

Increasing Children's Interest in Augmentative and Alternative Communication apps for iPad

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Introduction

The purpose of this systematic comparison study is to look at the design differences between Augmentative and Alternative Communication apps and mainstream apps on the iPad. Identifying differences will help future developers and therapists make more appealing products for young users, which should increase the amount usage and engagement. This research study was conducted as a software version of Light, Drager, and Nemser's 2004 study comparing AAC interfaces to popular children's toys.

Method

50 AAC apps for iPad were selected for this study using the AAC Tech Connect® "Apps Summary" (updated October 26, 2012). These AAC apps were then compared to 50 popular apps from the "Top Charts" section of the Apple Store, as of November 2012. Both sets of apps were scored in 6 categories. The categories and scoring definitions can be seen in Table 1. Table 2 contains the average score in each category for each set of apps.

Table 1

Scoring Definitions

Feature	Scoring
Enhanced Color	0: Black, white, and gray only 1: Color is used in one aspect of design: backgrounds, accent colors, or main images 2: Color is used in two aspects. 3: Color is used in three aspects
Enhanced Representation	0: Text Only 1: 2-dimensional pictures 2: 3-dimensional pictures 3: Animation
Personalization	0, 1, 2, 3+: Based on the number of personalization features found in an app
Interaction	0, 1, 2, 3+: Based on the number of Interaction features found in the app
Built-in Capabilities	0, 1, 2, 3+: Based on the number of Built-in iDevice capabilities found in the app
Popular Theme	0: No use of popular/well-known characters 1: Popular/well-known characters are used

Table 2

Mean Category Scores of Popular and AAC apps

Category	Popular Apps	AAC apps
Enhanced Representation*	3.00	1.53
Personalization*	1.64	2.11
Popular Theme*	0.44	0.00
Enhanced Color *	2.98	1.89
Interaction*	2.91	0.76
Built-in Capabilities	1.89	1.78

Note: *significant difference at p=.05

Though Built-in capabilities were not statistically significant, the types of features found in each were very different (figure 1)

Figure 1

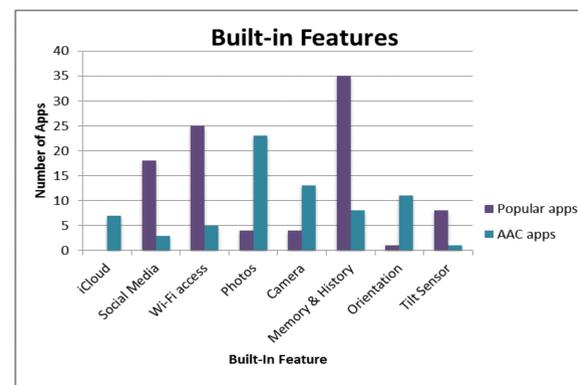
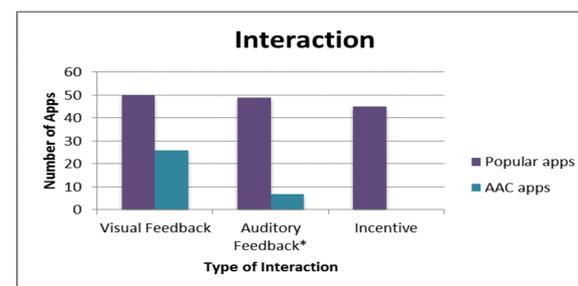


Figure 2



*Not text-to-speech output

Figure 3

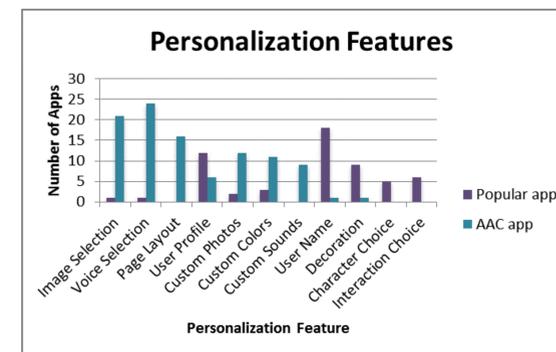


Alexicom Elements Core 280 (Female)*

En. Color: 1, En. Rep: 1, Personalization: 3, Pop Theme: 0
Interaction: 2, Built-in: 2

*Available on iTunes

Figure 4



References

Light, J. C., Drager, K. D., & Nemser, J. G. (2004). Enhancing the Appeal of AAC Technologies for Young Children: Lessons from the Toy Manufacturers. *Augmentative and Alternative Communication, 20*(3), 137-149.

Acknowledgement

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Visual Representation of Scores



Bubble Guppies: Animal School Day HD*

En. Color: 3, En. Rep: 3, Personalization: 2, Pop. Theme: 1
Interaction: 3, Built-in: 2

Conclusion

Overall, large differences were found between AAC apps and Popular apps for iPad. Some of the main characteristics found in Popular apps but are missing in AAC apps include:

- A much more varied color palate and color is used in a wider variety of ways
- The presence of popular themes
- The use of animation
- Presence of incentives, goals, and feedback (figure 3)

Even in categories where popular and AAC apps did not have a significant difference, the features found in each were very different:

- Built-in features of Popular apps included things such as game history, social media, and Wi-Fi access. The AAC apps contained more functional built-in features such as access to photos and use of the camera.
- Personalization features in AAC apps included things such as adding new vocabulary or changing pictures, whereas the personalization in Popular apps includes character selection or username choice (figure 4).

TABLE 1: Definitions of characteristics used to evaluate Applications and AAC apps

Feature	Operational Definition & Scoring
Enhanced Representation	The use of words and images within an app. Includes how the images are represented, dimensionality, and movement.
Personalization	0: Text only 1: 2-Dimensional pictures 2: 3-Dimensional pictures 3: Animation 0, 1, 2, or 3: based on the number of personalization features found in the app. (Examples include: choice of character, layout, images, personal info)
Popular Theme	The presence of popular cultural images within an app. 0: No popular or well-known characters used 1: Popular or well-known characters used
Enhanced Color	How color is used within an application in regard to: design (ex. backgrounds), functionality (ex. differentiation), and/or aesthetics (ex. enhancement of images). 0: Black, white, and gray only 1: Color can be seen in one aspect 2: Color can be seen in two different aspects 3: Color is seen in all three aspects
Interaction	How a user can interact with or feel immersed in an app.
Built-in Capabilities	The features of an iPad that the app takes advantage of or utilizes in order to implement features of the app.

