Text to Speech: A 4-H Model of Accessibility and Inclusion

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Abstract: 4-H project manuals play an integral part in a youth's ability to achieve mastery in a specific project area. For youth who struggle with reading, written 4-H materials prove inadequate in addressing the needs of the learner. This article proposes a new delivery method of 4-H educational material designed to create a more inclusive and accessible environment for youth in need of literacy support. Materials created in an audio format give youth the opportunity to hear, understand, and follow along with written material, ultimately enhancing the learning process.

Introduction

4-H project manuals play an integral part in a youth's ability to achieve mastery in a specific project area. Project resource material is utilized in a variety of methods depending upon county programs and volunteers working with youth. Resource materials continue to change and diversify as time goes on with the intention of being able to better meet the needs and interests of youth. However, one aspect of current manuals available to youth still needing to be addressed revolves around the question of how effective 4-H resource material is for youth in need of literacy support.

According to the Oregon Department of Education in 2009:

- 35% of Oregon's 4th graders tested below NAEP's (National Assessment of Educational Progress) basic reading level

- 30% of Oregon 8th graders were reading below state standards

- 27,664 youth in Oregon's public schools had specific learning disabilities

The aforementioned statistics provide evidence that access to engagement in 4-H project resources in ways other than written material is needed for a percentage of youth in Oregon 4-H. The intention of the project

reported here is not to teach 4-H youth to read but rather to provide help to those who need literacy support.

Begin Download Now!

Through new and existing technologies, project manuals can be produced in a manner that provides youth with any reading impairment the opportunity to interact with the materials and know precisely what the material is saying. The intent of the project Text to Speech is to make available through Internet-based platforms (e.g., iTunes, YouTube, etc.) 4-H project resources in an audio format where youth with reading impairments or learning disabilities have full access to the information without the need of another's reading assistance. Using this delivery method, individuals can download audio formats of educational resources and have the materials read aloud to them, enabling them to hear, see, and follow along all at the same time.

This audio format, matching exactly written project material, is intended to be used just as print material is used to support program education, subject matter knowledge, and mastery of project-based information. Extension professionals, program volunteers, parents, and youth can utilize this delivery method in lieu of written material or coupled together (written and audio combined) to greater reach the learning needs of clientele.

Meeting the Need

Parents, 4-H volunteers, Extension staff, or others may or may not have the time to sit down and read project material with individual youth to ensure comprehension. Therefore, regardless of age appropriateness, if youth using project manuals struggle with reading or comprehension, the value of the manuals is greatly diminished. Providing access to resources that youth can repeatedly review to gain mastery and comprehension of a subject matter is a driving force behind the project.

Aside from the inability to read, reading fluency also is a concern for youth attempting to interact with 4-H resource materials. Reading fluency directly correlates to a youth's ability to comprehend read material (Armbruster, Lehr, & Osborn, 2001). Youth not having the vocabulary or ability to understand specific words imbedded within 4-H project manuals get caught up in reading the word (affecting fluency) and therefore have a difficult time comprehending materials, essentially not allowing them to read to learn.

Youth with disabilities that cause reading impairments are yet another example of why adaptations need to be made to 4-H project resources to enhance accessibility and inclusion. Providing all youth access to 4-H project materials in a form conducive to different learning styles and inclusion creates the same opportunities, both meaningful and satisfying, for people with disabilities as afforded to other segments of the population (Stumpf, Henderson, Luken, Baialeschki, & Casey, 2002).

Providing project materials online also supports asynchronous learning. Asynchronous learning is becoming increasingly popular because it allows for learners to access information online without the constraints of time or place (Kinsey, 2010). Therefore, in making resource material available through electronic media, youth in need of literacy support have the opportunity to access the project manuals on their time, in a location of their choice, and at a pace appropriate for them.

Replication

The process of converting written material into audio format can be easily replicated. The steps include:

reading aloud project manuals either in a recording studio or through a microphone onto one's personal computer, editing for validity and appropriate speed, and finally producing material in mp3 format. One manual, 50 pages in length, requires about 50-75 hours to complete. The material can then be housed on an Internet-based website where it can be downloaded to personal computers, IPods, cell phones, and other media devices.

There are a variety of ways to record aloud written material into audio format. If a recording studio is not obtainable, a simple Internet search for voice recording and editing software reveals a variety of free, downloadable programs. Similar to recording podcasts or adding voice content to videos, individuals with a simple computer microphone can record material onto a personal computer where it can then be edited and converted into mp3 format. Once the conversion to mp3 format is complete, the files can be saved to CD, on USB flash drives, or stored on Web pages like iTunes or YouTube and made available to clientele.

Results to Date

A limited number of finished materials were released in the fall of 2009 to 30 youth in Crook County, Oregon on a pilot basis. The project materials utilized were for the 4-H dog project. Youth evaluating the piloted materials indicated:

- Better comprehension of 4-H materials

- Enhanced ability to interact with project manuals

- Gains in knowledge about specific projects

Leaders and parents of youth using the electronic manuals reported that they:

- Witnessed an increase in interest on the youth's part within the 4-H project

- Observed an increase in confidence levels during knowledge bowls and other competitive events

- Were able to utilize club time more efficiently knowing youth are coming to the meetings having a better understanding of project-based knowledge

Additional findings of the pilot test have indicated appreciation on the part of parents and volunteers for their ease of access to the information as well. One 4-H volunteer said:

> By having the material in audio format (downloaded to iPod), I have been able to listen to the project resources during my commute to work. Thus enabling me to gain access to the information without having to fit one more thing (finding time to sit down and read the material prior to club meetings) into my busy schedule.

Implications and Conclusion

Electronic delivery of 4-H project manuals is designed to provide additional means for youth, volunteers, and Extension professionals to interact with educational resources. Based upon pilot test results, youth needing access to materials other than in written form benefitted from audio-based project resources. Volunteers and parents indicated they had seen growth in multiple youth development competencies of the youth utilizing the materials. And last, volunteers utilizing the audio materials found the audio format also supported their efforts in becoming better equipped and prepared leaders and mentors of youth. By

providing electronic media and repeat access to 4-H material, which go hand-in-hand with written resources, Extension professionals help to enhance the learning process of 4-H youth and volunteers, and further create accessibility to educational materials and an inclusive environment.

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