



Increasing Student Learning Motivation Through Audio-Visual Learning Media of Nutritious Food Ingredients in VIII Class SMPN 8 Banjarbaru

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Abstract

Although audio-visual media has been widely used to support student engagement, classroom action research that specifically examines its use in PJOK theoretical materials, especially the learning of nutritious foodstuffs with a focus on student learning motivation, is still very limited. This study aims to improve and describe the development of learning motivation of grade VIII students through the use of audio-visual media combined with interactive learning activities in learning nutritious foodstuffs at SMPN 8 Banjarbaru. This research uses Classroom Action Research (PTK) which is carried out in two cycles. The data collection technique used a learning motivation questionnaire (covering six indicators: attention, relevance, confidence, satisfaction, perseverance, and activeness), observation, and documentation. The subject of the study is 25 students in grade VIII of SMP Negeri 8 Banjarbaru even semester of the 2025/2026 academic year. Based on the pre-cycle results, 14 students (56%) were in the low category and 11 students (44%) were in the very low category. In Cycle I, 17 students (68%) were upgraded to the high category and 8 students (32%) were in the low category. In Cycle II, 22 students (88%) were in the very high category and only 3 students (12%) were in the low category. The findings show that the use of audio-visual media combined with interactive learning activities supports increased student learning motivation in learning nutritious foodstuffs in the observed classroom context.

Keywords: Learning Motivation; Nutritious Eating; Audio Visual Media.

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INTRODUCTION

Education is a strategic process for developing knowledgeable, healthy, and responsible human resources. At the junior high school level, Physical Education, Sports, and Health (*Pendidikan Jasmani, Olahraga, dan Kesehatan*—PJOK) is not limited to developing physical fitness and motor skills; it also introduces knowledge and habits that support students' long-term health. One important theoretical topic in PJOK is nutritious food, including nutrient functions, healthy food sources, balanced dietary patterns, and the relationship between food choices, physical activity, growth, and disease prevention. This topic is particularly relevant during adolescence because dietary preferences and health-related behaviors established at this stage may continue into adulthood. Schools therefore provide an important setting for helping adolescents understand nutrition and make informed food choices. Evidence indicates that school-based food and nutrition education can improve aspects of adolescents' food consumption, particularly fruit and vegetable intake (Medeiros et al., 2022; World Health Organization [WHO], 2023).

The educational value of nutrition content, however, depends not only on what is taught but also on how students engage with the learning process. Learning motivation directs students' attention, sustains their effort, encourages active participation, and supports persistence when they experience learning difficulties. Motivated students are more likely to listen carefully, ask relevant questions, complete learning tasks, and connect new information with their daily experiences. Conversely, students with low learning motivation commonly demonstrate passive behavior, limited concentration, weak persistence, and minimal classroom participation. In PJOK, this motivational problem may become more apparent when instruction shifts from physical practice to theoretical classroom content. Students who

associate PJOK mainly with movement, sports, and outdoor activities may perceive nutrition lessons delivered through lectures and written assignments as less attractive. Teachers therefore need appropriate instructional strategies that can make theoretical health content more concrete, relevant, and engaging (Nabila et al., 2023).

Preliminary observations conducted in Grade VIII at SMP Negeri 8 Banjarbaru indicated that students' motivation during lessons on nutritious food remained relatively low. Several students appeared less enthusiastic, became bored easily, paid limited attention to the teacher's explanations, and participated minimally in classroom discussions and question-and-answer activities. The learning process was still dominated by oral explanations and individual assignments, with limited variation in instructional media. Although direct explanation can be useful for introducing key concepts, its continuous use may not adequately accommodate students who learn more effectively through visual examples, demonstrations, and active participation. Similar concerns have been identified in PJOK learning, where limited media variation and teacher-centered instruction may reduce students' attention and involvement in the learning process (Darsana et al., 2021). This classroom condition demonstrates the need for a practical instructional intervention that can be implemented by teachers without changing the curricular objectives of the lesson.

Audio-visual media offers one potential solution because it combines spoken information, written text, images, animation, and moving visual representations. These features can help students observe food groups, nutrient sources, portion composition, and examples of balanced meals that may be difficult to explain through verbal descriptions alone. From the perspective of multimedia learning, students can process complementary verbal and visual information through different cognitive channels when instructional materials are relevant, clearly organized, and not overloaded with unnecessary details (Mayer & Fiorella, 2021). A systematic review also found that audio, video, animation, three-dimensional visualization, and other multimedia components have been widely applied to support learning across different subjects and age groups (Abdulrahman et al., 2020). Therefore, the educational contribution of audio-visual media does not arise merely from technological novelty but from its ability to represent learning content more concretely and facilitate meaningful information processing.

Previous studies in Indonesia have reported positive educational outcomes associated with audio-visual learning media. Widhayanti and Abduh (2021) found that PowerPoint-assisted audio-visual media supported improvements in elementary school students' learning outcomes. Marliani (2021) reported that instructional videos could increase students' learning motivation by presenting information in a more attractive, understandable, and memorable form. Within the PJOK context, Carolin et al. (2020) developed video-based learning media for basic pencak silat techniques, while Pranata et al. (2021) investigated audio-visual learning media for basketball shooting material. More recently, Zuhdi et al. (2025) reported improvements in students' learning outcomes following the use of instructional videos in martial arts learning. Collectively, these studies suggest that audio-visual media can support both theoretical classroom learning and physical-skill instruction. Broader evidence also indicates that instructional video generally provides learning benefits when it is integrated into an appropriate instructional design rather than used merely as passive entertainment (Noetel et al., 2021).

Nevertheless, several research gaps remain. First, many previous PJOK studies have concentrated on motor skills, sports techniques, media development, or cognitive learning outcomes rather than students' motivation to learn theoretical health content. Second, studies addressing nutritious food frequently emphasize nutritional knowledge, food consumption, or dietary behavior, while fewer classroom-based studies describe how students' learning motivation develops through repeated cycles of instructional improvement. Third, watching an instructional video alone does not automatically guarantee active engagement. Students may continue to watch passively unless teachers provide opportunities to respond, discuss, solve problems, express opinions, and receive immediate feedback. Therefore, an effective audio-visual intervention needs to be accompanied by activities that cognitively and socially engage students.

Recent meta-analytic evidence indicates that active-learning strategies incorporated into video-based instruction, including guiding questions, interactive tasks, and opportunities for

learner responses, can produce more favorable motivational and learning outcomes than passive video viewing. However, the magnitude of these effects may be influenced by learner characteristics, age, video duration, presentation pace, learning environment, and subject matter (Zhang et al., 2025). These findings reinforce the view that audio-visual media should be positioned as one component of an interactive learning sequence rather than as a substitute for teacher guidance. Teachers remain responsible for selecting relevant videos, directing students' attention to essential information, connecting the material with students' experiences, facilitating discussion, and evaluating students' understanding.

The present study addresses these gaps by integrating audio-visual media with interactive learning activities, including group discussions, educational games, *ice-breaking* activities, and quizzes, in nutritious food lessons for Grade VIII students. The intervention was implemented through classroom action research, enabling the teacher and collaborators to identify classroom problems, plan and implement instructional actions, observe students' responses, reflect on weaknesses, and improve the subsequent learning cycle. This cyclical process is important because the effectiveness of instructional media depends on how it is selected, presented, and combined with teaching activities. The teacher can therefore use the results of each cycle as a basis for adjusting video duration, classroom interaction, questioning techniques, group activities, and feedback.

The novelty of this study lies not simply in the use of instructional video but in the cyclical refinement of an integrated audio-visual and interactive learning strategy for theoretical PJOK content. The audio-visual materials are expected to attract students' attention by presenting nutritious foods through relevant images, explanations, and everyday examples. The connection between the learning materials and students' food choices is expected to strengthen perceived relevance. Quizzes, guided questions, and educational games provide opportunities for students to test their understanding and develop confidence through feedback. Meanwhile, *ice-breaking* and collaborative activities are intended to create an enjoyable classroom atmosphere that supports satisfaction, participation, and continued engagement. Thus, each instructional component contributes to the development of motivation through a complementary mechanism rather than operating independently.

Therefore, this study aims to improve and describe the development of Grade VIII students' learning motivation through the use of audio-visual media combined with interactive learning activities in nutritious food lessons at SMP Negeri 8 Banjarbaru. The findings are expected to provide PJOK teachers with a feasible alternative for teaching theoretical material in a more engaging and student-centered manner. For students, the intervention may strengthen attention, participation, persistence, confidence, and interest while supporting a better understanding of balanced nutrition. For schools, the findings may inform the development of technology-supported health education practices. Finally, this study may provide preliminary evidence for future investigations involving larger samples, comparison groups, media-development designs, or quasi-experimental approaches to examine the specific contributions of audio-visual media and interactive learning activities more rigorously.

METHOD

Research Design

This study employed Classroom Action Research (CAR) to improve students' learning motivation during lessons on nutritious food. Classroom action research was selected because it enables teachers and researchers to identify instructional problems, implement appropriate actions, observe changes in classroom behavior, and systematically improve subsequent learning activities through a reflective process. The study was conducted collaboratively by the researcher and a collaborating PJOK teacher.

The research consisted of a pre-cycle stage followed by two action cycles. Each cycle involved four interconnected stages: planning, action implementation, observation, and reflection. During the planning stage, the researcher and collaborating teacher identified the learning problems, prepared lesson plans, selected and developed audio-visual materials, designed interactive learning activities, and prepared the research instruments. During the action stage, learning activities were implemented according to the lesson plan. Observation was conducted simultaneously to record students' attention, participation, enthusiasm, persistence, and responses to the learning activities. The reflection stage involved evaluating

the strengths and weaknesses of the implemented action and determining the improvements required for the following cycle. This cyclical process enabled instructional improvements to be made based on evidence obtained from the classroom rather than solely on the researcher's initial assumptions.

Research Setting and Participants

The study was conducted at SMP Negeri 8 Banjarbaru during the second semester of the 2025/2026 academic year. The participants consisted of 25 Grade VIII students enrolled in one intact class. The class was purposively selected because preliminary observations indicated that it had relatively low learning motivation during lessons on nutritious food compared with the other Grade VIII classes.

The selection of an intact class was consistent with the characteristics of classroom action research, in which the instructional action is implemented in the classroom where the learning problem is identified. Therefore, the study did not employ random sampling or randomly assign students to experimental and control groups. The findings were intended to describe and improve learning within the observed classroom context and were not intended to be statistically generalized to a broader student population.

Research Procedure

Pre-Cycle

The pre-cycle stage was conducted to identify the initial condition of students' learning motivation. During this stage, the teacher taught nutritious food material primarily through oral explanation and conventional assignments. The researcher observed students' learning behavior and administered the learning motivation questionnaire after the lesson. The pre-cycle data were used as baseline information for designing the actions implemented in Cycle I.

Cycle I

Cycle I was conducted in two meetings, with each meeting lasting 2 × 40 minutes. During the planning stage, the researcher and collaborating teacher prepared the lesson plans, PowerPoint presentations, short instructional videos, student discussion activities, observation sheets, and learning motivation questionnaires.

During the action stage, the teacher introduced the nutritious food material using PowerPoint slides accompanied by short audio-visual videos of approximately eight minutes. The videos contained explanations and examples related to nutritious foods, sources of nutrients, and balanced dietary patterns. After watching the videos, students participated in group discussions and presented the results of their discussions. The teacher explained the main concepts, guided the discussion, and provided feedback.

During observation, the researcher and collaborating teacher recorded students' attention to the videos, participation in discussions, willingness to ask and answer questions, enthusiasm, and persistence in completing learning tasks. At the end of Cycle I, the learning motivation questionnaire was administered. The results of the questionnaire, observation sheets, and field notes were then examined during the reflection stage.

The reflection indicated that the use of audio-visual media had increased students' attention and participation. However, the learning process remained relatively teacher-centered because PowerPoint explanations and teacher lectures were still dominant. Several students also showed limited involvement during the discussion. These findings were used as the basis for revising the instructional activities in Cycle II.

Cycle II

Cycle II was also conducted in two meetings, with each meeting lasting 2 × 40 minutes. The learning activities were modified based on the results of the Cycle I reflection. The modifications included increasing the use of instructional videos, reducing the duration of teacher-centered explanations, incorporating *ice-breaking* activities, using nutrition-card educational games, and administering interactive quizzes.

The instructional videos used in Cycle II lasted approximately 10–12 minutes and presented examples of food groups, nutrient sources, balanced meals, and healthy eating practices. After viewing the videos, students participated in guided discussions, answered questions, completed educational games using nutrition cards, and participated in interactive

quizzes. The teacher acted primarily as a facilitator who guided students, clarified misconceptions, provided feedback, and encouraged active participation.

An *ice-breaking* activity was conducted at the beginning or between learning activities to maintain students' concentration and reduce boredom. Interactive quizzes were administered at the end of each meeting to reinforce the material and provide immediate feedback. At the end of Cycle II, students completed the learning motivation questionnaire, while the observers documented students' motivational behavior throughout the learning process.

Research Instruments

Three instruments were used to collect the data: a learning motivation questionnaire, a student activity observation sheet, and documentation.

Learning Motivation Questionnaire

The learning motivation questionnaire consisted of 26 statements, including 20 positively worded statements and six negatively worded statements. It was constructed using a four-point Likert scale. For positive statements, the response scores were Strongly Agree = 4, Agree = 3, Disagree = 2, and Strongly Disagree = 1. For negative statements, the scoring direction was reversed. The use of four response categories was intended to encourage students to indicate a clear tendency toward agreement or disagreement rather than selecting a neutral response (Makbul, 2021).

The questionnaire measured six indicators of learning motivation:

1. Attention to the learning material;
2. Perceived relevance of the material to everyday life;
3. Confidence in participating in learning;
4. Satisfaction with the learning process;
5. Persistence in completing learning tasks; and
6. Active participation in learning activities.

The possible total score ranged from 26 to 104. A higher score indicated a higher level of learning motivation. The scores were categorized into four levels, as presented in Table 1.

Table 1. Criteria for Categorizing Students' Learning Motivation

No	Score interval	Motivation category
1	88–104	Very high
2	72–87	High
3	56–71	Low
4	26–55	Very low

The lower limit of the very-low category was set at 26 because 26 represented the minimum possible score obtained when a student selected the lowest score for all 26 questionnaire items. This adjustment produced continuous categorization intervals and prevented possible scores from being excluded from the analysis.

Student Activity Observation Sheet

The observation sheet was used to record students' motivational behavior during the learning process. It covered four observable indicators: attention to the instructional video, activeness in asking and answering questions, involvement in discussions, quizzes, and educational games, and enthusiasm during *ice-breaking* and other interactive activities.

Each indicator was rated on a four-point scale, ranging from 1, indicating very low performance, to 4, indicating very high performance. The observation was conducted by two observers: the researcher and the collaborating teacher. Before data collection, the observers discussed the operational definition of each indicator and calibrated their interpretations of the scoring criteria. This process was conducted to reduce differences in judgment and improve consistency between observers.

Documentation

Documentation was used to support and verify the questionnaire and observational data. It included photographs and video recordings of the learning process, completed questionnaires, students' work, lesson plans, observation sheets, and field notes. Field notes were used to record important classroom events, including students' spontaneous responses,

learning difficulties, off-task behavior, and changes in participation that might not be fully captured by the structured observation sheet.

Instrument Validity and Reliability

Before the questionnaire was administered, its content validity was evaluated by two expert validators. The validators assessed the relevance of each item to the indicators of learning motivation, the clarity of the language, the suitability of the statements for Grade VIII students, and the appropriateness of the scoring format. Items considered unclear or insufficiently relevant were revised based on the validators' recommendations.

The empirical validity of the questionnaire items was examined using item-total correlation analysis. All 26 items met the predetermined validity criterion because their calculated correlation coefficients were higher than the relevant critical correlation value. The internal consistency of the questionnaire was assessed using Cronbach's alpha. The analysis produced a reliability coefficient of 0.84, indicating that the questionnaire had good internal consistency and was suitable for measuring students' learning motivation.

Data Collection Techniques

Data were collected through questionnaires, observation, and documentation. The learning motivation questionnaire was administered three times: after the pre-cycle learning activity, after Cycle I, and after Cycle II. Students were given approximately 15 minutes to complete the questionnaire independently.

Observation was conducted during every meeting in Cycles I and II. The two observers used the prepared observation sheets and field notes to record students' motivational behavior. Documentation was collected throughout the research process to provide visual and written evidence of the implementation of each action.

The use of multiple data sources allowed the researcher to compare students' self-reported motivation with their observable classroom behavior. Questionnaire data provided quantitative information about changes in motivation scores, while observational and documentation data provided contextual explanations for those changes.

Data Analysis

The data were analyzed using quantitative and qualitative descriptive techniques. Quantitative data obtained from the learning motivation questionnaire were analyzed by calculating the total score of each student, the class mean, standard deviation, frequency, and percentage for each motivation category. The mean motivation score was calculated by dividing the total student scores by the number of students. The percentage of students in each category was calculated using the following formula:

$$P = \frac{f}{N} \times 100\%$$

Where P represents the percentage, f represents the number of students in a particular category, and N represents the total number of students. The results were presented in frequency-distribution tables and graphs to facilitate comparisons among the pre-cycle, Cycle I, and Cycle II stages. Because the study did not use a control group or inferential statistical analysis, changes in scores were interpreted descriptively rather than as evidence of statistical causality.

Qualitative data from observation sheets, documentation, and field notes were analyzed through data reduction, data display, and conclusion drawing. Data reduction involved selecting and organizing information relevant to students' motivation and participation. The reduced data were then displayed in descriptive summaries to identify recurring patterns. Conclusions were drawn by comparing the qualitative findings with the questionnaire results and examining changes across the research cycles (Ahmad & Muslimah, 2021).

Criteria for Successful Action

The classroom action was considered successful when at least 80% of the students reached the high or very-high motivation category and the observational data demonstrated consistent improvements in attention, active participation, enthusiasm, and persistence. When the success criteria had not been achieved, the action was revised and continued in the next

cycle. The research was concluded after Cycle II because the predetermined indicators of success had been achieved.

RESULTS AND DISCUSSION

Results

This research follows the framework of Classroom Action Research (CAR) and is completed in two cycles. The goal is to increase the motivation of grade VIII students at SMPN 8 Banjarbaru when learning about nutritious eating content, using an audio-visual learning approach. Each cycle consists of four stages: planning, implementation of actions, observation, and reflection. Motivational data from students was obtained by using observation sheets and by documenting observations during the learning process.

Table 2. Pre-cycle Data Results

No	Categories	Interval	Frequency	Percentage	Remarks
1	Very high	88-104	0	0%	Complete
2	Height	72-87	0	0%	Complete
3	Low	56-71	14	56%	Incomplete
4	Very low	40-55	11	44%	Incomplete
	Total		25	100%	

Based on the table, students' motivation to learn at the pre-cycle stage is still relatively low. A total of 14 students (56%) were in the low category and 11 students (44%) were in the very low category. No students are in the high or very high category. The average motivation questionnaire score in the pre-cycle was 52.4 (SD = 5.1), with the highest score being 69 and the lowest score of 41. These results show that learning with the lecture method has not been able to increase student learning motivation optimally, because students tend to be passive and less involved in the learning process.

Table 3. Cycle 1 Data Results

No	Categories	Interval	Frequency	Percentage	Remarks
1	Very high	88-104	0	0%	Complete
2	Height	72-87	17	68%	Complete
3	Low	56-71	8	32%	Incomplete
4	Very low	40-55	0	0%	Incomplete
Quantity	Total		25	100%	

Based on the table above, there is an increase in students' motivation to learn compared to the pre-cycle stage. A total of 17 students (68%) were in the high category and 8 students (32%) were in the low category. There are no more students who are in the very low category. The average motivation questionnaire score in Cycle I increased to 78.2 (SD = 6.3), with the highest score of 87 and the lowest score of 60. The results of the observation also showed an increase in students' attention to the video material and activeness in group discussions, although some students still seemed to be less focused when the teacher used PowerPoint dominantly.

Table 4. Cycle 2 Data Results

No	Categories	Interval	Frequency	Percentage	Remarks
1	Very high	88-104	22	88%	Complete
2	Height	72-87	0	0%	Complete
3	Low	56-71	3	12%	Incomplete
4	Very low	40-55	0	0%	Incomplete
	Total		25	100%	

In cycle II, learning is improved to be more interactive and student-centered. The teacher emphasizes the use of learning videos rather than explanations via PowerPoint. In addition, teachers add ice breaking activities, educational games, and quizzes to increase students' enthusiasm and activeness during the learning process.

Students seem more enthusiastic to participate in learning because the learning atmosphere becomes more fun and not monotonous. The use of audio-visual videos helps

students understand nutritious ingredients more easily and interestingly. Quizzes and icebreaker activities also make students more actively participate in learning.

Based on the table, students' learning motivation increased significantly in Cycle II. A total of 22 students (88%) were in the very high category and only 3 students (12%) were in the low category. The average motivation questionnaire score increased to 94.6 (SD = 4.8), with the highest score being 103 and the lowest score being 63. The increase in the percentage of students in the very high category from 0% (pre-cycle) to 88% (Cycle II) indicates a substantial change in learning motivation. The results of the observations supported these findings: students appeared to be more enthusiastic when the video was played, more actively participated in interactive quizzes, asked more questions, and engaged in less off-task behavior compared to Cycle I.

Discussion

The findings demonstrate a consistent improvement in Grade VIII students' learning motivation after audio-visual media was combined with interactive learning activities in nutritious food lessons at SMP Negeri 8 Banjarbaru. The mean motivation score increased from 52.4 in the pre-cycle to 78.2 in Cycle I and 94.6 in Cycle II. This pattern was also reflected in the distribution of motivation categories: all students were initially classified in the low or very-low categories, whereas 68% reached the high category in Cycle I and 88% reached the very-high category in Cycle II. These results indicate that the instructional improvements implemented across the research cycles were associated with stronger attention, participation, confidence, persistence, and enthusiasm. However, because the study used classroom action research without a comparison group, this increase should be interpreted as a contextual improvement in the observed classroom rather than definitive evidence of causality.

The low motivation found during the pre-cycle can be related to the teacher-centered nature of the learning process. Instruction was dominated by verbal explanations and individual assignments, while students had limited opportunities to interact with the material, express their ideas, or receive immediate feedback. This condition may be particularly problematic in PJOK, a subject commonly associated with physical movement, sports practice, and active participation. When theoretical content such as nutrition is delivered mainly through lectures, students may perceive the learning process as monotonous and disconnected from their everyday experiences. This finding supports Anggraini and Sukartono (2022), who argued that repetitive and less varied instruction can weaken students' interest, attention, and willingness to participate. Therefore, the pre-cycle findings did not merely indicate low individual motivation but also revealed the need to redesign the classroom environment.

The introduction of audio-visual media in Cycle I produced an important initial change. Instructional videos and PowerPoint presentations provided students with visual examples of nutritious foods, nutrient sources, and balanced dietary patterns, making the material more concrete than verbal explanation alone. The combination of images, spoken explanations, and written information may help students process learning content through visual and auditory channels. Widhayanti and Abduh (2021) similarly reported that audio-visual media can attract students' attention and support understanding because information is presented in a more varied and meaningful form. In the present study, students appeared more attentive to the instructional videos and more willing to participate in group discussions. The increase in the mean motivation score to 78.2 suggests that Cycle I strengthened students' attention and perceptions of the relevance of the learning material.

Nevertheless, Cycle I also showed that the use of technology alone did not automatically create active and student-centered learning. The teacher remained relatively dominant in explaining the PowerPoint material and directing the discussion, so several students still acted mainly as recipients of information. This finding is consistent with Ramadhani and Muhroji (2022), who emphasized the teacher's role in creating opportunities for students to ask questions, communicate ideas, participate actively, and develop confidence. Reflection on Cycle I therefore demonstrated that instructional improvement required not only more attractive media but also changes in classroom interaction. Audio-visual media needed to be integrated with activities that encouraged students to respond, collaborate, make decisions, and receive constructive feedback.

The stronger improvement observed in Cycle II can be explained by the more comprehensive and student-centered intervention. The teacher reduced lengthy explanations, increased the use of instructional videos, and incorporated *ice-breaking* activities, nutrition-card games, guided discussions, and interactive quizzes. These components performed different but complementary motivational functions. The videos attracted students' attention and presented the material concretely; the nutrition-card games encouraged collaboration and active participation; the quizzes provided immediate feedback; and the *ice-breaking* activities helped maintain concentration and reduce boredom. Together, these elements created a learning environment that was more enjoyable, responsive, and relevant to students' daily lives.

The Cycle II findings can also be interpreted through the ARCS motivational framework, which comprises attention, relevance, confidence, and satisfaction (Keller, 2010). Attention was promoted through moving images, attractive presentations, games, and varied activities. Relevance was strengthened by connecting nutritional concepts with foods that students encountered and consumed in everyday life. Confidence developed when students answered questions, completed educational games, participated in discussions, and received feedback on their responses. Satisfaction emerged from successful participation, appreciation from the teacher, and students' recognition of their own learning progress. The increase to 88% of students in the very-high motivation category suggests that these motivational dimensions were more effectively addressed during Cycle II. This interpretation is also consistent with Aliyyah et al. (2021), who reported that instructional videos can support positive learning outcomes when students are actively involved in the learning process.

These findings reinforce the view that audio-visual media is most effective when used as part of an interactive pedagogical strategy rather than as an isolated instructional tool. Similar findings have been reported by Mariani (2021), Pranata et al. (2021), and Zuhdi et al. (2025), who found that video-based and audio-visual learning could support students' motivation, engagement, or learning outcomes. The present study extends those findings by focusing specifically on theoretical PJOK content related to nutritious food. It also demonstrates how reflective improvement across classroom action research cycles can strengthen the implementation of instructional media. The contribution of this study therefore lies not merely in presenting learning videos but in integrating them with structured student activities and revising the learning process based on evidence collected during each cycle.

The findings also have practical implications for PJOK instruction. Teachers should select audio-visual materials that are relevant, age-appropriate, concise, and directly connected to the intended learning objectives. Videos should not be used merely to fill instructional time or provide entertainment. Instead, teachers should prepare guiding questions, discussions, games, and follow-up assignments that encourage students to interpret and apply the information presented. In lessons on nutritious food, students may be asked to classify food sources, design balanced menus, evaluate daily eating habits, or explain the functions of specific nutrients. These activities can transform students from passive viewers into active learners.

Several limitations should nevertheless be acknowledged. The study involved only one class of 25 students, so the findings cannot be broadly generalized to other schools or student populations. The absence of a comparison group also means that changes in motivation cannot be attributed exclusively to audio-visual media. The effects of the videos were inseparable from the influence of quizzes, educational games, *ice-breaking* activities, teacher feedback, and increased student participation. Motivation was also measured partly through self-report questionnaires, which may be affected by social desirability. Furthermore, the improvement may have been influenced by the novelty of the learning activities. These limitations support the view of Puthree et al. (2021) that students' learning motivation is shaped by multiple interacting personal and instructional factors.

Overall, audio-visual media combined with interactive learning activities supported a meaningful improvement in students' learning motivation within the observed classroom context. Teachers should therefore not rely on video presentation alone. Audio-visual materials should be accompanied by discussions, games, questioning, feedback, and opportunities for students to make active contributions. Future research should involve larger samples, comparison groups, longer intervention periods, and follow-up measurements to

determine whether motivational gains are sustained and to identify the specific contribution of each intervention component.

CONCLUSION

Based on the results of two cycles of classroom action research, it can be concluded that the use of audio-visual media combined with interactive learning activities (quizzes, educational games, and ice breaking) supports an increase in the learning motivation of grade VIII students at SMPN 8 Banjarbaru on nutritious food materials in the context of the observed classroom. This is shown by the increase in the average motivation score from 52.4 (pre-cycle) to 78.2 (Cycle I) and 94.6 (Cycle II), as well as an increase in the percentage of students in the high and very high categories from 0% to 88%. Audio-visual learning media has been proven to create a more interesting, active, and meaningful learning atmosphere for students. However, given that this PTK design did not use a comparison group and the effects of the intervention components were not separable, these findings cannot be interpreted as rigorous evidence of causality. PJOK teachers are advised to use audio-visual media combined with interactive activities as an alternative to learning on theoretical materials, and follow-up research with a more controlled design is strongly encouraged to confirm the specific effectiveness of these media.

RECOMMENDATIONS

Future research should employ more rigorous designs to determine the effectiveness of audio-visual media in improving students' learning motivation. Because the present study involved only one class of 25 students without a comparison group, subsequent studies should use quasi-experimental or randomized controlled designs with larger samples from multiple schools. Including experimental and control groups would provide stronger evidence regarding the direct effects of audio-visual interventions. Researchers should also separate the contribution of each instructional component. In this study, audio-visual media was combined with quizzes, educational games, group discussions, *ice-breaking* activities, and teacher feedback, making it difficult to identify which element produced the greatest effect. Future studies could compare video-only instruction, video with quizzes, video with games, and fully integrated interactive learning.

Further research should examine individual and contextual factors such as prior achievement, gender, digital literacy, socioeconomic background, learning preferences, and access to technology. Comparative studies across urban and rural schools, different grade levels, and other theoretical PJOK topics would improve the transferability of findings. Researchers are also encouraged to develop and validate standardized audio-visual learning packages containing videos, guiding questions, nutrition-card games, interactive quizzes, assessment tools, and teacher guidelines to support evidence-based and contextually appropriate implementation in PJOK.

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