

Individual Learning-focused Instruction

**Podcast transcripts in the age of Generative AI**

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## **INTRODUCTION**

Podcasting is an immersive audio medium that has grown to be an integral part of Americans' source of information. According to Pew Research Center, over 42% of Americans over the age of 12 have listened to a podcast in the last month (St. Aubin, 2023). Having transcripts available will make podcasts more accessible to those hard of hearing, as well as provide SEO optimization and many other valuable benefits for all podcasters (Bureau of Internet Accessibility, 2022). Closed captioning has been ubiquitous across all movie and television shows on all distribution channels ( broadcast, cable and streaming ). Why are transcripts (close caption for audio) only available for 1.1% of podcasts (Lewis & Joseph, n.d.) and how can Generative AI help close this gap?

This paper will leverage the ARCS model of motivation to inform podcast listeners and interested parties how transcripts in podcasts are implemented, why the podcast industry is so far behind the movie and television industry and the economic forces that could play a part to change the transcriptions in podcasts.

## **LEARNING OUTCOMES**

After completing this learning module, learners will:

- a) Develop the skills and knowledge necessary to advocate for the implementation of transcripts in their favorite podcasts and mobile apps.
- b) Understand the economic and technological forces that are necessary to enable 100% transcripts across all podcasts.

## **TARGET AUDIENCE**

The target audience of the instruction is for listeners of podcasts who are curious about the ecosystem of the podcast industry and are unafraid to get into the details of technology implementation.

## BRAIN-BASED LEARNING

The instruction modules are designed around the ARCS model of motivation which "stands for Attention, Relevance, Confidence, and Satisfaction" (*ARCS MODEL OF MOTIVATION*, n.d.) See Table 1.

<b>Table 1 ARCS Categories</b>			
<b>Attention</b>	<b>Relevance</b>	<b>Confidence</b>	<b>Satisfaction</b>
A1 Perceptual arousal	R1 Goal orientation	C1 Learning requirements	S1 Intrinsic reinforcement
A2 Inquiry arousal	R2 Motive matching	C2 Success opportunities	S2 Extrinsic rewards
A3 Variability	R3 Familiarity	C3 Personal control	S3 Equity

Table 1: ARCS categories (Keller, n.d.)

**Attention** Podcasting and transcripts (accessibility) should be interesting to the learner as we activate their *perceptual arousal* using real-world examples. Hopefully, the learner is a podcast listener, someone who cares about accessibility, and/or someone curious why television closed captioning is near 100% adoption but podcasting is only at 1%.

**Relevance** If the learner is a podcast listener, we can leverage *goal orientation*, *motive matching*, and *familiarity* to show relevance to their daily lives. For non-podcast listeners, we can appeal to how transcripts can help their friends and family who are podcast listeners.

**Confidence** We can show the learner step by step from using their phone, subscribing to a podcast, listening to a podcast, and then exploring why the podcast does not have transcripts. Then showing them the technical details of podcasts that have transcripts and those that do not. This should give them several *success opportunities*.

**Satisfaction** At the end of the module, the learner should gain a level of mastery of the podcast ecosystem that reinforces their *intrinsic motivation*.

## Module 1 - Explore a Question

In module 1, we will attempt to grab the learners' attention with *inquiry arousal* and *variability* (Table 1 ARCS Categories A2 and A3) by asking them to explore why certain podcasts have transcripts and others don't. This module should be easy to accomplish by any podcast listener as well as simply using Google search. While they could follow along the steps, they will be left with many questions which will be answered in future modules.

Simple Instructions	Build Attention	Explore
On your phone, open your favorite podcast player and play the latest episode of 3 podcasts, do you see live transcription?	For the podcasts that have transcriptions, what do you think of the experience and quality? You are the lucky 1%!  For the podcasts that do not have transcription, write down 3 possible reasons why you think it's not available.	Now using a browser, preferably on your computer, search for the name of the podcasts that do not have transcripts followed by the word 'podcast transcript'.  For example for the podcast "On The Media": "on the media podcast transcript"
If you do not listen to podcasts, pick any of the	Same as above	Same as above

Simple Instructions	Build Attention	Explore
<p>popular podcasts  <a href="https://chartable.com/chart/itunes/us-all-podcasts-podcasts">https://chartable.com/chart/itunes/us-all-podcasts-podcasts</a></p> <p>Using the Podcast app on iPhones or Google Podcast player on Android to subscribe to</p>		
<p>Repeat the instruction for the podcast "No Agenda"</p>	<p>You will notice the podcast 'No Agenda' has transcripts, the latest episode might not have transcripts until a few days later.</p>	<p>What do you notice the difference between the Google searches on 'No Agenda podcast transcript' and other podcasts? Write down any theories about why this is the case? (hint: look up the podcast hosts and their ties to the technology behind podcasts)</p>

**Assessment for module 1**

Was it possible for you to find the transcript for any of your favorite podcasts using internet searching? Did you find the transcript for the podcast 'No Agenda'? Do you have any theories on why 'No Agenda' transcript was so easy to find? Hold on to your questions, in future modules, you will learn for yourself the answers.

**Module 2 - Understanding the Podcast Ecosystem**

In this module, it will be content heavy in order to bring all learners to the same level of understanding of the podcasting ecosystem. If the learner is already familiar with the content, they can skip to the assessment portion at the end of the module. This module

should build up the learners' *confidence* by making clear what *learning requirements* are needed and give them *success opportunities*. (Table 1 ARCS Categories C1, C2) to learn about how transcripts are implemented for podcasts. This will enable them to dig further about specific podcasts they are interested in and why those podcasts do not have transcripts.

## Background

For a brief history of podcasting, refer to [Podcasts: The History of Podcasts & When They Were Invented](#) (Breitman, 2022). Podcasting is made possible by an open protocol called RSS or Real Simple Syndication (RSS.com, 2024). See Figure 2 for an overview of the podcast publishing workflow.

## Hands-on module 2

For the learner to follow along, there will be instructions for the learner to look at two specific podcasts: **On the Media** and **No Agenda**. They are asked to find the RSS feed url, open the RSS feed, find the title, description, lastBuildDate time, find the transcript tag or lack thereof, find the audio file tag (to be finished in final paper).

### Hands on for module 2

	Steps	Record what you see
1	Subscribe to 'No Agenda' podcast on your phone, note the title and description and the date of the latest episode	
2.A	On your computer, Search for 'No Agenda' on <a href="https://podcastindex.org/">https://podcastindex.org/</a> , click on the podcast and click on the RSS icon. An RSS feed is structured data with the podcast	

	<p>title, description, and links to every episode of a podcast. For example, for the NPR podcast 'On The Media', the website is <a href="https://www.npr.org/podcasts/452538775/on-the-media">https://www.npr.org/podcasts/452538775/on-the-media</a> and the RSS feed is <a href="https://feeds.feedburner.com/onthehemedia">https://feeds.feedburner.com/onthehemedia</a> (which is hard to read on many browsers without a JSON Chrome extension)</p>	
2.B	<p>On your computer, Google search for 'No Agenda' podcast and open the first link, on your browser 'view source', look for 'rss' or 'atom' and open the 'href' url</p>	
4	<p>Once you open the RSS feed using Chrome (you might need to install a JSON viewer extension), look for the title, description, and lastBuildDate to correspond to step 1. See Figure 3</p>	
5	<p>Can you find the &lt;podcast:transcript&gt; string? See Figure 4</p>	<p>If so, open that URL. It should be <a href="https://mp3s.nashownotes.com/NA-1639-Captions.srt">https://mp3s.nashownotes.com/NA-1639-Captions.srt</a></p>
6	<p>What is the format of the transcript? Does it look familiar? See Figure 5</p>	



When a podcast app (like Apple Podcasts) detects a new episode in your RSS feed, it downloads the audio file from Transistor's server

Figure 2: In this diagram which explains the publishing workflow for podcasts, transistor.fm is a hosting company that helps the podcaster produce, edit, monetize and host the RSS feed and audio files. transistor.fm also does automated transcriptions for podcasts that it hosts and embeds links to the transcriptions.

[https://goodtopssm.life/product\\_details/55547276.html](https://goodtopssm.life/product_details/55547276.html)



```
← → ↻ 🏠 🔍 feeds.feedburner.com/onthemedi...
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  ▼<channel>
    <title>On the Media</title>
    <link>https://www.wnycstudios.org/podcasts/otm</link>
    <description>The Peabody Award-winning On the Media podcast is your guide to examining how the media sausage
    coverage of the week's big stories and unravel hidden political narratives in everything we read, watch and
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      media coverage of Israel and Palestine, and former MSNBC host Mehdi Hasan explains his approach to covering
      America, speaks with Hisham Awartani, a Palestinian-American college student, about the explosive media a
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      href="https://twitter.com/MonaChalabi">@MonaChalabi</a></span>], data journalist and illustrator, on the
      href="https://www.wnycstudios.org/podcasts/otm/segments/digging-data-media-bias-israel-palestinian-confli
      MSNBC host and CEO of the new media company Zeteo, on his approach to covering Gaza, and his goal of maki
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        coverage of Israel and Palestine, and former MSNBC host Mehdi Hasan explains his approach to covering th
        speaks with Hisham Awartani, a Palestinian-American college student, about the explosive media attention
        american-student-was-shot-vermont-and-became-reluctant-poster-child-on-the-media">Listen</a>. </p> <p>2
        Washington University, and Mona Chalabi [<a href="https://twitter.com/MonaChalabi">@MonaChalabi</a>], d
        href="https://www.wnycstudios.org/podcasts/otm/segments/digging-data-media-bias-israel-palestinian-conf
        host and CEO of the new media company Zeteo, on his approach to covering Gaza, and his goal of making h
        mehdi-hasan-on-the-media">listen</a>. </p> ]]>
      </content:encoded>
    </item>
  </channel>
</rss>
```

Figure 3: A screenshot of an RSS feed.

Transcripts are referenced in the RSS feed and can be added or changed after an episode is published. They are referenced with the `<podcast:transcript>` tag in RSS

```
</item>
<item>
  <itunes:title>Check out our new podcast!</itunes:
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  <itunes:explicit>>false</itunes:explicit>
</item>
</item>
```

Figure 4: `<podcast:transcript>` is a tag that points to the location of the transcript for an episode. Image is from <https://www.listennotes.help/article/79-how-to-add-transcripts-to-my-podcast-episode-pages-on-listen-notes>

```
1 1
2 00:00:00,000 --> 00:00:02,670
3 John C Dvorak: I'm aghast. Oh
4 get gambling.
5
6 2
7 00:00:03,030 --> 00:00:07,140
8 Adam Curry: Adam curry Jhansi
9 Devorah on a march 3 2024 This
10
11 3
12 00:00:07,140 --> 00:00:11,580
13 Year Award winning nation media
14 assassination episode 1639.
15
16 4
17 00:00:11,730 --> 00:00:13,680
18 Unknown: This is no agenda.
19
```

Figure 5: A SRT format transcript file. Start and end time, speaker and transcription words

## Assessment for Module 2

**Task 1:** Using the same steps, find the transcript URL for the latest episode of podcast Podnews Daily and take a screenshot of the first 20 seconds of the transcript.

**Task 2:** For both No Agenda and Podnew Daily, does your favorite podcast app show the transcript even though they both have transcripts? If not, could you come up with some theories about why not? If yes, are there any improvements to the way your app handles transcripts that you wanted to see?

## Future module 3

I would explain in more detail that podcast transcript is in its infancy because the hosting companies are just starting to use Generative AI to generate transcripts, not all iOS and Android apps support the 'podcast:transcript' tag consistently, Apple has just launched transcription but it's supported only for podcasts that are published in their close ecosystem, and finally the poor quality of speaker identification and the cost of Generative AI to generate transcripts will hold the industry back from getting to 100% transcriptions.

## **Future Module 4**

I would list out the various parties who participate in the podcast ecosystem so the learner would know which one of the parties they should advocate to to push for transcription in 100% of podcasts.

a) Podcast producers

b) Podcast hosting companies

c) Brokers such as Apple introduce transcripts only for Apple Podcast podcast

(*Transcripts on Apple Podcasts*, n.d.)

d) mobile apps (iOS Podcast, Google Podcast, Youtube Music, Spotify, Overcase, AntennaPod, ..etc)

e) Podcastindex 2.0 standards for podcast:transcript (Podcasting 2.0, n.d.)

At the end of module 4, the learner should reach Satisfaction and mastery of the topic of transcripts in podcasting.

## **Conclusion**

Using the ARCS model to lead the learner through a series of increasingly difficult tasks, we can help guide the learner to mastery understanding of the podcast transcript

ecosystem and understand why there is a lack of transcripts in podcasts. The learner can find workarounds for themselves first, and then advocate to the right party in the ecosystem to push for transcripts for everyone.

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