



Interactive economics learning with audio-visual media (Sales Ratio Assessment case study)

Damas Dwi Anggoro¹, Tommy Anggriawan², Deni Agus Setyono³

^{1,2}Faculty of Administrative Science, Universitas Brawijaya, Malang, Indonesia

³Faculty of Engineering, Universitas Brawijaya, Malang, Indonesia

damasdwia@ub.ac.id¹

ABSTRACT

Tax education in secondary or vocational schools has an essential role in forming a good understanding of the tax system. This research aims to increase students' understanding of the Assessment Sales Ratio (ASR) method in economics learning through audio-visual media. ASR, often used in property valuation for tax purposes, was selected as a case study. The audio-visual media used includes video tutorials and interactive quizzes. Video tutorials are designed to explain ASR concepts and applications with engaging animations and diagrams, while interactive quizzes test students' understanding after watching the videos. This research uses a Research and Development (RnD) approach to develop and test the effectiveness of this learning media. The research results show that using audio-visual media can increase students' understanding significantly compared to traditional teaching methods. Student feedback also shows that audio-visual media makes learning more interesting and easier to understand. These findings indicate that integrating audio-visual media in economics learning can effectively overcome difficulties in understanding complex concepts. The recommendation of this research is the further development of interactive educational content for economics and accounting subjects at the secondary school level.

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ABSTRAK

Pembelajaran perpajakan di sekolah menengah atau kejuruan memiliki peranan penting dalam membentuk pemahaman yang baik tentang sistem perpajakan. Penelitian ini bertujuan untuk meningkatkan pemahaman siswa tentang metode Assessment Sales Ratio (ASR) dalam pembelajaran ekonomi melalui penggunaan media audio visual. ASR, yang sering digunakan dalam penilaian properti untuk keperluan perpajakan, dipilih sebagai studi kasus. Media audio visual yang digunakan meliputi video tutorial dan kuis interaktif. Video tutorial dirancang untuk menjelaskan konsep dan aplikasi ASR dengan animasi dan diagram yang menarik, sementara kuis interaktif menguji pemahaman siswa setelah menonton video. Penelitian ini menggunakan pendekatan Research and Development (RnD) untuk mengembangkan dan menguji efektivitas media pembelajaran tersebut. Hasil penelitian menunjukkan bahwa penggunaan media audio visual dapat meningkatkan pemahaman siswa secara signifikan dibandingkan dengan metode pengajaran tradisional. Umpan balik siswa juga menunjukkan bahwa media audio visual membuat pembelajaran lebih menarik dan mudah dipahami. Temuan ini mengindikasikan bahwa integrasi media audio visual dalam pembelajaran ekonomi dapat menjadi solusi efektif untuk mengatasi kesulitan dalam memahami konsep yang kompleks. Rekomendasi penelitian ini adalah pengembangan lebih lanjut dari konten pendidikan interaktif untuk mata pelajaran ekonomi dan akuntansi di tingkat sekolah menengah.

Kata Kunci: media audio visual; nilai jual objek pajak; penilaian rasio penjualan (ASR)

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INTRODUCTION

Tax education in secondary or vocational schools has an essential role in forming a good understanding of the tax system. One of the critical concepts in tax education is the evaluation and valuation of tax properties. The Assessment Sales Ratio (ASR) method is an effective tool in helping students understand this concept. The ASR method involves analyzing the relationship between the appraised value of a property and its sales price. The importance of nonparametric approaches in understanding the impact of sales prices on the distribution of valuation ratios, variance pressures, and regressivity at different price levels (Mcmillen, 2012). This underscores the complexity of thinking about ASR and the need for robust methods to obtain unbiased estimates (Donald, 2007).

ASR is a method often used in property valuation for tax purposes. In the context of tax education, this method can teach students how to value property and calculate the taxes they should provide based on the property's value. By incorporating ASR analysis into curricula, such as in elementary schools (Ernayani, 2024), universities (Lamichhane, 2024), and business programs (Pashaei, 2024), students can gain practical insight into real-world financial valuation and decision-making processes. This integration can help bridge the gap between theoretical knowledge and practical application, equipping individuals with the skills necessary to navigate the complex financial landscape. ASR methods and efforts to increase financial literacy provide a promising path toward economic empowerment and sustainable development. By leveraging ASR analytical insights and encouraging financial education initiatives, people can increase their financial intelligence, make informed economic decisions, and work toward a more prosperous future.

For example, a secondary school's case study used ASR in tax learning. Teachers use this method to help students understand how property values can be calculated based on sales data of similar properties in the same market. In this way, students can better understand the concept of property evaluation and relate it to the property taxes that must be paid. The importance of tax education cannot be ignored, especially in the complexity of the tax system. Students need to understand how the tax system functions and how they can utilize it effectively in their future lives. However, tax education is also faced with challenges, such as the complexity of the material, which is difficult to understand, and students' lack of interest in the subject. In facing this challenge, the use of audio-visual media has proven effective. This media can help illustrate complex concepts more interestingly and efficiently for students to understand. In the context of ASR, audio-visual media can illustrate how this method works in property valuation and how students can apply it in real-world situations.

Malang City, as one of the educational cities in Indonesia, is currently experiencing very rapid growth, namely five to six percent per year in various fields, one of which is the property sector supported by other fields. The business and investment climate in Malang City is running well because it is supported by regional conductivity, high community participation, regulatory support, institutional existence, and the many universities in Malang City, which, of course, make property in Malang City very promising (see: <https://malangtimes.com/baca/29539/20180720/073517/investasi-properti-di-kota-malang-meroket-paling-tinggi>). The strategic location of Malang City and many borders with other areas such as Batu City and Malang Regency is also a consideration regarding the need to test the provisions for determining the existing NJOP to maximize Malang City's income.

Interactive Economics Learning with Audio Visual Media in Malang City holds promise for research based on existing literature. Studies have indicated the effectiveness of audio-visual media in improving learning outcomes across various subjects and educational settings. Research has shown that audio-visual aids can significantly enhance students' understanding and retention of material (Sarwinda, 2020). Additionally, incorporating multimedia elements in teaching is crucial for engaging students and enriching their learning activities (Mutiasari & Rusnilawati, 2022).

In economics education, integrating audio-visual media could offer more interactive and immersive learning experiences for students in Malang City. By incorporating audio-visual materials tailored to economics concepts, educators can establish a dynamic learning environment that accommodates diverse learning styles and enhances students' comprehension of economic principles. This approach aligns with existing literature on the advantages of multimedia-based learning tools in enhancing student engagement and knowledge acquisition (Pertiwi et al., 2023; Wang et al., 2022).

Investigating the potential benefits of integrating audio-visual media in economics education in Malang City could equip educators with evidence-based strategies to enhance teaching practices and optimize student learning experiences. By building on the existing literature supporting the efficacy of multimedia tools in education, researchers can contribute to advancing innovative and effective teaching methodologies in economics.

This research aims to increase the effectiveness of economics learning by integrating audio-visual media so that students can more easily understand complex concepts, including ASR. Case studies or examples of practical application of the ASR method in tax learning in schools, such as those in Malang City, will show how this method can help students understand the concept of tax-related property assessment. In addition, this research will discuss the importance of tax education, the challenges faced, and how audio-visual media can help overcome these challenges. Thus, it is hoped that this research can contribute to developing more innovative and effective economic learning methods and provide a clearer picture regarding implementing the ASR method in tax learning in schools, especially in Malang City.

LITERATURE REVIEW

Property Valuation and Taxes

Property valuation and taxes are closely connected, with property tax revenues often being influenced by changes in housing prices (Kim, 2019). Various factors can impact the quality of property tax assessment, such as the median tax share, property value relative to income, state aid ratios, and educational levels (Dornfest, 2019). Challenges in implementing property tax systems may arise from outdated property registers, lack of valuation, and inadequate staff. Property tax assessments are vital as they determine the tax burden on property owners. Changes in property values can result in significant differences in tax payments for current owners and potential buyers. Property tax systems must ensure equity to avoid regressivity, particularly when lower-value homes are owned by less affluent households (Carbonnier, 2023).

Assessment limits play a role in property tax dynamics by influencing the growth of property taxes by controlling taxable values (Kent, 2021). Despite economic downturns like the Great Recession, property tax collections have demonstrated stability, underscoring the resilience of property tax bases (Mikesell, 2013). Errors in property tax assessments can lead to variations in effective tax rates among properties within the same jurisdiction (Kim et al., 2020). Property assessments and taxes play a vital role in the local economy by providing a stable source of revenue for local governments. Revenue generated from property taxes is often one of the primary funding sources for public services such as education, infrastructure, and health. In addition, efficient and fair property assessment policies can encourage sustainable regional development by stimulating investment in property and infrastructure development that supports economic growth.

Diverse property valuation methods provide a comprehensive framework for determining fair and accurate property values. From market valuations to income and expense valuations, these various approaches are used to value properties by considering unique factors and prevailing market conditions. Using methods appropriate to the context of the property being valued can ensure more accurate estimates of

property value, contributing to efficiency in tax collection and management of local financial resources. Property taxes are important in funding the public education system, including secondary schools. Revenue generated from property taxes can directly impact students' access to quality education and the quality of educational facilities in the area. Therefore, understanding how property assessments and taxes impact education is critical to understanding the link between local economic policies and high school students' education quality.

Assessment Sales Ratio

Land and Building Tax in Bahasa Indonesia *Pajak Bumi dan Bangunan* (PBB) is a tax collected and administered by the Central Government through the Directorate General of Taxes, and the results of the collection are reallocated to regions, both provinces and districts/cities following established regulations. Minister of Finance in the presence of Undang-Undang Nomor 28 Tahun 2009 tentang Pajak Daerah dan Retribusi Daerah. In line with the granting of broader regional autonomy, by Undang-Undang Nomor 28 Tahun 2009 tentang Pajak Daerah dan Retribusi Daerah, UN management in rural and urban sectors (PBB-P2) is handed over to local governments. Anggoro in "*Pajak Daerah dan Retribusi Daerah*" definitely states that PBB-P2 is Rural and Urban Land and Building Tax, which is a tax on land and buildings owned, controlled, and utilized by individuals or entities, except for areas used for plantation, forestry, and mining business activities.

Apart from that, Peraturan Menteri Keuangan Nomor 186/PMK.03/2019 tentang Penggolongan dan Penetapan Nilai Penjualan Objek Pajak sebagai Dasar Pengenaan Pajak Bumi dan Bangunan, NJOP ditetapkan per daerah berdasarkan Keputusan Menteri Keuangan. Minister of Finance by listening to the regent/mayor's considerations and paying attention: 1) The average price obtained from a sale and purchase transaction that occurs naturally; 2) Comparison of prices with other similar objects that are located nearby and have the same function and the selling price is known; 3) New acquisition value; 4) Determination of price sell replacement for NJOP. Chapter 79 subsection 2 and 3 Undang-Undang Nomor 28 Tahun 2009 tentang Pajak Daerah dan Retribusi Daerah also set that "*besaran NJOP ditetapkan setiap 3 (tiga) tahun, kecuali objek pajak tertentu yang dapat ditetapkan setiap tahun berikutnya pengembangan wilayah dan ditetapkan oleh Kepala Daerah terkait*".

Improving financial literacy is essential for individuals and society to make informed financial decisions. One effective method to achieve this is through Assessment Sales Ratio (ASR) analysis. By studying the ASR method, individuals can gain insight into property valuation and market value, a fundamental aspect of financial literacy. Understanding the relationship between Tax Object Sales Value in Bahasa Indonesia *Nilai Jual Objek Pajak* (NJOP) and market value can provide practical knowledge contributing to overall financial literacy (Anshor et al., 2023). Additionally, research shows that financial literacy positively impacts household income and stock returns, highlighting the importance of such knowledge (Luo, 2023).

In an educational context, integrating ASR analysis into the curriculum can significantly benefit students. Research shows that financial literacy programs, such as those focused on ASR methods, can empower individuals economically and result in better financial decision-making (Lamichhane, 2024). Additionally, assessments of financial literacy among students have been linked to improved decision-making skills and entrepreneurial intentions, emphasizing the role of education in shaping financial behavior (Pashaei, 2024).

Financial literacy assessment does not only cover individuals in the business world. An assessment of the financial attitudes of business owners, such as Sari-Sari shop owners, shows varying levels of financial literacy, indicating the need for targeted financial education programs. Likewise, an examination of the impact of financial literacy on Micro Enterprises shows a positive correlation between financial literacy and

business performance, underscoring the importance of financial knowledge in entrepreneurial success (Martin, 2024).

The sales valuation ratio is calculated using the following general formula.

Assessment Sales Ratio (ASR) Formula

$$ASR = \frac{A}{S}$$

Source: *The International Association of Assessing Officers (IAAO)*

Information:

ASR : Assessment sales ratio
A : Property set value
S : Market Value

As reported by The International Association of Assessing Officers (IAAO) "Standard On Ratio Studies", the Standard on Ratio Studies recommends that the Assessment Sales Ratio level for all tax objects in an area be in the range of 10% of the desired ratio level, namely between 90% and 110%. Appraisers can use this standard to maintain and evaluate appraisal work (Razif, 2019). Meanwhile, DJP regulations are based on the Circular Letter of the Director General of Taxes Number SE 52/PJ.06/2003, a minimum of 80%. The following are the standards The International Association of Assessing Officers (IAAO) issued for conducting assessments. Standards for Measuring the Accuracy of Determining NJOP Market Value according to the IAAO are as follows.

- [1] If the mean/w-mean > 1.10 (110%) means that regression has occurred
- [2] If the mean/w-mean < 0.90 (90%) means there is progressivity

In this research, the results of measuring central tendency are the mean of the sales ratio assessment, the weighted average of the sales ratio assessment, and the mean/w-mean of the sales ratio assessment.

That is the total value of the assessment sales ratio (ASR) divided by the number of observations. The mean is calculated as follows.

Mean Formula

$$ASRmean = \frac{\sum \left(\frac{A}{S} \right)}{n}$$

Source: *The International Association of Assessing Officers (IAAO)*

Information:

ASR mean : Average Assessment sales ratio
A : The value of the specified property
S : Market Value
n : Number of research objects

The IAAO's recommended sales ratio assessment ranges from 90% to 110% of the desired value.

The weighted average also compares the average value and the average selling price. It measures uniformity between high- and low-value properties. The weighted average can be calculated using the following formula.

Weighted Mean Formula

$$ASR_{weighted\ mean} = \frac{\sum A}{\sum S}$$

Source: *The International Association of Assessing Officers (IAAO)*

Information:

ASR weighted mean : Assessment sales ratio
 ΣA : Value of the specified property
 ΣS : Market Value

The weighted average is used to find the level of price-related differentials. Price-related differentials are the degree of agreement between the percentage determination of low-value objects and high-value objects. Suppose the average/weighted average ratio is less than 90%. In that case, this indicates progressivity; low-value properties are assessed at a lower percentage than properties with a higher market value. Meanwhile, suppose the mean/weighted average ratio is more than 110%. This indicates a regressive event: low-value properties determined to be NJOP (valued) have a higher percentage than properties with a higher market value.

Use of Audio-Visual Media in Education

The use of audio-visual media in education has been extensively researched and proven to offer various benefits. Incorporating audio-visual elements in teaching has enhanced interactivity, creativity, and understanding of concepts among students (Sari et al., 2022). Studies have indicated that audio-visual media can boost students' motivation, reading skills, and overall learning outcomes (Olagbaju, 2020). Additionally, research has found that audio-visual media positively impacts students' performance and increases teachers' creativity in teaching lessons (Suryani, 2023).

Moreover, audio-visual media has been particularly effective in mathematics, physics, and language learning (Lestari et al., 2021; Salamuddin & Simamora, 2023). The development of audio-visual educational materials has been emphasized to create engaging and effective student learning experiences (Novianti et al., 2022). Furthermore, audio-visual media has been recognized for its ability to accommodate different learning styles, offer opportunities for independent learning, and enhance students' comprehension (Mufidah et al., 2020).

The use of audio-visual media in education has become an increasingly in-depth focus in the context of discussions of modern education. Research suggests that these media improve teaching effectiveness, help clarify complex concepts, and facilitate better student understanding. By presenting information visually and auditorily, audio-visual media opens up new opportunities to convey subject matter in a more interesting and easy-to-digest way. Apart from increasing teaching effectiveness, audio-visual media also plays a role in increasing student involvement in the learning process. Through various formats such as videos, animations, and multimedia presentations, this media allows students to learn more interactively and have fun. Thus, the use of audio-visual media not only enriches students' learning experiences but helps create a more dynamic and inclusive learning environment. Besides the direct benefits of learning, audio-visual media also helps develop multimedia skills, which are essential in today's digital era. Students can learn to effectively use various multimedia tools and technologies to convey ideas and information creatively and engagingly. Thus, the use of audio-visual media not only supports the achievement of educational goals but also prepares students to face the demands of the increasingly growing world of work (Ardika, 2022).

METHODS

In this research, the Research and Development (R&D) method will be used to develop and test the effectiveness of audio-visual media in economics learning, using ASR as a case study. The R&D approach is used because this research aims to produce innovation through learning media to increase students' understanding of the ASR concept in property tax assessment.

Data related to ASR was obtained from observations and 15,932 land sale and purchase transaction data taken from the Regional Tax Payment Letter-Land and Building Rights Acquisition Fee (SSPD-BPHTB) at the Malang City National Land Agency Office. The research data was processed using Microsoft Excel to determine the mean, weighted mean, and mean/weighted average so that the conformity of the NJOP determination with the Circular Letter of the Director General of Taxes Number SE 52/PJ.06 / 2003 and recommendations from the International Association of Assessing Officers.

The sales ratio assessment compares the value used to determine property tax and the market value (Yanto, 2023). The sales assessment ratio is generally used to evaluate the assessment's performance. Based on the Circular Letter of the Director General of Taxes Number SE 01/PJ.06/2002 concerning Guidelines for Implementing Sales Ratio Analysis Assessments, several criteria that must be met to carry out a sales ratio analysis assessment include areas that have a high level of development (urban), areas that have potential adjustments to increases in NJOP (outside urban areas), bordering areas to maintain a balanced level of NJOP between regions, areas where there are indications of market data covering. These areas have not been evaluated for 3 (three) years or more. The sales ratio assessment compares the determined NJOP with the market value.

The following are details of the research methods that will be used.

1. The main priority in the Preparation Phase is problem identification. This involves identifying needs and problems related to understanding the concept of Automatic Speech Recognition (ASR) in economics learning. Next, specific learning objectives are set for the development of learning media. Appropriate audio-visual media designs are also determined, including content, structure, and interactive features.
2. Second, in the Development Phase, learning materials are developed by creating video tutorials and interactive quizzes according to a predetermined design. Digital platforms are also created to distribute video tutorials and interactive quizzes, for example, using Quizizz or similar platforms.
3. Third, in the Evaluation Phase, initial trials are carried out on learning media with a few students or experts to get initial feedback. Based on this feedback, improvements and revisions are made to improve the quality of learning media.
4. Fourth, in the Validation Phase, experts in economic learning validate the learning media. This aims to ensure that the learning media follows the standards and objectives.
5. Finally, in the Dissemination Phase, the results of the learning media development are published, and the development process is presented. This is done to share information about the development of learning media with interested parties and promote its use in the context of economic learning. Using an R&D approach, this research is expected to produce innovative and effective learning media to increase students' understanding of the ASR concept in property tax assessment, especially in Malang City.

RESULTS AND DISCUSSION

The Preparation Phase

Using audiovisual media in economics learning can improve students' understanding of complex concepts. This research uses the Research and Development (R&D) method to evaluate the effectiveness of audiovisual media in economics learning, especially in the context of the Assessment Sales Ratio (ASR) case study. The data analyzed includes the market value and Tax Object Sales Value (NJOP) of land and buildings in Malang City from 2016 to 2018.

The data is the market value and NJOP of land and buildings from 15,932 buying and selling transactions in Malang City between 2016 and 2018. Analysis was carried out using Microsoft Excel with the following **Table 1** results.

Table 1. Mean ASR in Malang City 2016 – 2018

Year	ASR Mean
2016	142%
2017	141%
2018	108%

Source: Researcher's Process 2024

This data shows that the average ASR value has decreased every year, from 142% in 2016 to 108% in 2018. This decrease was caused by regional development and increased land values.

Table 2. Weighted Mean ASR in Malang City 2016 – 2018

Year	ASR Weighted Mean
2016	89%
2017	70%
2018	62%

Source: Researcher's Process 2024

Based on **Table 2**, the weighted mean ASR also shows a downward trend every year, with the most significant decline occurring between 2016 and 2017 at 19%.

Table 3. Mean/Weighted-Mean ASR in Malang City 2016 – 2018

Year	ASR Mean/Weighted Mean
2016	159,5%
2017	201,4%
2018	174%

Source: Researcher's Process 2024

Table 3 shows the mean/weighted-mean ASR value consistently showing a more than 110% ratio, indicating regressivity, where low-value properties have a higher percentage of ASR than high-value properties.

The Development Phase

The integration of audio-visual tools in interactive economics learning in Malang City has significantly benefited the development phase. Research indicates that audio-visual media enhances learning outcomes by improving students' mastery of concepts (Kholik, 2022). Additionally, incorporating audio-visual media, such as spreadsheet-based financial management learning tools, is crucial for supporting blended learning and increasing learning effectiveness (Mutia, 2020). Various studies have highlighted the effectiveness of audio-visual media in teaching. For example, implementing project-based learning models supported by audio-visual media has enhanced student activities and improved learning outcomes in economics (Ansar & Rahmah, 2023). Similarly, using audio-visual media in teaching civics has positively enhanced student learning outcomes (Susilo, 2020).

Moreover, studies have emphasized the impact of audio-visual media on student engagement and learning. It has been noted that audio-visual media can facilitate interaction between teachers and students, making learning activities more engaging and effective (Putri, 2022). Additionally, audio-visual media has improved students' critical thinking and problem-solving abilities (Mutiasari & Rusnilawati, 2022). In conclusion, by integrating audio-visual media into interactive economics learning, educators in Malang City can enhance student engagement, improve learning outcomes, and foster critical thinking skills, creating a more dynamic and effective learning environment for teaching economics.

The Evaluation Phase

The audio-visual media developed includes videos explaining the ASR concept, ASR calculation simulations, and animations of market value and NJOP developments. This media was tested on students using observation and questionnaire methods to measure students' understanding and interest in learning.

Table 4. Student Responses to Audio Visual Media

No	Response Indicator	Average score (out of 5)	Note
1	Student Engagement	4,6	Student responses were active and enthusiastic during the presentation. They show high interest in the material presented.
2	Presentation Quality	4,5	Video and animation presentations are considered interesting and easy to understand. Students are actively involved in interactions with ASR calculation simulations.

Source: Researcher's Process 2024

The results of data analysis in **Table 4** show a positive response from students towards the audio-visual media used in learning ASR concepts. From the indicators of student involvement, an average score of 4.6 on a scale of 5 was obtained, indicating that students were actively involved and enthusiastic during the presentation. They show high interest in the material presented, which is reflected in their participation in the discussions and activities. In addition, from the presentation quality indicator, the average score of 4.5 indicates that students assess video and animation presentations as interesting and easy to understand. This is also shown by students' level of active participation in interacting with the ASR calculation simulation presented. Overall, students' responses to this audio-visual media reflect a high level of interest and a good understanding of ASR learning material.

Analysis of these results shows that using audio-visual media in learning ASR concepts effectively increases student responses and strengthens their understanding and interest in learning about the material. The high scores obtained from indicators of student involvement and presentation quality indicate that audio-visual media can arouse students' interest and facilitate their understanding of ASR concepts. Therefore, developing and using audio-visual media can effectively support interactive and exciting ASR learning.

Table 5. Student Understanding of ASR Concepts

No	Comprehension Indicator	Average score (out of 10)	Note
1	Concept Understanding	8,5	Most students showed an increased understanding of ASR concepts after using the media.
2	Detailed Understanding	8,0	Students can clearly explain the basic principles of ASR and identify the main elements in ASR calculation simulations.

Source: Researcher's Process 2024

The analysis results in **Table 5** show that students' understanding of Automatic Speech Recognition (ASR) has increased after using the learning media provided. With an average score of 8.5 out of 10, most students demonstrated progress in understanding basic ASR concepts. They can identify key principles related to ASR, such as speech recognition processes and other technical concepts. Apart from that, on the detailed understanding indicator, students demonstrated skills in clearly explaining the basic principles of ASR, with an average score of 8.0. They can identify and explain the main elements in the ASR calculation simulation presented through the learning media.

Increasing students' understanding of the ASR concept shows that using learning media positively impacts learning. Interactive and informative audiovisual media makes it easier for students to understand complex material such as ASR. With high scores on both indicators of understanding, it can be concluded that the learning media has provided a clear and effective explanation of the ASR concept. This strongly supports using audiovisual media to improve students' understanding of complex learning materials such as ASR.

Table 6. Students' Learning Interest in ASR Material

No	Learning Interest Indicator	Percentage Agree	Note
1	Learning interest	85%	More than 80% of students stated their interest in learning ASR material increased after using audio-visual media.

Source: Researcher's Process 2024

Based on the analysis results in **Table 6**, which records the percentage of students who agree that their interest in learning ASR material increases after using audio-visual media, it can be concluded that using this media positively impacts students' learning motivation. More than 80% of students expressed increased interest in learning, which shows that audio-visual media can increase the attractiveness and relevance of ASR material for students. This increased interest in learning can indicate the media's effectiveness in motivating students to be more actively involved in learning and develop a deeper understanding of the material.

Furthermore, these results also have positive implications for the effectiveness of learning in the long term. With a significant increase in learning interest, it is hoped that students will be more motivated to explore and understand the ASR concept more deeply. This can positively impact students' academic achievement and form a more positive attitude toward learning. Therefore, using audio-visual media to learn ASR concepts can be considered an effective strategy for increasing students' interest in learning and improving the overall quality of learning.

The Validation Phase

The validation phase of interactive economics learning with audio-visual media, specifically focusing on the sales ratio assessment in Malang City, can benefit from integrating various research findings. Using audio-visual media in education has enhanced learning outcomes by effectively clarifying taught material and engaging students' senses (Winarto et al., 2020). This approach can make learning more interactive, improve critical thinking skills, and increase student activity levels (Cahyono, 2021). Furthermore, audio-visual media facilitates interaction between teachers and students, enhancing the overall learning experience (Putri, 2022).

In urban settings like Malang City, studies have been conducted on various aspects, such as urban farming for resilience, sustainable city governance, and neighborhood sustainability for urban renewal decision-making (Shirazi, 2019). These studies provide frameworks and methodologies that can be adapted to assess the effectiveness of interactive economics learning with audio-visual media in Malang City. Moreover, research on the assessment of property tax values using sales ratio methods and econometric models for property tax assessment can offer insights into quantitative approaches that can be applied to evaluate the impact of audio-visual media on economics learning outcomes (Wardana, 2020). Understanding the relationship between assessment ratios and sales prices can further inform the assessment process in the context of interactive economics education (McMillen, 2012).

The Dissemination Phase

Using audio-visual media in interactive economics learning during the sales ratio assessment phase in Malang City can be advantageous based on existing research. The positive impact of audio-visual media on learning achievement, learning outcomes, and student motivation, respectively (Barus et al., 2022; Harsa et al., 2021; Winarto et al., 2021). Additionally, another research highlighted that audio-visual media facilitates interactive and reciprocal communication during learning (Pertiwi et al., 2023). Implementing project-based learning models with audio-visual media can enhance student activities and improve learning outcomes in economics (Ansar & Rahmah, 2023). Furthermore, another study showed that audio-visual media can cater to different learning styles and optimize problem-solving abilities (Mutiasari & Rusnilawati, 2022). Lastly, Interactive and varied audio-visual media can stimulate critical thinking and active participation among students. Leveraging these findings can enhance student engagement, improve learning outcomes, and deepen understanding of economic concepts through interactive educational experiences (Nicolaou, 2019).

Discussion

Utilizing audio-visual media to teach the concept of Assessment Sales Ratio (ASR) in the economic field can be highly effective based on existing research. The positive impact of video multimedia on learning achievement, including increased motivation, cognitive achievement, active participation, and higher

enthusiasm, demonstrates that incorporating audio-visual elements can enhance the learning experience and outcomes for students (Afify, 2020; Aurelliana & Nugraha, 2022). Audio-visual improves students' academic performance (Obielodan et al., 2022). Additionally, another study emphasizes the importance of considering learners' expertise levels when using audio-visual instructional materials, indicating that such materials can have varying effects based on the learners' domain knowledge (Karami, 2019). Moreover, it stresses the significance of ASR in population demography and breeding system evolution, underlining its importance for biodiversity conservation. This underscores the relevance of understanding ASR, which can be effectively facilitated through audio-visual media in educational settings, the implications of ASR variation on social behavior and parental cooperation, highlighting the broader impact of understanding ASR in economic contexts (Liker et al., 2013).

This research aims to evaluate the effectiveness of audiovisual media in learning the concept of Assessment Sales Ratio (ASR) in the economic field. Based on the results obtained, it is clear that audiovisual media plays a significant role in increasing students' understanding and interest in learning. The data shows that students' understanding of the ASR concept has increased significantly after using audiovisual-based learning media. The average concept understanding score of 8.5 out of 10 indicates that most students can absorb and understand the material well.

This increase in understanding is not only limited to basic ASR concepts but also includes detailed understanding, where students can identify and explain the main principles in ASR calculation simulations. This shows that audio-visual media helps students understand theory and apply these concepts in practical situations. This emphasizes the importance of using interactive media in education, which can make complex material more accessible for students to understand and remember. Interest in learning is an essential factor in the learning process, and this research shows that the use of audio-visual media has a significant positive impact on students' interest in learning. As many as 85% of students stated that their interest in learning increased after using this media. This high level of learning interest reflects the effectiveness of the media in attracting students' attention and making ASR material more interesting and relevant.

Students' positive responses to audio-visual media are also reflected in high student engagement scores, with an average score of 4.6 on a scale of 5. This shows that students were active and enthusiastic during the presentation, which is a strong indicator that this media has succeeded in creating a positive learning environment. Interactive and engaging. The presentation quality was also rated highly by students, with an average score of 4.5, which indicates that the content presented through videos and animations is easy to understand and interesting for students. Apart from the impact on students' understanding and interest in learning, analysis of market value data and Tax Object Sales Value (NJOP) in Malang City shows a decreasing trend in the average ASR value from 2016 to 2018. This decrease can be linked to regional development and increased land values during that period. The weighted mean ASR also shows a downward trend, with the most significant decline between 2016 and 2017. This decline in ASR could indicate changes in the property market, where low-value properties have a higher percentage of ASR than high-value properties.

The results of this research have important implications for educational practice and the development of learning media. First, audio-visual media can be an effective strategy for learning complex concepts, such as ASR, to increase students' understanding and interest in learning. Second, the results of this research support the use of interactive media to motivate students and make learning more enjoyable. Third, the decreasing trend in ASR found through data analysis provides valuable insight for stakeholders in the property sector regarding the dynamics of the property market in Malang City. This research shows that integrating audio-visual media in economics learning can significantly benefit understanding concepts and increase students' interest in learning. Thus, the development and application of this media need to continue to be encouraged and improved to achieve better and more effective learning outcomes. By using

R&D methods, this research contributes to developing innovative and effective learning media to improve the quality of economic education in Indonesia.

CONCLUSION

This research reveals that using audio-visual media in economics learning, especially the Assessment Sales Ratio (ASR) concept, significantly impacts students' understanding and interest in learning. The analysis results show that students who used audio-visual media experienced a substantial increase in understanding, with an average conceptual understanding score of 8.5 out of 10. This media also facilitated a detailed understanding of ASR, helping students identify and explain the main elements of ASR calculation simulation. This increase in understanding shows the effectiveness of audio-visual media in making complex material easier to understand. Apart from that, students' interest in learning about ASR material also increased significantly, with 85% stating that their interest in learning increased after using audio-visual media. The high level of engagement and positive response of students to the quality of the presentation shows that this media can attract attention and make learning more interactive and engaging. This confirms that audio-visual media facilitates understanding concepts and increases students' learning motivation.

Analysis of market value data and Tax Object Sales Value (NJOP) in Malang City from 2016 to 2018 shows a downward trend in the average ASR value, which can be linked to regional development and increasing land values. This downward trend in ASR provides essential insight for stakeholders in the property sector regarding the dynamics of the property market in Malang City. This research shows that audio-visual media effectively supports interactive and exciting learning and deeply explains complex economic concepts.

Based on the findings of this research, it is recommended that educational institutions integrate more audio-visual media in the learning process, especially for complex material such as ASR. This media has been proven to increase students' understanding and interest in learning so that it can be used as a practical learning strategy. Further development of audio-visual media must include increasingly interactive content appropriate to student needs to ensure that each concept can be understood well. Apart from that, training is needed for teachers to optimize the use of audio-visual media in the classroom. Teachers must be trained to utilize interactive features and integrate these media with traditional teaching methods to create more comprehensive and compelling learning experiences. Thus, audio-visual media can be used optimally to support the learning process and improve student learning outcomes.

Finally, further research must be conducted to evaluate the long-term impact of audiovisual media in various subjects and educational levels. More extensive studies could provide more comprehensive data on the effectiveness of these media and how their use can be optimized. This research can also explore the latest technological innovations in learning media to continue improving the quality of education.

AUTHOR'S NOTE

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