



## HOW TO DESIGN PODCAST FOR LEARNING WITH THE RAPID PROTOTYPE MODEL

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**Abstract.** A podcast is a digital audio recording disseminated over the internet that can be transmitted, played, and downloaded directly to consumer media devices, including portable music players, computers, laptops, and smartphones. It can be categorized as an m-learning strategy for teaching and learning. It allows students to learn independently, easy to use, dynamic content meeting to listeners' needs, and portable. The categories of using podcasts for learning are as sub-constitutional, supplemental, and integrated. Several things need to be considered in designing a podcast for learning covering its course' objectives, students' character, goal, type, writer, correlation to other teaching materials, a style used, duration, media, technology and material, sound used, the image included, and music. In designing a good podcast for learning, it is necessary to apply a systematic learning system's systematic procedure. This article discusses how to design podcasts for learning with The Rapid Prototype Model. This model is an instructional design method used to design and develop models with the stages of needs analysis, content analysis, determining objectives, constructing prototypes, utilizing prototypes, and installing and maintaining the system.

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### A. INTRODUCTION

Nowadays students use smartphones for learning purposes to increase students' involvement in obtaining content and human knowledge agents in a mobile way (Ng'ambi & Lombe, 2012). Podcasting can be categorized as an m-learning strategy for teaching and learning (Fernandez et. Al., 2015). The development of podcast from year to year continues to increase with an average user in 2014 of 30% to 40% in 2016. Most of its formats mostly listened are news, dialogue, and information (Pew Research Center, 2019).

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It is an audio media distributed over the internet that can be accessed by digital devices. Through internet technology, it can be played anywhere and anytime. It enables the user to change the time and edit the content. It means that the users can listen to the podcasts as they wish. Besides, they can access it by subscribing to feeds that automatically download new podcasts as they become available (McClung & Johnson, 2019). Podcasts can also be subscribed to like magazines by following podcast channels through digital podcasting platforms, such as iTunes, Spotify, Google

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podcasts, anchor FM, and so on. It belongs to the type of audio media which can be heard by the human sense of hearing (Smaldino, Lowther, & Russell, 2014). Audio media can be used as a learning medium to convey learning materials (Daryanto, 2016). It is an opportunity to make podcasts a learning medium. The use of podcasts in learning can increase learners' knowledge (Taylor & Clark, 2010). Using podcasts in the first lesson is a re-frame approach, namely presenting content in various media. The two complementary approaches are complementary information besides learning activities and supplementary approaches as supporting information that has been shown in class.

The advantages of podcasts are flexible, no need schedule, portable, applicable to various digital devices, easy to control such as speed and playback, automation, subscribed and or downloaded automatically, efficient both in development and usage also improving online learning services.

A systematic design is needed to suit the needs and learning objectives in designing a practical podcast for learning. With technological developments such as digital audio recording devices and the use of streaming audio such as podcasts, developing audio media can be

faster, easier, cheaper, and lead to the best result. The technology for online audio media is available, easy to use, and inexpensive, making it an attractive option to provide additional flexible learning resources. (Scutter, Stupans, Sawyer, & King, 2019). In analyzing podcast design for learning, it has the following characteristics (Fernandez, Sallan, & Simo, 2015).

- Podcasts for learning have various kinds of content, namely teacher/lecturer recordings, material reviews, assessment feedback, administrative information, unique learning materials, and expert interviews.
- The length of learning podcasts is divided into three categories: short podcasts 1 - 5 minutes, medium podcasts 5 - 15 minutes, and long podcasts over 15 minutes. The podcast duration for learning should be no more than 15 minutes. •
- Author, podcast content creator usually consists of teachers, lecturers, guest students, or a combination.
- Style, formal podcasts are direct and often read from a script. Informal podcasts most likely involve improvisation, humor, and entertainment.
- Purpose, the podcast's goal for learning follows a cognitive taxonomy of

bloom, such as low-level cognitive knowledge and understanding. Top-

level cognitive includes analysis, evaluation, and creativity.

Table 1 Podcast Design for Learning

| Type of content   | Length   | Author   | Style  | Purposes  |
|---|--|--|--|---|
| <ul style="list-style-type: none"> <li>Lecture recordings</li> <li>Review material</li> <li>Assessment feedback</li> <li>Administrative information</li> <li>Unique learning material</li> <li>Interviews of experts</li> </ul> | <ul style="list-style-type: none"> <li>Short (1-5 min)</li> <li>Medium (5-15 min)</li> <li>Long (15+ min)</li> </ul> | <ul style="list-style-type: none"> <li>Teacher</li> <li>Student</li> <li>Guest</li> <li>Combination</li> </ul> | <ul style="list-style-type: none"> <li>Format podcasts are direct and often read from a script.</li> <li>An informal podcast can often involve</li> <li>Improvisation, humor, and entertainment segments.</li> </ul> | <ul style="list-style-type: none"> <li>Borrow cognitive verbs from bloom</li> </ul> |

The use of podcasts is a new alternative media for learning. It is good to provide timely information on changing topics and develop and reinforce what people are learning in seminars, workshops, self-study, and e-learning programs—using podcasts in learning, namely as learning content, learning supplements, feedback, and follow-up.

The strategy for using podcasts in learning is to engage listeners with the material presented in the podcast. The teacher must determine the purpose of the podcast for learning and should be made on their own. The podcast program format is presented through monologues, interviews, and dialogue. A good pod-

cast has a clear structure consisting of, firstly, an introduction to the topic and material content; secondly, a brief explanation of the importance of understanding specific subject matter; thirdly, turn to more complex theoretical materials; and finally, main problems summarization. The conclusion focuses on the main points and introduces the next podcast's primary purpose in this series. The podcast can also add visuals such as embedded images enabling the recipient better to understand the subject matter (Rajic, 2013).

Podcast design for learning requires a systematic, effective, and effi-

cient design model in production. The Rapid Prototype model is a learning design model designed in such a way as to create new and fast learning in solving existing problems. This model allows a design to quickly analyze and modify the

model (Steven & Bichelmeyer, 1990). The purpose of this model is to save time and any possible expenses for its prototype. The Rapid Prototype model can be seen in the following figure.

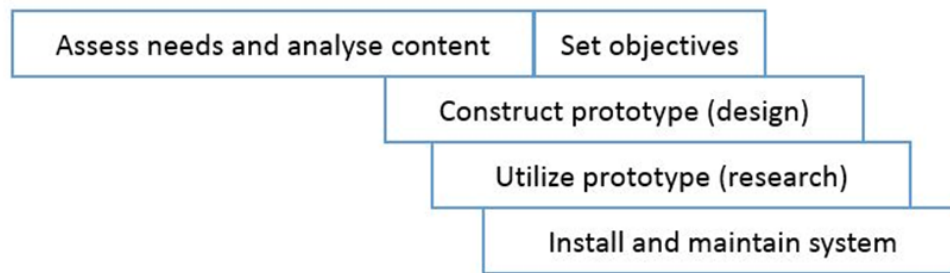


Figure 1. *The Rapid Prototype Model*

This model's stages are sequentially analyzing needs and content and determining objectives, designing prototypes, and using prototypes and installation systems. In general, the steps at each stage refer to the traditional ADDIE (Analysis, Design, Develop, Implement, Evaluate) learning design model. The included steps are according to the needs in designing a prototype. (Daugherty, Ya-Ting Teng, & Cornachione, 2007) (Steven & Bichelmeyer, 1990) (Boulet, 2013).

## B. METHODS

The research method used is Design & Development (D&D), namely, design and development research, which is a systematic study that examines the development process and design evaluation. At the design stage, this study in-

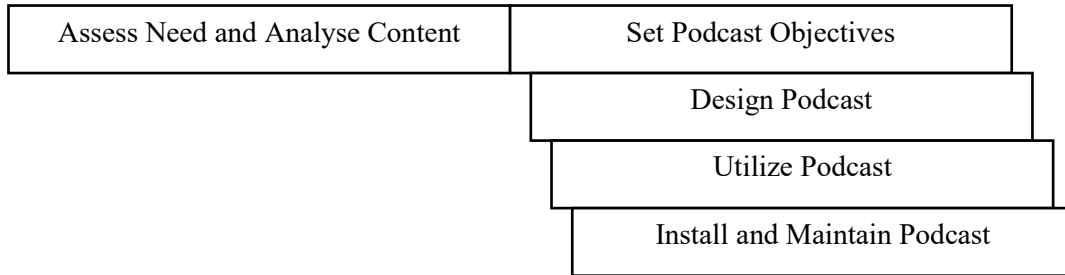
tends to design a podcast design model system for learning (Richey & Klein, 2007).

## C. RESULTS AND DISCUSSION

Podcast for the learning needs to be systematically appropriately designed to suit the podcast's needs and goals. One of its characteristics is that they are comfortable and inexpensive to produce. A design model is needed to streamline time and cost be flexible, namely The Rapid Prototype Model. This learning design model is suitable for analyzing and designing fast learning and being used in designing learning media produced using computer software (Steven & Bichelmeyer, 1990). Thus, the rapid

prototype design model is convenient in designing podcasts for learning. This design model's steps are in order of needs and content analysis, determining podcast development goals, podcast de-

velopment, podcast use, and podcast installation and management. The following is an image of a podcast for learning design with the Rapid prototype model.



**Figure 2.** *The Rapid Prototype Model for Podcast Learning*

**Assess Needs and Analyze Content, Podcast Set Objectives**

At this stage, a needs analysis and podcast content are done. Podcasts for learning are needed to solve learning gaps to improve analyzing, imagination and listening competency. In this research, it will be developed for elementary, secondary, and high school students. In elementary school students, the listening ability is the most important thing as a learning ability where almost 60% of elementary school students' activities in class are listening (Tarigan). Then, in the lower grades of elementary schools are developing language skills as appeared in listening. In junior high school (SMP) students, students' imagination is needed as the ability to form and visualize various possibilities. In high school, students (SMA), they can

think logically about abstract ideas, and their cognitive skills are at a high level of cognitive or higher-order thinking skills intellectually. From all of those various needs for increasing competence, the podcast is very suitable to meet them.

It, as a medium, is suitable for classroom, distance, and m-learning with distinctive characteristics. It is easy, low cost, and flexible access by using various digital devices connected to the internet. It provides a variety of learning materials and improves students' listening skills and imagination. In learning as institutional, it can be made used as supplemental and integrated in a multitasking way. Students can listen to lectures while doing other tasks such as driving, exercising, or ongoing between classes.

The podcast content analysis results for learning are selecting and determining the subject matter, topics, and content. Podcast for learning must refer to the applicable curriculum and according to the level of education. It can also present a variety of subjects. Material that fits in the podcast is one related to facts, theories, and explanations of methods. This research contains podcast content according to elementary education level in Indonesian, junior high school science subjects, and high school economics subjects.

**Setting Podcast Objectives**

In Determining podcast learning objectives design, it is taken from the cognitive verbs in the bloom taxonomy revised by Anderson, namely knowing, understanding, applying, analyzing, assessing, and creating according to the learning objectives to be achieved by students.

- Remembering: Recall previously learned information.
- Understanding: Comprehending the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one's own words.
- Applying: Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the workplace.
- Analyzing: Separates material or concepts into parts so that its organizational structure may be understood. Distinguishes between facts and inferences.
- Evaluating: Make judgments about the value of ideas or materials.
- Creating: Builds a structure or pattern from diverse elements. Put parts together to form a whole, with em-

Table 2 Analysis of Podcast Needs, Content, and Purpose.

| No. | Analysis        | Elementary School                | Secondary school  | Senior high school |
|-----|-----------------|----------------------------------|-------------------|--------------------|
| 1.  | Podcast Needs   | Listening skills                 | Imaginative skill | Analysis skill     |
| 2.  | Podcast Content | Indonesian Language subject      | Science subject   | Economics subject  |
| 3.  | Podcast Purpose | Understanding and implementation | Creative          | Analysis           |

### Developing Podcast

The stages in developing podcasts sequentially are pre-production, production, post-production (Islam, 2007). The steps in the first pre-production stage are to determine the content type or podcast format. The length of time used or duration determines the author of the podcast. It also covers writing podcast scripts for learning and preparing podcast equipment, both software, and hardware.

The production stage is pre-production training and recording. Pre-production exercise is where he/she stud-

ies the script and practices it by reading the script aloud before recording to be sure of the message within the script's content. A recording involves taking the authors' sound/music/sound effects using an audio platform, Digital Audio Workstation (DAW), which are open sources such as Audacity and Garageband. There are also paid ones such as Cubase, Study One, Pro Tools. Using an open-source or free DAW is more than sufficient to have good quality to create a podcast. It is possible for its recording to apply a mobile voice recorder application on Android and iOS smartphones.

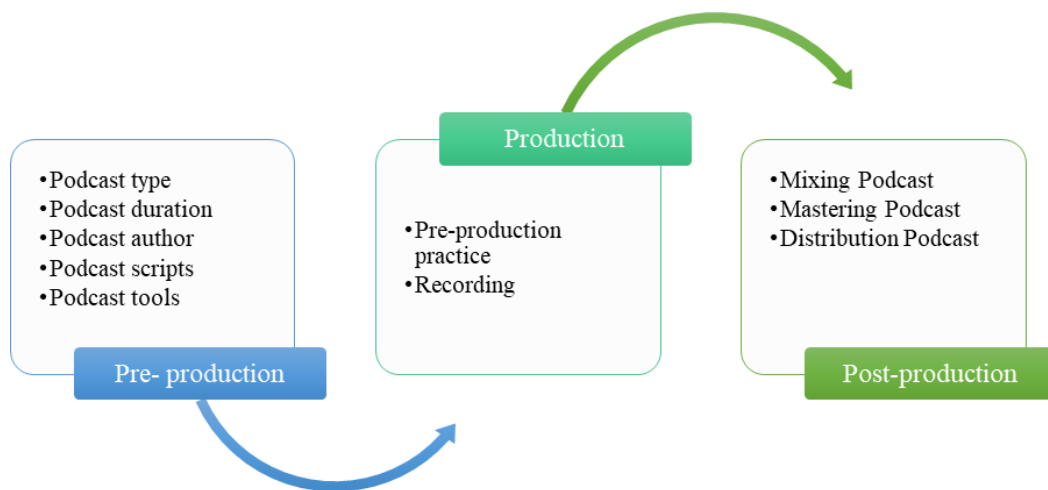


Figure 3 Steps in Designing Podcast for Learning

The post-production stage is mixing and mastering podcasts for learning. This process should use a DAW on the computer to get more leverage with exclusive features according to mixing and mastering needs. Mixing is the pro-

cess of editing and recording files by correcting, removing, managing, and adding effects to selecting the desired sound. Mixing is also an audio editing process by combining sounds, music, sound ef-

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fects into a unified unit according to the script that has been made. Volume control is also easy to listen and export the audio into an audio output format into an audio storage device. The podcast output format is mp3 because it is stored in an online storage area. The last post-production stage is to distribute the distribution process and publish podcasts so that students can play them through podcast hosting services and websites. Podcast distribution and storage can be uploaded to podcasting services such as Anchor, Itunes, Google Podcasts, and Spotify. Podcasts can be played online and can also be downloaded or subscribed to on podcast channels.

### **Podcast Utilization**

At this stage, podcasts for learning is designed by considering several aspects. The steps that need to be considered in using learning podcasts are based on the usage system learning activities consisting of preparation steps, presentation steps, and follow-up steps.

It also includes the preparation steps in making plans related to the presented material and taking notes on things that can generate interest, discussion on material, and ways of assessing understanding or appreciation. Giving direction to students, such as explaining

the learning objectives before listening through audio media, is essential. It is paying attention to target listeners or students' needs to be considered whether small groups or large groups will affect the presentation, use of facilities, and evaluation. Before listening to a podcast, make sure that the target of listeners is ready. It requires concentration to understand the message conveyed. It is also necessary to check the equipment used. Ensure that all tools starting from the player, sound, and electricity are in good and proper condition.

In presentation steps, it serves the audio media at the right time in line with the students' way to listen and its time-frame. Arrange for a practical room situation where listening to audio media, try to minimize other sound disturbances. It also needs to Motivate so that they become enthusiastic in listening to audio media.

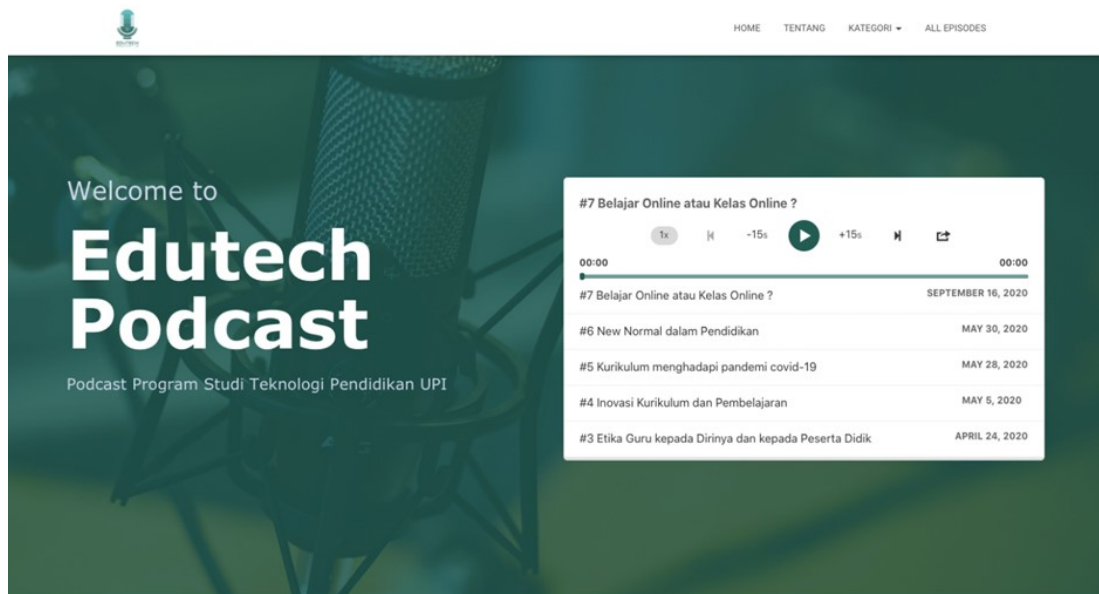
The use of podcasts in learning leads to Important elements in analyzing the results of using podcasts. They consist of learning objectives, student goals, podcast goals, podcast type, podcast writer, suitability with other teaching materials, a style used, podcast duration, media, technology and material, sound used, images included, and music.



## Installing and Maintaining Podcast

The final step is to install and manage the podcast channel. Installation

is the process of refining a podcast if there is a podcast update. It also needs to be adequately managed by updating new episodes.



## D. CONCLUSION

Podcast for learning is an audio recording that presents material for learning purposes to be disseminated through the internet. It can be played, subscribed to, and downloaded by online internet service. Designing podcasts for learning applies The Rapid Prototype Model, namely analyzing podcasts' needs and content, determining podcasts goals, designing podcasts, using podcasts, and distributing podcasts.

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