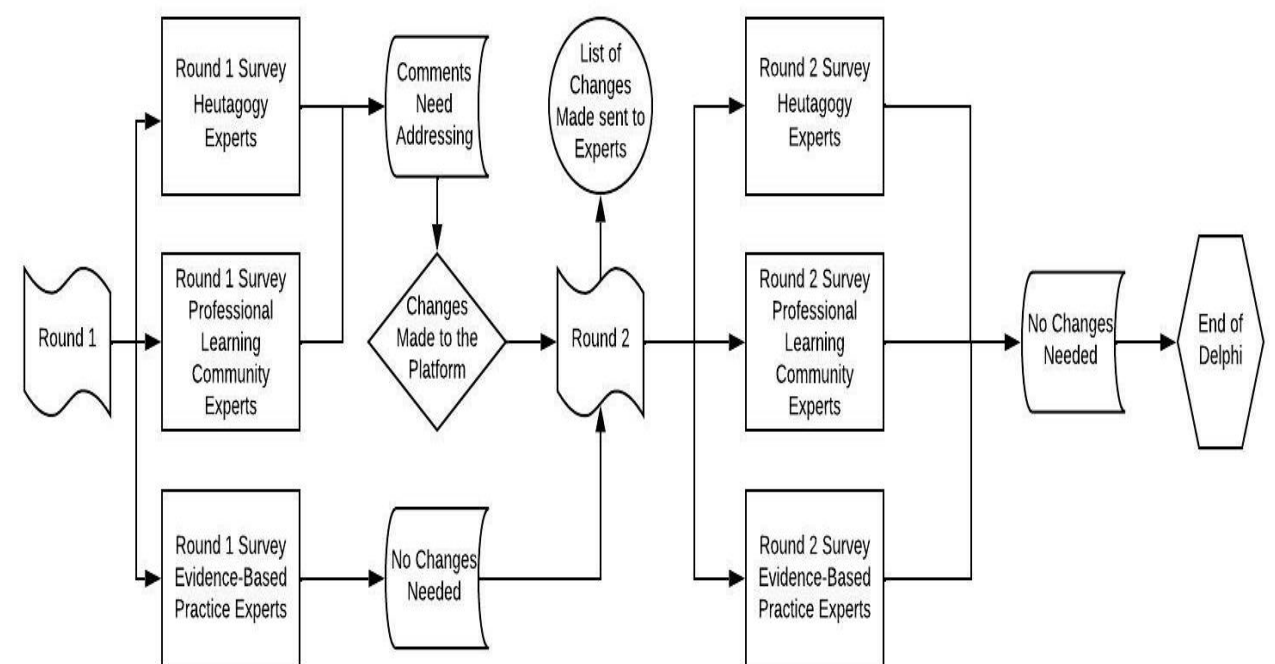
## Methods

AIM(s) 1,2,3: *iPads to Support Students with Autism adheres to 1): Heutagogy, 2) PLC 3) Evidence-based practice for students with Autism. We conducted an expert review using modified Delphi methodology (see steps for expert review below and figure 3). Reviewers were selected based on their expertise with one of these three AIMs.*

### Expert Review Steps :

1. Develop surveys to address each of the first 3 AIMs (Heutagogy, PLC, Evidence-Based Practice)
2. Select expert reviewers for each AIM (1,2, 3)
3. Disseminate surveys to expert reviewers
4. Summarize and analyze comments from round 1
5. Make changes to the platform based on comments
6. Send expert reviewers a list of changes made. If a change was not made, provided a rationale
7. Repeat steps 3-6, for up to 3 rounds
9. Hold a consensus meeting with experts if no consensus is reached after 3<sup>rd</sup> round

**Figure 3**  
Modified Delphi Methodology



AIM 4: *Teachers agree that iPads to Support Students with Autism is acceptable and usable. Teacher reviewers responded to a post review survey created for this AIM. Responses were summarized for use in improving the platform.*

## Results:

### Aim 1: Adherence to principals of Heutagogy

3 experts in Heutagogy participated in this review.

Round 1: There were 5 comments with actionable recommendations; these recommendations were incorporated into changes made prior to round 2.

Round 2: In this round consensus was met and there were no substantive comments necessitating changes to the platform.

Round 3: Not required

### Aim 2: Adherence to the principals of a PLC

4 experts in PLCs participated in this review.

Round 1: There were 12 comments with actionable recommendations these recommendations were incorporated into changes made prior to round 2.

Round 2: There were 3 positive comments about changes made but not substantive comments necessitating changes to the platform thus consensus was met.

Round 3: Not required

**Table 1**  
Expert Reviewer Demographics

Heutagogy (n= 3)					
<b>Profession</b> OT Faculty (2) OT (1)	<b>Age</b> 30-39 (1) 50-59 (1) 60-69 (1)	<b>Gender</b> Male (1) Female (2)	<b>Reviewers Education</b> Doctorate (3)	<b>Experience with Subject Matter*</b> Teach (2) Published (1) Researched (3)	<b>Years involved with Subject Matter</b> 1-10 (2) 11-20 (1)
Professional Learning Community (n= 4)					
<b>Profession</b> OT Faculty (4) Other (1)	<b>Age</b> 30-39 (1) 40-49 (1) 50-59 (1) Unreported (1)	<b>Gender</b> Female (4)	<b>Reviewers Education</b> MA/MS (1) Doctorate (3)	<b>Experience with Subject Matter*</b> Participation/Use (3) Design/Create (3) Facilitate (3) Published (2)	<b>Years involved with Subject Matter</b> 1-10 (2) 11-20 (2)
Evidence-Based Practice (n= 7)					
<b>Profession</b> OT Faculty (2) SLP (5)	<b>Age</b> 30-39 (2) 40-49 (2) 60-69 (3)	<b>Gender</b> Female (7)	<b>Reviewers Education</b> MA/MS (5) Doctorate (2)	<b>Experience with Subject Matter*</b> Teach (6) Other (1)	<b>Years involved with Subject Matter</b> 1-10 (3) 11-20 (2) Unreported (2)

\*indicates participants checked all that applied

### Aim 3: Demonstrates evidence-based practices for students with Autism

7 experts in evidence-based practices for students with autism participated in this reviewed

There were no substantive comments necessitating changes in round 1 or round 2.

Round 3: Not required

## Results (cont.):

### Aim 4: Acceptability and Usability

Teacher reviewers contributed many positive comments. One reviewer indicated that “the variety of sources and support documents encourage even the most tech shy to feel confident in understanding and using the iPad in the classroom setting.”

**Table 2**

*Teacher Reviewer Demographics*

Teacher Participants (n= 7)				
Age	Gender	Education	Years Teaching	Years Teaching in Autism Program*
30-39 (5)	Female (7)	Received	1-10 (1)	1-5 (2)
40-49 (2)		BA/BS (1)	10-19 (3)	5-9 (1)
		MA/MS (6)	20-24(1)	
			Unreported (2)	

\* 3 of the 7 reported experience teaching in an ASD specific classroom

**Figure 5**

*Wordle of Teacher Reviewers' Perceptions of iPads for Autism*



## Conclusions

*iPads to Support Students with Autism* is a validated and acceptable professional learning community with collaborative learning modules for teachers to increase their use of iPads beyond recreation and reward to include classroom management, academic learning, and functional skill development. A small sample of teachers found the platform usable and acceptable.

## Implications

*iPads to Support Students with Autism*, is designed to give teachers the resources they need to build the confidence and capacity necessary to effectively use the iPad as a teaching modality. This project illustrates a way that school-based occupational therapists can educate and build community to support best practices for iPad use among teachers.

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