

## Development of Audiobook Learning Media on Solfeggio for Music Skills of Visually Impaired Students

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**Abstract:** This study aims to (1) produce an audiobook learning media on solfeggio for the music skills of visually impaired students, (2) analyze the feasibility of the audiobook learning media product on solfeggio for the music skills of visually impaired students, (3) analyze the practicality of the audiobook learning media product on solfeggio for the music skills of visually impaired students, and (4) analyze the effectiveness of the audiobook learning media product on solfeggio for the music skills of visually impaired students. This research employs Research and Development (R&D) methodology with the ADDIE procedure. Data collection techniques in this study involve the use of questionnaires, and data analysis techniques include validity, practicality, and effectiveness testing. The Validation Test of the audiobook learning media on solfeggio has been proven to be acceptable according to content experts, with a score of 82%. It is also considered highly suitable by media experts, with a score of 89%. Moreover, it is regarded as practical by practitioners, obtaining a score of 93%. The effectiveness test resulted in a mean range of 0.6, demonstrating its effectiveness in improving the learning outcomes of visually impaired students.

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## Introduction

Life Skills are one of the focal points of analysis in the development of school education curriculum, emphasizing on the competencies or skills required for life or work. In the study of curriculum development, this issue is discussed within the framework of the studies of contemporary life outside the school or curriculum design focused on social functions/activities (Dumiyanti, 2021). Hopson and Scaly in Dumiyanti (2021) proposed that life skills education is self-development to survive, grow and thrive, having the ability to communicate and interact effectively both individually and in groups, and through systems in facing specific situations. Life skills, in this context, refer to various abilities required by an individual to navigate life successfully, happily, and with dignity in society. Life skills are abilities needed throughout life, encompassing complex thinking, effective communication, the ability to cooperate and fulfill roles as responsible citizens, readiness and proficiency for work, as well as possessing character and ethics to engage in the workforce.

The National Department of Education divides life skills into four types: Personal Skills, which include self-awareness, thinking skills, Social Skills, Academic Skills, and Vocational Skills (Jalius et al., 2019). On the other hand, according to Asmani (2009), life skills education can be categorized into two main types: General Life Skills (GLS) and Specific Life Skills (SLS). Considering the aspects mentioned earlier, schools provide appropriate skill development programs, one of which is vocational skill development services offered to students as preparation for finding employment.

Music skill learning is one of the teachings or educational programs that fall under the development of life skills or vocational skills. Julia (2017) reveals that music education is a form of education that assists in expressing ideas generated from environmental phenomena using musical elements. Through music education, learners are expected to create musical compositions or develop an appreciation for music that is inherently tied to beauty. Music education also aims to foster creativity among students.

Music utilizes the auditory senses as one of the sources of information reception. Therefore, music skills require a sensitive sense of hearing and can also train the auditory senses to enhance their ability to receive information effectively. Banoe (2013) explains that the auditory skill method is implemented by imitating various words, syllables, musical terminologies, and lyrics; imitating rhythms in various patterns through clapping hands or on tables, stomping feet, reciting or reading rhythm patterns; imitating simple tones and melodies, both vocally and by replicating them with musical instruments.

Listening skills play a crucial role in the learning process. Unlike sighted learners, who obtain nearly 80% of information from visual senses, visually impaired students heavily rely on their auditory senses as an important source of information to compensate for their visual impairments. Visually impaired individuals use hearing as a means of information twice as much as reading (Praptaningrum, 2020). Students with visual impairments, relying on their auditory senses, can harness music skills as part of their vocational skill development process. Through music skills, visually impaired students can also train their hearing to enhance their auditory potential and improve their information reception through the auditory channel.

According to the literature in Soeratman (2017), visually handicapped or visually impaired individuals are often mistakenly associated with blindness, but it is not the case because visual impairment can be classified into several categories. Children with visual impairment can be defined as those whose vision is impaired to an extent that, even with correction, it still has detrimental effects on the individual. Similarly, as stated by Anastasiou and Kauffman (2011), an individual is considered visually impaired if, even after various efforts to improve their visual ability, their visual acuity does not exceed 20/200, or if their field of vision does not extend beyond 20 degrees, despite attempts to improve their visual ability. In other words, visually impaired students are those who experience visual impairments to the extent that they cannot use their visual senses functionally, even with the assistance of visual aids.

Based on the field observation on visually impaired students at the elementary level in SLB-A YPAB Tegalsari Surabaya, it was found that the music learning facilities for visually impaired students require further attention. Out of 15 students participating in the music extracurricular class, 8 students have low music skills, especially in the aspect of vocal skills. The low vocal skills of these students can be identified from 4 students who still struggle with

singing notes with intervals of more than 2 pitches, 3 students who sing melodies that are not yet accurate, and 1 student who sings a song with incorrect pitches, commonly known as "off-key" or "fals".

The subject of Music Arts aims to cultivate aesthetic sensitivity or a sense of beauty among students through various musical activities (Dewantara, 1977). Music arts learning is oriented towards nurturing musicality, which includes music knowledge, music skills, and musicianship.

In the aspect of vocal skills, students are required to master Solfeggio skills, which include reading musical notation, both in staff notation and numbers, auditory sensitivity to pitch, note values, beat values, scales, vocal techniques, dynamics, breathing, and other related elements. Junita, as cited in Simangunsong (2020), states that the purpose of teaching Solfeggio is to enable students to develop aural skills in reading notations through singing (sight singing), ear training exercises, and writing notations using vocal and instrumental (musical instrument) media.

The use of the Solfeggio method is employed as an alternative form of music skill learning, particularly for vocal skills. The Solfeggio method is a type of exercise aimed at improving vocal technique, using specifically designed exercises for that purpose (Syafiq, 2003). Benward, as cited in Simangunsong (2020) explains that ear training involves exercises to enhance musical hearing ability, including rhythmic accuracy and pitch accuracy.

Furthermore, Kodijat (1983) explains that ear training involves vocal exercises without lyrics, using only open syllables. Hearing can be trained by aligning with the notes being read. The more students practice, the higher their ability to imagine the pitch and the accuracy of intervals or leaps between notes. Thus, ear training becomes one of the learning tools to hone students' music skills, making audiobooks a suitable medium to support learning for students with an auditory learning style.

Audio media is highly suitable for visually impaired children as it optimizes their heightened sense of hearing and improves their listening skills, as stated by Sudjana (2008) who emphasizes the connection between audio media and listening skills. One form of audio media is the audiobook, also known as a talking book. An audiobook is an audio recording of the content of a book or written material that can be listened to by the audience, which may include texts, images, photos, or other illustrations presented in audio format.

## Research Method

The approach in this study utilizes the research and development (R&D) design, employing the ADDIE research procedure. Branch (2009) states that the ADDIE research procedure is an effective concept used for product development. This research aims to create a learning media product, namely an audiobook on solfeggio for visually impaired students. The subjects of this research are visually impaired students from the fourth to sixth grade in SLB - A YPAB Surabaya. The development procedure follows the ADDIE development model, which stands for Analysis, Design, Development, Implementation, and Evaluation. This development has a high level of feasibility, thus requiring validation from media experts, music art experts, and special education content experts. The data collection techniques in this research involve the use of questionnaires (surveys) and pretest-posttest assessments.

The results of the expert assessment of the product quality were coded using a qualitative scale, and then transformed into quantitative values based on the following criteria.

**Table 1. Conversion of Qualitative Values into Quantitative Values**

Value	Score
Very Good	4
Good	3
Satisfactory	2
Poor	1

In data analysis using gain scores, it involves the initial ability of the students. The calculation is done as follows.

**Table 2. Gain Score Criteria**

Category Boundaries	Category
$g \geq 0,7$	Tinggi
$0,3 \leq g < 0,7$	Sedang
$g < 0,3$	Rendah

## Result and Discussion

The development of audiobook learning media on solfeggio for music skills of visually impaired students was developed based on various stages of the needs analysis needed.

This initial product development stage is the initial stage of development research activities. Researchers develop learning media in accordance with what has been designed. The learning media developed were tested for their effectiveness and validity before they were applied in the learning process. In testing the validity of the development of this learning model used several experts who validate the product that has been made. In addition, there are also instruments of teacher and student response regarding learning models that have been developed.

**Table 3. Results of Validation by Material Expert**

Aspect	No	Indicator	Score
Content Suitability	1	Depth of material provided	4
	2	Relevance to the research subject's needs	4
	3	Accuracy of the substance of the learning material	5
	4	Clear presentation of intervention objectives according to the needs	3
	5	Systematic presentation of material	3
	6	Consistency with moral and social values	5
Readability Suitability	7	Readability	4
	8	Clarity of information	4
	9	Concise and clear use of language	4
	10	Clarity of the intended objectives	4
	11	Provision of motivation and appeal	4

Presetation	12	Interaction	5
Suitability	13	Completeness of information	4
Graphic	14	Use of clear font types	5
Suitability	15	Layout or arrangement	4
	16	Visual design	4
Total			65

Based on the calculations above, the assessment percentage obtained is 82%. After converting it into the assessment criteria, it is known that the Audiobook Learning Media on Solfeggio for Visually Impaired Music Students falls under the "appropriate" category (Mardapi, 2008).

**Table 4. Results of Validation by Media Expert**

Aspect	No	Indicator	Score
Fungsi dan Manfaat	1	Dapat memperjelas dan mempermudah penyampaian pesan untuk pembelajaran siswa.	5
	2	Dapat menimbulkan minat dan motivasi belajar siswa	4
	3	Dapat meningkatkan kreativitas siswa	4
Visual Media	4	Pemilihan warna, latar belakang, teks, gambar dan animasi menarik.	5
	5	Pengambilan ukuran gambar telah sesuai untuk siswa	5
	6	Gambar materi dapat terlihat dengan jelas	5
	7	Pencahayaan hambar sudah tepat	4
	8	Kecepatan gerakan gambar telah sesuai untuk siswa	5
Audio Media	9	Ritme suara yang disajikan narator sesuai kebutuhan siswa (tidak terlalu lambat dan tidak terlalu cepat).	4
	10	Pengaturan durasi sesuai untuk siswa	4
	11	Suara narator terdengar dengan jelas dan informatif	5
Tipografi	12	Jenis teks mudah dibaca	5
	13	Ukuran teks sudah sesuai (tidak terlalu kecil dan tidak terlalu besar)	5
Bahasa	14	Bahasa mudah dipahami	5
Teknis	15	Kemudahan dalam mengoperasikan <i>Audiobook Solfeggio</i>	4
	16	Kemudahan dalam mengakses <i>Audiobook Solfeggio</i>	5
	17	Kemudahan dalam pengelolaan atau pemeliharaan <i>Audiobook Solfeggio</i>	5
	18	Ketepatan memilih desain web	5
Total			90

Based on the calculations above, the assessment percentage obtained is 89%. After converting it into the assessment criteria, it is known that the Audiobook Learning Media on Solfeggio for Visually Impaired Music Students falls under the "appropriate" category (Mardapi, 2008).

**Table 5. The Practicality Test Results**

No	Aspect	Score
1	The Learning Process of Music through the Audio Book Media on Solfeggio	4
2	Students' Interest and Response to the Audio Book Media on Solfeggio	5
3	Operating Procedure of the Audio Book Media on Solfeggio	5
4	Improvement of Students' Knowledge Using the Audio Book Media on Solfeggio	4
5	The Media Contains Useful Content to Enhance Students' Music Skills	5
6	Language in the Audio Book Media on Solfeggio Is Easy to Understand	5
7	The Audio Book Media on Solfeggio Can Assist Students in Understanding the Taught Music Skills	4
8	Involvement or Participation of Students During the Learning Process of Music Skills Using the Audio Book Media on Solfeggio	5
9	Ease of Use of the Audio Book Media on Solfeggio When Operated by Teachers and Students	5
Total		42

Based on the calculations above, the assessment percentage obtained is 93%. After converting it into the assessment criteria, it is known that the Audiobook Learning Media on Solfeggio for Visually Impaired Music Students falls under the "appropriate" category (Mardapi, 2008).

**Table 6. Pre-test Post-test Result**

No	Name	Score		Gain Score <G>	Explanation
		Pretest	Posttest		
1	FC	75	90	0,6	Moderate
2	VP	55	75	0,4	Moderate
3	DP	70	85	0,5	Moderate
4	AD	55	80	0,5	Moderate
5	AK	50	85	0,7	Advance
6	ML	60	85	0,6	Moderate
7	HP	65	90	0,7	Advance
8	MC	50	75	0,5	Moderate
9	FH	55	85	0,7	Advance
10	MN	65	85	0,6	Moderate
Mean		60	83,5	0,6	

The difference in students' scores is due to the varying levels of intelligence of each student, but they can actively participate in the learning activities. The audiobook learning media on Solfeggio for visually impaired students is considered effective and appropriate if it can improve learning outcomes, achieving at least a moderate category based on the gain score results. The analysis of learning outcomes can be determined by calculating the normalized gain score to assess the pretest-posttest values.

By observing the overall gain score results from the pretest-posttest data, which shows a result of 0.6 and falls into the moderate category, it can be concluded that the use of audiobook learning media on Solfeggio for visually impaired students provides a significant improvement



in learning outcomes. The practicality of the media will influence the learning outcomes and students' understanding of the material. Having media that suits the needs and characteristics of the students facilitates and helps them comprehend the learning material.

The development of audiobook learning media on Solfeggio for visually impaired students at the elementary school level has resulted in two technology-based learning media: an ebook and an audiobook accessible through each student's device. The ebook learning media contains fundamental theories about Solfeggio, musical scales, intervals, and melodies that can be read by visually impaired students with the assistance of a screen reader. The ebook also provides basic Solfeggio exercises in solmization training, combining the material on musical scales, intervals, and melodies. The exercises are designed in simple language and content to ensure easy comprehension through the screen reader on each student's device. Meanwhile, in the audio-based audiobook learning media, it contains the same material as what is in the ebook, but with sound as the information conveyance. The content delivered is indeed the same as in the ebook, such as the theory of scales, intervals, melodies, and solmization exercises, but in the audiobook, more emphasis is given to solmization exercises because it requires accuracy in pitch training.

The development of this learning media is, of course, designed based on the results of field studies that concluded the need for new breakthroughs in the learning process. Not forgetting, in creating the media, it must be tailored to the characteristics and abilities of the students by emphasizing technological advances so that students' needs can be fulfilled in the learning process (Samsudin et al., 2017).

During the observation activities conducted in March 2023 to analyze student needs, it was found that the learning activities were carried out as they should be, with explanations from the teacher and various exercises. However, it was also discovered that the learning process still did not utilize technology-based learning media, thus not fully maximizing the current technological advancements. Based on the literature study conducted, it was found that visually impaired or blind students rely more on non-visual senses, particularly the sense of hearing, for processing information (Praptaningrum, 2020). All visual and abstract information needs to be transformed into clear audio perception to facilitate the understanding of the provided information by visually impaired students.

The development of this audiobook media product is tailored to the auditory learning style of visually impaired students. Several aspects of this media include ease of use with screen readers and interactive audio that captures the interest of visually impaired students. This reinforces the importance of conducting the learning process for visually impaired students with clear and concrete concepts. Visually impaired students often face challenges in grasping basic concepts and struggle to integrate essential components of information from their environment to form various concepts (Febriana, 2020).

The usefulness of this learning media lies in its ability to facilitate music skills learning both in the classroom and at home. The slow adaptation to the rapid technological advancements hinders the emergence of new breakthroughs in creating instructional media that is easily understood by the students. Therefore, this media is beneficial in aiding students to comprehend the concept of solfeggio presented through an audio-based platform, which can serve as a practice tool wherever they are.

## Conclusion

This research has successfully developed an audiobook learning media about solfeggio for music skills of visually impaired students. This media is based on audio for teaching vocal music skills of solfeggio, covering topics such as scale notes, intervals, melodies, and solmization exercises.

The validation results from the content expert obtained a score of 82% and were considered acceptable, from the media expert obtained a score of 89% and were considered highly acceptable, while from the practitioner expert obtained a score of 93% and was considered highly acceptable. Additionally, the effectiveness test with the students showed a mean score of 0.6 and was deemed successful in improving music skills learning outcomes. Therefore, it can be concluded that the audiobook learning media about solfeggio for music skills of visually impaired students has been successful and is suitable for teaching music skills to visually impaired students.

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