







## Audiovisual media innovation: *Hanyu Shuzi* learning solution

### Inovasi media audio visual: solusi pembelajaran *Hanyu Shuzi*

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#### KEYWORDS

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#### ABSTRACT

Despite the popularity of Mandarin Chinese as a foreign language in Indonesia, there has been a lack of attention given to the development of learning media for Indonesian learners. Consequently, this may hinder their comprehension of the materials. This study aims to develop an innovative learning media for Mandarin Chinese learners to help them master the *Hànyǔ Shùzì* material. The present study involves 27 students majoring in Mandarin Chinese Education at State University of Malang and employs the ADDIE research and development model by Dick and Carry (1996). The model comprises five stages, 1) Analysis, 2) Design, 3) Development, 4) Implementation, and 5) Evaluation. To complement the model, we also used a qualitative descriptive method for the data analysis and employed questionnaires for material validation test, media test, and the subjects. The expert validations confirmed the validity of the *Hànyǔ Shùzì* learning media in terms of its materials and media. To conclude, the learning media is worth implementing in the teaching and learning process of Mandarin Chinese to Indonesian learners.

#### KATA KUNCI

Mandarin;  
bahasa;  
inovasi;  
media

#### ABSTRAK

Meskipun Bahasa Mandarin merupakan bahasa asing yang populer di Indonesia, media pembelajaran Bahasa Mandarin masih belum banyak dikembangkan. Hal ini berakibat pada sulitnya mahasiswa pembelajar Bahasa Mandarin dalam memahami materi pembelajaran tanpa tersedianya media yang mendukung proses belajar mereka. Penelitian ini memiliki tujuan untuk membuat inovasi dengan mengembangkan media pembelajaran materi *Hànyǔ Shùzì* untuk digunakan oleh mahasiswa pembelajar bahasa Mandarin. Subjek dari penelitian ini adalah 27 mahasiswa Prodi Pendidikan Bahasa Mandarin, Universitas Negeri Malang. Pengembangan media *Hànyǔ Shùzì* menggunakan model pengembangan dari ADDIE oleh Dick and Carry. Pengembangan media ini terdiri dari 5 langkah, yaitu 1) Analisis, 2) Design, 3) Development, 4) Evaluation, 5) Implementation. Metode analisis data yang digunakan pada penelitian ini adalah data deskriptif kualitatif. Instrumen pengumpulan data yang digunakan terdiri dari lembar angket validasi ahli materi, lembar angket validasi ahli media dan lembar angket untuk subjek uji coba. Berdasarkan hasil yang didapat dari angket validasi ahli materi dan ahli media, diketahui media pembelajaran *Hànyǔ Shùzì* valid dari segi materi maupun media, sehingga disimpulkan bahwa media pembelajaran ini layak untuk digunakan.

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## **Introduction**

China has been dominant in both economy and industrial power, and has become one of the most prominent countries in the world. This has led to the popularity of Mandarin Chinese as an essential foreign language to learn. Aligning to that, Nugraha (2018) maintained that China would inevitably persevere from Mao Zedong's reign to become the largely influential super-powered country that it is now.

As stated before, Mandarin Chinese has become only second to English as the most-spoken language globally (Thamrin et al., 2021). It also plays an eminent role in the job market due to the country's expanding industry that requires employees who speak the language. For this reason, the interest in learning Mandarin Chinese has arguably spiked (Ying, 2013). As China and Japan often invest in Indonesia, it inadvertently urges the Indonesian workforce to learn those countries' languages for business communication (Munadzdzofah, 2018). Since then, the demand for Indonesian and Chinese-speaking employees has notably progressed upwards (Limuria & Sutandi, 2018). As a result, Mandarin Chinese Education is now a growing field of study in Indonesia and can be found in various Indonesian educational institutions, including universities.

Learning Mandarin Chinese actively requires high motivation, as many would find the language quite hard to learn (Budianingsih & Dewi, 2020). In L2 learning, motivation refers to a sequence of factors that include the expectation to achieve a certain goal, willingness to learn, persistence, and attitude toward the language and its speakers (Gardner, 1985). Foreign language skill has evolved into one of the essential skills nowadays (Thariq et al., 2020). Since globalization and knowledge development allows boundless access to expand one's horizon, mastering foreign languages arguably brings benefits for the future.

Language plays a crucial role in humanity as its core means of human communication (Wicaksono, 2016; Eliza & Rahel, 2018). Aside from English, Mandarin Chinese is highly recommended to learn due to its number of speakers. Lane (2019) revealed that the number of Mandarin Chinese native speakers has amounted to 1,3 billion around the world, along with 917 million speakers who actively use the language in daily communication. With the spiking demand in the job market (Ying, 2013), educational institutions such as universities are encouraged to provide Mandarin Chinese courses. Endra et al. (2020) found that the teaching and learning of Mandarin Chinese have expanded in schools. Inevitably, this urges the necessities of teaching materials and learning media to support the process. To achieve successful learning outcomes, it is important to consider several factors, such as teachers, students, supporting facilities, teaching materials, learning media, and learning environment.

As one of the essential factors in maximizing the learning process, learning media allows both teachers and students to interact more effectively (Muhson, 2010). Moreover, Azwandi (2007) argued that learning media helps students focus and motivate them to learn by themselves. Although the teaching of Mandarin Chinese has greatly evolved in recent years, its development has yet to fulfill the needs and expectations of Indonesian learners. Due to the lack of appropriate learning media, learners often struggle in understanding the materials.

Based on our initial observations in a basic Mandarin Chinese class, it was apparent that the class lacked appropriate learning media, which made it difficult for students to comprehend the materials. As a result, their scores failed to meet the minimum standard requirements. This issue called for the need to develop supporting learning media for the *Hànyǔ Shùzì* (Chinese numbers) material. Therefore, at the preliminary stage of the present study, we observed the class and used a questionnaire to identify the problem. The questionnaire was distributed to 27 students of the A-Offering of the 2021 Mandarin Chinese Education major, Universitas Negeri Malang. The results showed that these learners were struggling in learning Mandarin Chinese. Most of them agreed that 1) *Hànyǔ Shùzì* is a difficult chapter (66,7%), 2) it is hard to pronounce *Hànyǔ Shùzì* correctly (77,8%), 3) the *Hànyǔ Shùzì* learning media is barely available (88,9%), 4) any supporting learning media for *Hànyǔ Shùzì* (77,8%) is hardly found, 5) learning about numbers without supporting media is hard (100%), 6) references for *Hànyǔ Shùzì* (88,9%) are hardly available, and 7) *Hànyǔ Shùzì* is one of the most difficult chapters to learn (74,1%).

In learning Mandarin Chinese, *hanzi* and its pronunciation often become the most puzzling aspect for the learners (Aditya, 2017). For instance, writing and pronouncing *hanzi* require high accuracy because any slight mistake can lead to different meanings. The lack of basic Mandarin Chinese learning media largely hinders students in comprehending the language and can be disadvantageous since learning media boosts students and teachers' interactions for a more effective learning process (Muhson, 2010). If students are struggling to comprehend the language, they may fail to meet the required standard performance. It is because of this reason that this study focuses on developing learning media for the teaching and learning of *Hànyǔ shùzì*. This topic is important because there are a certain number of characters that share similar *hanzi* with other words, but have different meanings. For example, '1' in Chinese is pronounced as 'yī', which shares similar strokes or *hanzi* as 'yao' and 'yì', which is another complementary character. With other numbers being in such a similar case, Mandarin Chinese learners often face difficulties in distinguishing the identical characters.

We believe that learning *Hànyǔ shùzì* would be substantially improved with the availability of learning media that can help students learn the materials in a more interesting and comprehensible way. The media should not only cover the enunciation and usage of Chinese numbers from one to ten, but also to hundreds, thousands, and more. The objective of the media is to provide a basis for daily communication and a shortcut to avoid miscommunication. Against this backdrop, it is urgent to create audiovisual learning media that can help Mandarin Chinese students learn *Hànyǔ shùzì*.

There have been several previous studies that deal with audiovisual learning media. Nomleni and Manu (2018) developed audiovisual learning media to enhance students' conceptual comprehension and problem-solving skills. The difference with the current study lies in the technique for data analysis that used pre-test and post-test. The result of the study came out as a final product of a recycled teaching aid and an educational video, which were all validated and approved as feasible for students' learning process.

Yuanta's (2017) study is similar to the current study in its goal to improve linguistic skills in an audiovisual learning environment, but is different in the method and model used. The study concluded that audiovisual media successfully caters teachers' needs

in enhancing the learning process and implements the goal to provide for the diverse students' needs. Another study by Arinalhaq and Tandyonomanu (2013) employed a 4-D development model based on the qualitative and quantitative data obtained from the trials of their study. The result showed that audiovisual media development helps the teaching and learning of Indonesian language, particularly in improving fifth grade students' skill in identifying elements in folklore. These previous studies prove that audiovisual learning media has become more eminent among the learning media trends for various subjects. While these previous studies focused on learning media development, studies that concern the media for learning Mandarin Chinese are still lacking.

According to Sottolare et al. (2017), utilizing technology such as digital technology, communication technology, and network is to access, organize, integrate, evaluate, and create information to gain knowledge. Learning media is meant for creating an effective learning environment, reaching the learning target, and improving the quality of education (Hamalik, 2008). Hamidjojo and Latuheru (1993) define media as a means to transfer an idea or an opinion from one to another. In other words, learning media bridges and facilitates the material presentation. Levie and Lantz (1982) elaborate that learning media essentially comprises the attentive, affective, cognitive, and compensatory functions. Therefore, this developmental research hopefully can be advantageous for the learning and teaching of Mandarin Chinese. With the developed audiovisual media, we aim to help and motivate the students to learn the language more independently. Furthermore, the purpose of this study is to develop *Hànyǔ Shùzì* media that can assist both Mandarin Chinese language students and learners in learning and evaluating their performance. Considering the lack of media for learning Mandarin Chinese, developing appropriate learning media for learning the language will potentially maximize the learning process (Karo-Karo & Rohani, 2018).

Specifically, this research foregrounds the students' ability and interest to write *hanzi* accurately and distinguish each item of *Hànyǔ Shùzì* and their usage. The targeted final outcome is developed audiovisual learning media that contains *Hànyǔ Shùzì* materials for the 27 students of A-Offering of 2021 Mandarin Chinese Education major at Universitas Negeri Malang, and for Chinese language learners in general. The specific aims of this audiovisual media development are 1) to design interesting audiovisual media that explain Chinese numbers, and can be used for both online and offline speaking class, 2) to design interactive media that help students in understanding the Chinese numbers, 3) to analyze and test the effects of learning media usage in improving students' capabilities and performance, and 4) to extend the references of audiovisual media usage in learning Chinese numbers. To conclude, this study hopefully answers the obstacles and demands in Mandarin Chinese teaching and learning, particularly the *Hànyǔ Shùzì*.

## Methods

The development model used in this study was ADDIE (Dick & Carey, 1996). The ADDIE instructional model consists of five dynamic stages, namely analysis, design, develop, implement, and evaluate (Cahyadi, 2019). The ADDIE model was chosen because it accommodates the complete stages required in the proposed media development.

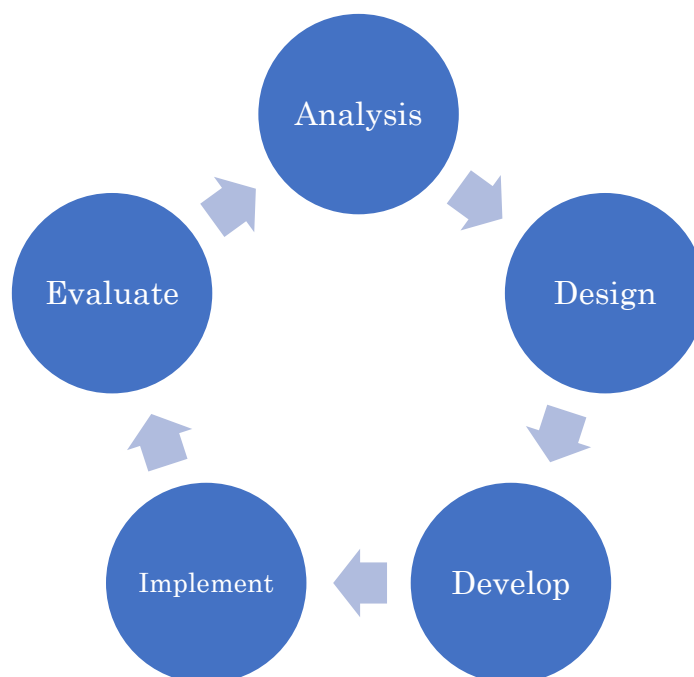


Figure 1. Five dynamic stages of ADDIE (Cahyadi, 2019)

The first stage of the ADDIE model is analysis. In this stage, we conducted a needs analysis on 27 students from the cohort 2021, majoring Mandarin Chinese Education at Universitas Negeri Malang. The preliminary analysis involved distributing questionnaires to the students. The statements in the questionnaire were as follows: (1) *Hànyǔ Shùzì* is a difficult chapter in Mandarin Chinese learning; (2) I can hardly pronounce the *Hànyǔ Shùzì*; (3) The learning media for *Hànyǔ Shùzì* is almost non-existent; (4) I can hardly find any learning media on *Hànyǔ Shùzì*; (5) *Hànyǔ Shùzì* is difficult to learn without any complementary learning media; (6) I can hardly find any materials or references about *Hànyǔ Shùzì*; and (7) *Hànyǔ Shùzì* is one of the challenging chapters to learn. Based on the analysis, it could be inferred that the students found learning *Hànyǔ Shùzì* challenging.

The second stage is design. In this stage, we designed the basic concept of the learning media. The basic concept incorporated the plot and animation design, learning strategy, learning model, and the content draft for the videos. In the development stage, we started to create the product based on the prepared basic concept. We developed the video with the assistance of a videographer. Once the video was finished, it was assessed and validated by the material and media experts. The video was later revised based on the suggestions given by the experts.

After the revision, the product was ready for the implementation stage. In this stage, we tried out the product to the 27 students of the A-Offering of 2021 Mandarin Chinese Education major at Universitas Negeri Malang. Finally, in the evaluation stage, we evaluated the results of the media trial to examine whether it achieved the objectives of the study.

### Data analysis

This study employed a descriptive qualitative method to analyze the data. The instruments to collect the data were validation questionnaire sheets for the material and media experts and questionnaire sheets for the research subjects. The procedure of data analysis consisted of the following steps: 1) perusing the instruments from the trial; 2) transcribing the expert validation questionnaires; and 3) concluding the data.

Formatted in MP4, the audiovisual media contains the explanations about the Number chapter, which involves pronunciation, meaning, and the Chinese characters. The content is complemented by animation. The media can be accessed both online and offline through PC or Android.

### Design trial

The product's validity assessment would obtain the required data for revisions and modifications. Through the assessment, the expected outcome was a product to implement. There were three subjects involved in the design trial, namely 1) a media expert, 2) a Mandarin Chinese learning material expert, and 3) research subjects.

Moreover, other aspects in the product trial were 1) the audiovisual media implementation as the object and the students' improvement in understanding Chinese number as the objective of the study, and 2) design trial, which began with a) field observation, b) design and creation period, c) validity assessment by experts, and d) product revision. During the trial, the experts were assigned with questionnaire sheets to assess the product's feasibility and were requested to give any suggestions for the product. The scheme for the design trial can be seen below.

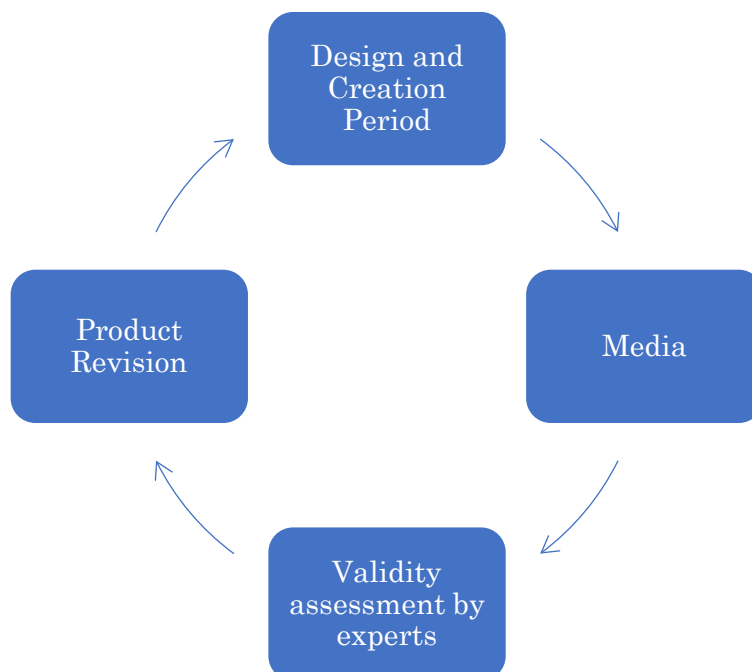


Figure 2. Design Trial

The questionnaires used for the design trial used a Likert scale. The scores obtained from the experts are calculated using Likert to come with a final average score. The

scoring for each statement ranges from Not Valid at All (0), Not Valid (1), Acceptable (2), Valid (3), and Very Valid (4).

## Results and Discussion

*Hànyǔ Shùzì* means ‘number’ in Mandarin Chinese. Compared to numbers in other languages, *Hànyǔ Shùzì* is quite different. For example, 1 (one) in Chinese has three variations: ‘yī’ (the quantifier or numeral symbol), ‘yāo’ (not a quantifier), and ‘yì’ (an auxiliary to ‘yī’). Since other numbers have similar cases, it is often challenging for Chinese language learners in distinguishing each usage and meaning of the number.

At the initial stage, learners’ characteristics and needs were analyzed. This preliminary analysis also aims to find out more about their challenges in learning (Allen & Seaman 2017). The first step of the stage is to examine the learners’ characteristics based on the observation and distributed questionnaire. Next, we analyzed the needs. The needs refer to Chinese language learning and teaching media that apply to students’ daily communication both outside and inside the class.

Based on the analysis, it could be inferred that the proposed learning media matched the students’ needs and situation. During the analysis stage, there are also information identification and discovery processes to develop proper learning media so that students can explain their challenges in learning (Jufri et al., 2021). Based on one-month class observation and the questionnaire distributed to the students, we were able to identify the students’ problem in learning Chinese language.

In the next stage, we designed the basic concept of the media, the model, appearance, and content for the media (Mustika et al., 2018). The basic concept consisted of menu design on the application and the content draft, which would be combined with the audiovisual media. The content involved was the *Hànyǔ Shùzì* chapter, including numbers 1-10 and their usage in different contexts.

We started to design the content, illustration, and plot draft for the media. Next, we explored and prepared the tools and applications required to develop the media. To illustrate the *Hànyǔ Shùzì*, the media should have examples of calligraphy strokes and the writing orders. Then, the media should also provide examples of usage accompanied with images. Overall, the media consists of two parts. They are the starting chapter of the character strokes and the explanation of each character’s usage in each context. The theme of the design in the media was a touch of traditional Chinese. With QR/barcode, the media was ready for students’ mobile access.

According to Nirmala (2012), the development stage is about changing the design specifications into the physical form, including various technologies applied in learning. The development is divided into four categories, namely print technology, visual studio technology, computer technology, and integrated technology. Furthermore, Kholifah (2018) in Setyorini (2016) defines this stage as expert appraisal and developmental testing.

The development began with creating the media according to the draft. The steps involved plotting the content, sketching the illustrations, animating, and matching the theme to the content. As soon as the prototype was finished, it was evaluated by the experts. During the validity assessment, the data were in the form of comments and suggestions from the assessors. Then, the product was revised according to the experts' suggestions and comments to achieve the best outcome at the next trial. The experts were asked to validate the media's appeal, content, and presentation. The experts involved in this assessment were the Chinese language major experts and educational technology experts. Below is the design of the media.



Figure 3. Opening of the video



Figure 4. Content

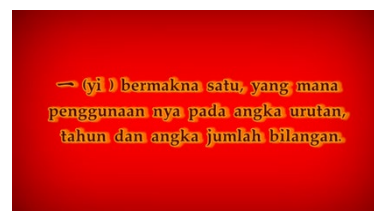


Figure 5. Closing of the video

In addition to the experts' assessment, the validity assessment also took the targeted learning environment into consideration before the media was applied in the developmental trial with the students.

#### Product validation

In this stage, we received feedback and suggestions for the media. The suggestions from the assessors were then used as guidelines in revising the product (Panjaitan et al., 2020). After the revision, we inquired the assessors again to evaluate the draft and fill the assessment sheet about the teaching content. There were two assessors, namely a material expert and a media expert. The material expert assessment was necessary to test the product's material accuracy, while the media expert assessment was to test the product's media quality.

#### Results of material expert assessment

The assessment aspects covered material's compatibility with the syllabus, accuracy, and appeal to encourage curiosity. Below are the results of the assessment.

Table 1. Validity assessment results by the material expert

No	Assessment Aspect	Percentage (%)	Criteria
1	Compatibility with the syllabus	100%	Very Valid
2	Accuracy	100%	Very Valid
3	Appeal to encourage curiosity	100%	Very Valid
4	Presentation	100%	Very Valid

According to the results of the assessment, the material expert gave the score of 4 for each of 13 assessment items. The material's compatibility with the syllabus comprises (1) material set and (2) material's depth. Next, the material's accuracy comprises (1) grammatical accuracy and (2) the *hanzi*'s accuracy. As for the material's appeal to encourage curiosity, the item is 'motivating students to learn about *Hànyǔ Shùzì*'. Last, the presentation aspect states that the *Hànyǔ Shùzì* material concept is in the right



order. Moreover, the average percentage of the assessment is 100%, which translates to Very Valid. This implies that the *Hànyǔ Shùzì* media is highly valid, accurate, and relevant for the syllabus and other assessment criteria in Chinese language learning media development.

Additionally, we also obtained feedback from the assessor. The feedback was as follows. First, the material is detailed enough in illustrating the process of *hanzi*; thus, it can help students in learning basic Chinese. Second, the media has the advantages of mobile access and an excellent technique in transforming the challenging chapter to be easier to understand. In conclusion, the audiovisual media of *Hànyǔ Shùzì* is valid, relevant, and feasible to use, particularly after the revision.

#### *Results of media expert assessment*

The media expert assessment aims to test and assess the media's quality based on the aspects of display, non-fiction storyboard, language, and usage (Gogahu & Prasetyo, 2020). Media expert assessment is required to gain suggestions and comments for improving the media developed in this study.

Table 2. Validity assessment results by the media expert

No.	Assessment Aspect	Percentage (%)	Criteria
1	Structure	100%	Very Valid
2	Graphic	100%	Very Valid
3	Content	85%	Valid
	Average	95%	Very Valid

According to the results above, the expert media gave the score of 4 for each of 17 assessment items and the score of 3 for the other two indicator items. The structure aspect comprises five points, namely 1) clear and suitable title, 2) content's conformity to the learning objective, 3) information and instruction accuracy, 4) presentation of the Chinese vocabulary with its Indonesian translation, and 5) appropriate vocabulary for the *Hànyǔ Shùzì* learning media. Next, the graphic aspect consists of seven points. They are 1) selection of the Chinese font, 2) display size, 3) quality of media visualization, 4) color selection used in the learning media, 5) clear audio quality, 6) clear and legible display of writing, and 7) systematic preparation of the media as a whole.

Next, the content aspect consists of five points: 1) the *Hànyǔ Shùzì* learning materials' accuracy and relevance, 2) benefits for students' needs, 3) accuracy in providing grammatical explanations using two languages, namely Chinese and Indonesian, 4) the convenient vocabulary level presented, and 5) the combination of the illustrations and materials. In a total of 17 points assessed, most of them earned a score of 4 and there were only two points that earned a score of 3. Those two points were 1) the *Hànyǔ Shùzì* material's accuracy and relevance and 2) the convenient vocabulary level presented.

Furthermore, we also obtained feedback from the assessor. The feedback was as follows. First, the media contains detailed materials that illustrate *Hànyǔ Shùzì* and have interesting animation to help the students understand the materials better, and 2) the media has a complete set of visual and audio aspects along with a compatible theme for the learned material. This implied that the media design, illustration, operational ac-

cess, and images are very valid, appealing, and relevant for the developed Chinese language learning media. In conclusion, the audiovisual media of *Hànyǔ Shùzì* is valid and feasible to be implemented.

#### *Results of students' trial questionnaire*

The trial was conducted during a conventional Chinese language class, involving 27 students of the A-Offering of the 2021 Chinese Language Education major at Universitas Negeri Malang. The results of the post-trial questionnaire are as follows.

Table 3. Results of students' responses on the trial

No.	Assessment Aspect	Percentage (%)	Criteria
1	Interest	99%	Very Valid
2	Language	100%	Very Valid
3	Display	99%	Very Valid
4	Presentation	100%	Very Valid
5	Benefit	100%	Very Valid
6	Motivation	100%	Very Valid
Average		99%	Very Valid

There were six aspects to assess, namely student's interest, language, media display, material presentation, material benefits, and student's motivation, totaling up to 15 items. From the results, it could be inferred that 99% of the class considered the media as very valid. Next, the students also gave their feedback through Google Form. They stated that (1) the video and its illustrations are interesting and easy to understand because it has *pinyin* and pronunciation audios, (2) the media is easy to access independently through the QR code, and (3) the media looks fun with the correct and legible font for the *Hànyǔ Shùzì* material.

An observation is an empirical research activity that is grounded on factual situations or text without any manipulation (Hasanah, 2017). We conducted a classroom observation during the implementation of the *Hànyǔ Shùzì* audiovisual media. The result shows that during the class, (1) the researchers asked the students to pray before and after the class, (2) The researchers gave the students instructions on how to use the media, (3) did a Question and Answer (QnA) session for the students, and (4) allowed the students to practice what they were learning. Based on this observation, the media is considered valid and feasible for the students.

Once the product trial and revision were done, we continued to the implementation stage. At this stage, students' feedback on the media application was obtained, thus answering the objectives of the study (Cahyadi, 2019). The media was implemented in a class of 27 students majoring in Chinese Language Education at Universitas Negeri Malang. The implementation took place during the class where the students were assisted by the teacher to use the media and solve problems in the learning process.

The *Hànyǔ Shùzì* audiovisual media was successfully implemented and well received by the students. When using the developed media, the students were enthusiastic to learn, keen on interacting with the teacher during the QnA session, and found the learning well structured, fun, and interesting. Moreover, it was easier for the students to understand the *Hànyǔ Shùzì* material because the *pinyin* and illustrations were relatable to communications in their daily lives. The *Hànyǔ Shùzì* media is the outcome of the development of learning media about Chinese numbers. The media incorporated

both visual and audio aspects to help students understand the materials effectively as it also directly involved the students in the learning process. By using the *Hànyǔ Shùzì* learning media, the students were able to pronounce the characters correctly and distinguish the difference between similar characters, such as the number 2 (二 and 两) and many more.

## Conclusion

The present study has successfully produced audiovisual learning media for Mandarin Chinese language learners to learn *Hànyǔ Shùzì*. The learning media was developed through the following steps: a) analysis, b) design, c) develop, d) implement, and e) evaluate. The learning media contained animations that helped students in comprehending the different usage of numbers in Mandarin Chinese. Based on the validity assessment by the experts, the result of the material assessment was categorized as very valid, and the result of the media assessment was also very valid. Therefore, the learning media is feasible to be used in the learning process.

From this study, we hope that the *Hànyǔ Shùzì* learning media can be utilized in Mandarin Chinese language teaching and learning. Since the outcome of this study is very valid and beneficial for basic Mandarin Chinese language learning, it can inspire teachers to develop more materials and learning media to motivate students in learning Mandarin Chinese.

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