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*Research Article*

# Role of AV Aids in Enhancing Students Academic Achievement at Secondary Level in Azad Jammu and Kashmir

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**Abstract**

This study was conducted to examine the role of AV aids in enhancing academic achievement at secondary level in City Kotli AJ&K. The current study was descriptive in nature and survey method was used for the data collection. The population of the study consisted of 304 secondary school teachers and 170 teachers selected using simple random sampling technique. The researcher personally visited the secondary schools of City Kotli and collected the data. The researcher applied frequency, percentage, simple mean and one-way ANOVA for the analysis of data. It was found that there were significant differences between the role of AV aids and student's academic achievement with respect to teacher's qualifications and experiences. It is concluded that SSTs use educational videos to interact with digital or visual content. It is recommended that SSTs may use projectors, whiteboards, educational videos and multimedia presentations to present the visual content properly in the classroom.

**Keywords:** Audio-visual aids, Secondary school, Academic achievement

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## Introduction

Any technology that can be used to deliver knowledge using visual or aural stimuli in order to aid in learning is considered an AV aid. The development of technology has expanded the scope of education. It extends education beyond traditional chalk-and-talk methods and classrooms. There is a long history of using audio-visual aids in education. Materials containing both an audio and visual presentation are known as audio-visual aids; they are used to enhance teaching and learning, especially with regard to enhancing retention and comprehension (Dar & Kudare, 2022). Teaching aids spark students' interest and make it easier for teachers to convey topics. Without a doubt, instructional aids that support the teaching-learning process in the classroom include audiovisual aids (Sanusi, Oyelere, & Omidiora, 2022).

The educational tools called audio-visual aids are utilized in classrooms to promote learning and make it more engaging. According to Rather (2004), instructional aides are materials such as charts, maps, models, film strips, projectors, radios, and televisions. Audiovisual aids are a useful technique for giving the past a contemporary feel. With the use of AV aids, students can engage in realistic experiences that enhance their comprehension of historical phenomena. They use the visual and auditory senses to appeal to the mind. The well-known Chinese proverb "one seeing is worth, a hundred words" refers to the fact that knowledge is acquired through the senses; another proverb states that "if we hear we forget, if we see we remember, and if we do something we know it," which implies that the use of audiovisual aids in the classroom improves student learning (Darmayanti, Baiduri, & Sugianto, 2022).

Audiovisual aids have been used in education for many years as a way to enhance student learning. These aids include visual aids like charts, graphs, and diagrams, as well as audio aids like podcasts and recorded lectures. In secondary schools, audiovisual aids have been used to help students better understand complex concepts in subjects like math and science (Harahap, Nunzairina, Isnawati, & Subari, 2022). When using audiovisual aids in secondary schools, it’s important to consider the needs of individual students. For example, some students may have visual impairments that make it difficult for them to see visual aids like charts and graphs. In these cases, it may be necessary to provide alternative audio aids like verbal descriptions of the visual aids. Additionally, some students may have hearing impairments that make it difficult for them to hear recorded lectures or podcasts. In these cases, it may be necessary to provide transcripts or captions for the audio aids. By considering the individual needs of students, teachers can ensure that all students are able to benefit from the use of audiovisual aids in the classroom (Afriza & Nasution, 2022).

### Objective of the Study

1. To find out the AV aids used by teachers at secondary level.
2. To determine the role of AV aids in enhancing students’ academic achievement at secondary level.

### Research Questions

1. Which are AV aids used by teachers at secondary level?
2. What is the role of AV aids in enhancing students’ academic achievement at secondary level?
3. What is the role of teacher’s qualification in enhancing student’s academic achievement at secondary level?

4. What is the role of teacher's experience in enhancing student's academic achievement at secondary level?

## Review of Related Literature

### Audio-visual Aids

Audio-visual aids are educational tools that combine graphics and sound to deliver content more successfully. Audio-visual aids stimulate the audience's senses, such as their eyes and hearing, and help them understand the information more quickly. Both literate and illiterate individuals can utilize them. What we hear is referred to as audio. The five senses—taste, smell, touch, hearing, and eyes—all play a crucial part in information delivery. Effective communication delivery and reception depend heavily on hearing. Oral and face-to-face interaction is the most fundamental type of communication. Thus, hearing is crucial for oral, face-to-face communication (Idris, 2018).

Instructional tools that allow the message to be heard but not shown are called audio aids. Visual: What is it? Visual refers to what is visible to us. The eye is the most useful sense for learning out of the five senses of the body. A notion cannot be fully communicated with words alone. Visualization helps provide a more tangible understanding of the subject. Instructional tools that allow the message to be seen but not heard are called visual aids. What is meant by audio-visual? Audio-visual refers to both what we see and hear. With the use of audio-visual aids, teachers can boost the accuracy, coherence, and efficacy of the concepts and abilities they are teaching. They provide the student the ability to Look, Listen, and Learn; they also help the student learn more quickly, comprehensively, and for longer periods of time. The triangle process of learning, motivation, clarity, and stimulation is completed with the assistance of the audio-visual aids. Significant improvements in informational learning, retention, recall, reasoning, thinking, activity, interest, and creativity are made possible by audio-visual aids. They also improve assimilation and foster personal development. The stimuli for understanding why, how, when, and where are the aids. The usage of well created instructional aids might help to clarify the challenging and abstract idea (Watkins, 2018).

### AV Aids Commonly Used in Pakistan

#### Projectors

Teachers use projectors to display visual content, including slideshows, videos, and educational websites, to the entire class (Lai, 2011).

#### Whiteboards

Whiteboards allow teachers to write, draw, and interact with digital content, making lessons more engaging (Hennessy, 2011).

#### Educational Videos

Educational videos and documentaries are used to supplement lessons and provide visual context to topics (Marcus, 2018).

#### PowerPoint Presentations

Teachers create multimedia presentations to organize information and illustrate concepts effectively (De Sousa, 2017).

#### Charts

Particularly in a classroom or other educational setting, a chart is a helpful tool for presenting and displaying instructions or information. It might be as little as a single sheet of paper or as big as a wall chart. A chart is a graphic representation that helps explain a subject by summarizing, contrasting, comparing, and/or providing other useful functions (Orlich, 2010).

**Maps**

Teachers of geography use maps to show where things are located. Maps provide basic, visual information about the globe. They demonstrate the sizes and shapes of nations, the locations of characteristics, and the separations between regions to teach about the world. Maps can display the distribution of various elements on Earth, including patterns of settlement. In a city neighborhood, they can display the precise locations of homes and streets (Gersmehl, 2014).

**Flash Cards**

For practicing new letters, words, and other information, flash cards are helpful. Although they can be used more casually, they are often employed in instructional settings. A flash card is a component of a deck of cards that have written material to be learned on them. To get a prompt reaction, they are "flashed" (presented rapidly) to each student one at a time (Nadziroh, 2010).

**Educational Websites**

Teachers recommend websites that offer supplementary resources, quizzes, and interactive lessons (Bienkowski, 2012).

**Social Media Platform**

Teachers can utilize social media platforms for educational purposes, sharing relevant articles, videos, and news (Manca, 2016).

**Characteristics of AV Aids**

**Relevancy**

An issue is considered relevant if it can be reasonably connected to, and has the potential to support or refute, a subject of factual significance. The assistance must be pertinent to the idea that has to be produced. The degree to which any assistance is directly tied to the comprehension of the subject matter is a crucial standard value. Even if a visual aid has all the necessary information and is clear, engaging, and correct, its relevance may make it useless. For example, using a chart, a teacher is attempting to explain the structure of the sodium atom. If the instructor utilizes a precise, exquisite chart with several more drawings of atomic structures on it. Because there is unrelated information on the chart, it will lose a lot of its educational value (Schwartz, 2011).

**Useful and Purposeful Teaching**

When a teacher establishes learning environments that support students in deriving personal meaning from the material and subjects they are teaching, this is known as purposeful teaching. Understanding one's own purpose is one of the most crucial prerequisites for a teacher to meet in order to be expected to teach with purpose (Loughran, 2013).

Accuracy

Although it might be challenging to get the necessary level of accuracy, it is crucial that the audiovisual aids be correct. The third dimensional feature is consistently absent from the chart, necessitating viewing from a stationary posture. While the models get over both of these issues, they are rarely as detailed as photographs. It's common to see comprehension correctness as being more significant than specimen accuracy. For instance, illustrating an apple bloom might be used to teach students about the basic components of flowers. The diagram's resemblance to an apple blossom in every aspect is less significant than the need to define the correct relationship between various sections, including the stamens, petals, and sepals. Because of this, a well-drawn diagram may be even more useful than a precise snapshot. Therefore, what matters is not so much the exactness or correctness of the elements in the visual aids as it is the precision of the notion that is

generated. However, when a student is shown a genuine fern plant, the teacher discovers that the kids do not recognize the huge replica of the plant as the same item (Bridges, 2020).

Interest

The learning process is much easier when interests are present and much more difficult when they are not. The labor is a privilege while it is present and a punishment when it is not. A teacher's primary responsibility is to pique pupils' interest in learning. Almost all topics should be taught using audiovisual resources. There are a lot of secondary school ideas that may be made engaging by using charts, models, and movies. For instance, the digestive system, chemicals, atomic structure, historical occurrences, mathematical formulas, and geographic maps and graphs (Renninger, 2015).

Comprehensibility

When choosing and utilizing visual aids, we should make an effort to pick items that will help the kids understand what they are using and will help them connect the current experience to prior experiences. For instance, a teacher discovers that a significant portion of his class is having trouble identifying and comprehending the connections between the components of a circulatory system. Next, the teacher clearly draws a diagrammatic sketch on the blackboard. This made the challenges clear since it's easy for the pupils to understand (Mathew, 2013).

Motivation

Students are motivated by audiovisual aids because they make learning engaging in the classroom, particularly while studying activity-oriented subjects (Adalikwu, 2013).

Realism

A visual aid needs to be able to create realistic conceptions of the subjects. Let's say we work to help our pupils understand how electrons flow within atoms. In this instance, we do our best to precisely explain using diagrams, but when the students watch the real footage of electron motions, a completely new idea will be generated. The genuine specimen's realism helps to clarify the notion even if nearly all of the visual aids lack one or more of these qualities (Sadler, 2014).

**Benefits of AV Aids**

Students learn and remember the material better and for longer periods of time when the teacher presents the lesson in an effective manner. The use of audiovisual aids enhances students' capacity for analytical and critical thought. Through visual depiction, abstract notions may be eliminated (Ordu, 2021).

A/V aids are very important in the process of teaching and learning. They draw in students, inspire them to study, aid in conceptual visualization, provide knowledge substance and memory skill, facilitate hands-on learning, and enable individualized instruction (Bagila, 2019). The pupils can rapidly and readily understand these topics thanks to the usage of these gadgets. The most recent developments in technology provide instructors a plethora of possibilities to ease their workloads. This is the reason that educators everywhere have begun to include audio-visual aides in their class preparations (Ashaver, 2013).

**Role of Audio-visual Aids in Enhancing Student's Academic Achievement**

The innovative and dynamic approach to classroom instruction provided by the use of audio-visual aids in teaching and learning has changed education. With the use of audio-visual aids, educators can enhance their instruction by using aural and visual components such sound clips, graphics, animations, and videos. Because they improve understanding, involve students, and foster an interactive learning environment, these resources have shown to be useful resources for instructors

(Kathirvel, 2020). The potential of audio-visual aids to simplify and increase understanding of complicated and difficult subjects is one of its main advantages. With the use of visual aids like charts, graphs, and diagrams, students can more easily understand complex concepts since they are given a visual representation of the material. By using visual aids to convey information (Al-Yaari, 2013).

Additionally, audio aids—such as podcasts, audio snippets, and recorded lectures—offer an auditory reinforcement that enhances visual content. Students' learning can be strengthened and their comprehension of the material can be deepened by hearing clarifications, debates, and examples. According to Lazarevic (2010), audio-visual aids facilitate a multisensory learning environment that accommodates a variety of learning styles, including auditory and visual learners. Apart from augmenting knowledge, audio-visual tools encourage students' active participation and engagement. Students are more likely to participate actively in the learning process when they are exposed to both visual and auditory inputs. Students are engaged and curious when they watch instructional films, interactive whiteboards, and multimedia presentations. As students evaluate and interpret the visual and audio material that is provided to them, this involvement develops a greater degree of understanding and critical thinking abilities (Namaziandost, 2019).

Using audio-visual tools facilitates group learning. In order to foster cooperation, teamwork, and communication, students can participate in dialogues, group projects, and multimedia presentations. Teachers can foster an engaging classroom environment where students are encouraged to ask questions, discuss ideas, and learn from each other by utilizing audio-visual tools. Through peer engagement and the sharing of viewpoints, this collaborative approach improves students' social skills and fosters a deeper comprehension of the subject matter (Wazeema, 2017).

In order to improve the educational experience for both teachers and students, audio-visual aids are essential. The following are some main justifications for the significance of audio-visual aids in the teaching and learning process:

### Capture Students' Attention

Maintaining pupils' concentration can be difficult for instructors in a society full with distractions. But audio-visual aids—like movies, interactive slideshows, and online materials—have the ability to grab students' interest and hold it while they study the subject matter. Because audio-visual aids are dynamic, students find the classroom experience more engaging and stimulating (Rasul, 2011).

### Motivate Students to Learn

By presenting information in an engaging and dynamic manner, audio-visual aids can stimulate students' interest in learning. Students' curiosity and excitement can be piqued by the usage of films, animations, and other multimedia materials, which will make studying more engaging and inspiring. Greater engagement and a higher degree of information retention are the results of this improved drive (Herianto, 2022)

### Help Students to Visualize Concepts

Students can better understand abstract ideas and difficult concepts by using visual aids like charts, graphs, and diagrams. With the use of these tools, students may more easily comprehend and apply concepts that they might find challenging to learn otherwise. Students who visualize topics have a stronger knowledge of the subject matter since it improves their comprehension and helps them draw connections between various ideas (Bobek, 2016).

**Make Information More Concrete and Memorable**

With the use of audio-visual aids, abstract knowledge may take on tangible, concrete forms. By combining visual and audio components, educators may enhance student engagement and make learning more immersive. Real-world examples, demonstrations, and simulations are presented to students, which improves their comprehension and helps them remember the material. Information recall and retention are increased when visual and aural inputs are combined (Shehada, 2019).

**Provide Students with Hands-on Experience**

With the use of audio-visual aids, students may participate in experiential learning opportunities. For instance, interactive whiteboards and virtual reality simulations let students actively engage in their education by allowing them to explore ideas and control things. This practical experience fosters greater connection with the subject topic, critical thinking, and problem-solving abilities (Chijioke, 2022).

## Research Methodology

In this study quantitative research approach was used. A descriptive method was used to conduct the research. In descriptive method survey method was used to collect the data from respondents. The population of the study was consisted of three hundred and four (304) female teachers from six (6) Girls Secondary schools of District Kotli Azad Jammu and Kashmir. In this study, the researcher selected simple random sampling technique for the selection of the sample. The researcher selected one hundred and seventy (170) female teachers as a sample of the study. The researcher constructed self-developed questionnaire based on a five-point Likert-scale keeping in view the objectives of the study. The questionnaire was validated by three experts from the department of Education, University of Kotli Azad Jammu and Kashmir. The researcher conducted pilot testing to check the accuracy of the instrument. Using a pilot study, the researcher distributed questionnaire among 30 female secondary teachers which were the part of population but not be the part of the sample. The researcher incorporated at the points raised by the participants of pilot testing. The reliability of the instrument was measured through Cronbach's alpha statistical technique with the help of SPSS software version 22. The reliability of the instrument found 0.71 which was acceptable. The researcher collected the data by visiting personally to the Girls secondary schools of city Kotli. The researcher distributed the one hundred and seventy questionnaires to the female teachers of city Kotli and give response by filling the questionnaire. The researcher analyzed the data by using Statistical Package for Social Sciences (SPSS) version 22. The researcher applied statistical technique like frequency, simple percentage, mean, ANOVA and post hoc tukey test for the analysis of the data.

## Results

**Table 1**

*Mean analysis of Audio-visual aids used by the secondary teachers*

| Sr. No | Statements | N | Mean |
|---|---|---|---|
| 1. | I use projectors to display visual content. | 170 | 4.02 |
| 2. | I use whiteboards to interact with digital content. | 170 | 4.32 |

| | | | |
|---|---|---|---|
| 3. | I use educational videos to supplement lessons. | 170 | 4.26 |
| 4. | I use multimedia presentations to organize information in a structured manner. | 170 | 4.07 |
| 5. | I use charts to represent data visually. | 170 | 4.09 |
| 6. | I use maps to illustrate geographical locations. | 170 | 4.01 |
| 7. | I use flashcards to build students' vocabulary. | 170 | 3.79 |
| 8. | I recommend educational websites to students that offer supplementary resources. | 170 | 3.94 |
| 9. | I utilize social media platforms for educational purposes. | 170 | 3.91 |

Table 1 shows the mean scores of audio-visual aids used by the secondary teachers. The table further represented that mean score of I use projectors to display visual content; N= 170, M=4.02, I use whiteboards to interact with digital content; N= 170, M= 4.32, I use educational videos to supplement lessons; N=170, M=4.26, I use multimedia presentations to organize information in a structured manner; N=170, M=4.07, I use charts to represent data visually; N=170, M=4.09, I use maps to illustrate geographical locations; N=170, M=4.01, I use flashcards to build students' vocabulary; N=170, M=3.79; I recommend educational websites to students that offer supplementary resources; N=170, M=3.94; and I utilize social media platforms for educational purposes; N=170, M=3.91. Furthermore, the results directed that I use whiteboards to interact with digital content has the highest mean score in audio visual aids used by the secondary teachers.

**Table 2**

*Mean analysis of Role of Audio-visual aids in enhancing their academic achievement*

| Sr. No | Statements | N | Mean |
|---|---|---|---|
| 1. | Projectors help students in enhancing their academic achievement | 170 | 4.10 |
| 2. | Projectors play an important role in getting higher grades for students | 170 | 4.07 |
| 3. | Whiteboards boost students' performance during preparation of exams. | 170 | 4.19 |
| 4. | Whiteboard helps students in better understanding which results in improving their final grades. | 170 | 4.13 |
| 5. | Educational videos develop students' interest during lecture. | 170 | 4.09 |
| 6. | Educational videos improve students' performance which results in enhancing their final scores. | 170 | 4.08 |
| 7. | Through PowerPoint presentations students can note key points of the lesson to memorize them easily. | 170 | 4.04 |
| 8. | Using PowerPoint presentation encourages students to improve their achievement. | 170 | 3.94 |

| | | | |
|---|---|---|---|
| 9. | Maps help students grasp geographical concepts. | 170 | 3.92 |
| 10. | Maps also enhance students' knowledge which helps them to improve their achievement. | 170 | 4.01 |
| 11. | Flash cards help students remember information better which leads to improve their final grades. | 170 | 3.93 |
| 12. | Educational websites help students improve their grades by providing interactive resources that make learning easier. | 170 | 4.05 |
| 13. | By utilizing educational websites students can improve their performance which leads in achieving higher grades | 170 | 3.86 |
| 14. | Social media platforms can have a positive impact on students' grades by providing access to educational content or study groups etc. | 170 | 3.83 |
| 15. | Social media platforms also have negative impact on students' grades if not used responsibly. | 170 | 4.23 |

Table 2 shows the mean scores of role of audio-visual aids in enhancing their academic achievement. The table further represented that mean score of Projectors help students in enhancing their academic achievement; N= 170, M=4.10, Projectors play an important role in getting higher grades for students; N= 170, M= 4.07, Whiteboards boost students' performance during preparation of exams; N=170, M=4.19, Whiteboard helps students in better understanding which results in improving their final grades; N=170, M=4.13, Educational videos develop students' interest during lecture; N=170, M=4.09, Educational videos improve students' performance which results in enhancing their final scores; N=170, M=4.08, Through PowerPoint presentations students can note key points of the lesson to memorize them easily; N=170, M=4.04; Using PowerPoint presentation encourages students to improve their achievement; N=170, M=3.94; Maps help students grasp geographical concepts; N=170, M=3.92; Maps also enhance students' knowledge which helps them to improve their achievement; N=170, M=4.01; Flash cards help students remember information better which leads to improve their final grades; N=170, M=3.93; Educational websites help students improve their grades by providing interactive resources that make learning easier; N=170, M=4.05; By utilizing educational websites students can improve their performance which leads in achieving higher grades; N=170, M=3.86; Social media platforms can have a positive impact on students' grades by providing access to educational content or study groups etc.; N=170, M=3.83; and Social media platforms also have negative impact on students' grades if not used responsibly; N=170, M=4.23. Furthermore, the results directed that Social media platforms also have negative impact on students' grades if not used responsibly has the highest mean score in role of audio-visual aids in enhancing their academic achievement.

**Table 3**

*Analysis of Variance for the comparison of teacher's qualification in the use of AV aids*

| | **df** | **F** | **Sig.** |
|---|---|---|---|
| Between Groups | 2 | 1.547 | .210 |

| | | | |
|---|---|---|---|
| Within Groups | 167 | | |
| Total | 169 | | |

Table 3 present the results of a one-way ANOVA analysis examining the role of teacher's qualification in the use of audio-visual (AV) aids. In this analysis, the F= 1.574, and the p= 0.210. This suggests that the difference in the use of AV aids based on teacher's qualification was not be statistically significant.

**Table 4**

*Analysis of Variance for the comparison of teacher's experience in the use of AV aids*

| | **df** | **F** | **Sig.** |
|---|---|---|---|
| Between Groups | 4 | 2.067 | .087 |
| Within Groups | 165 | | |
| Total | 169 | | |

Table 4 presents the results of a one-way ANOVA analysis examining the role of teacher's experience in the use of audio-visual (AV) aids. In this analysis, the F= 2.067, and the p= 0.087. This suggests that there was a significant difference in the use of AV aids based on teacher's experience.

**Table 5**

*Analysis of Variance for the comparison of teacher's qualification regarding the role of AV aids in enhancing students' academic achievement*

| | **df** | **F** | **Sig.** |
|---|---|---|---|
| Between Groups | 2 | 5.066 | .007 |
| Within Groups | 167 | | |
| Total | 169 | | |

Table 5 presents the results of a one-way ANOVA examining the role of teacher's qualification and the role of AV aids in enhancing students' academic achievement. The table suggests that there was a significant difference in student's academic achievement based on the teacher's qualification and the use of AV aids. The F= 5.066 and the p=0 .007 support this finding.

**Table 6**

*Results of Post Hoc Tucky Test*

| (I) Qualification | Difference (I-J) | Mean Difference ( I-J) | Sig. |
|---|---|---|---|
| BA/BSC | MA/MSC | -1.239 | .483 |
| | M.Phil. | -4.091* | .007 |
| MA/MSC | BA/BSC | 1.239 | .483 |
| | M.Phil. | -2.852* | .031 |
| M.Phil. | BA/BSC | 4.091* | .007 |
| | MA/MSC | 2.852* | .031 |

Table 6 compares different academic degrees: BA/BSC, MA/MSC, M.Phil, and PHD. It shows the mean differences and significance levels between each pair of degrees. The mean difference between BA/BSC and MA/MSC is -1.239. This suggests a slight difference, with BA/BSC tending to be lower on average. P= 0.483 indicates that this difference is not statistically significant, meaning it could be due to chance. The mean difference between BA/BSC and M.Phil is -4.091. This indicates a larger difference, with M.Phil having higher average values. P= 0.007 confirms that this difference is unlikely to be due to chance. The mean difference between MA/MSC and M.Phil is -2.852. This indicates a significant difference, with M.Phil having lower average values. P= 0.031 shows the difference is unlikely to be due to chance. The mean difference between M.Phil and BA/BSC is 4.091. This shows a substantial difference, with M.Phil having higher average values. P= 0.007 confirms that this difference is unlikely to be due to chance. The mean difference between M.Phil and MA/MSC is 2.852. This indicates a significant difference, with M.Phil having higher average values. P= 0.031 shows the difference is unlikely to be due to chance.

**Table 7**

*Analysis of Variance for the comparison of teacher's experience regarding the role of AV aids in enhancing students' academic achievement.*

| | df | F | Sig. |
|---|---|---|---|
| Between Groups | 4 | 5.066 | .001 |
| Within Groups | 165 | | |
| Total | 169 | | |

Table 7 presents the results of a one-way ANOVA examining the role of teacher's qualification and the role of AV aids in enhancing students' academic achievement. The table suggests that there was a significant difference between the academic degrees being compared, as indicated by the low significance level i.e. P= 0.001. The F= 5.066 supports this finding.

**Table 8**

*Results of Post Hoc Tucky Test*

| (I) Less than 1 Year, 1-5 Years, 6-10 Years, 11-15 Years, 16-20 Years | (J) Less than 1 Year, 1-5 Years, 6-10 Years, 11-15 Years, 16-20 Years | Mean Difference (I-J) | Sig. |
|---|---|---|---|
| Less than 1 Year | 1-5 Year | .048 | 1.000 |
| | 6-10 Years | .738 | .998 |
| | 11-15 Years | 2.560 | .818 |
| | 16-20 Years | 5.000 | .222 |
| 1-5 Year | Less than 1 Year | -.048 | 1.000 |
| | 6-10 Years | .690 | .990 |
| | 11-15 Years | 2.512 | .402 |
| | 16-20 Years | 4.952* | .006 |
| 6-10 Years | Less than 1 Year | -.738 | .998 |
| | 1-5 Year | -.690 | .990 |
| | 11-15 Years | 1.822 | .510 |
| | 16-20 Years | 4.262* | .002 |
| 11-15 Years | Less than 1 Year | -2.560 | .818 |
| | 1-5 Year | -2.512 | .402 |
| | 6-10 Years | -1.822 | .510 |
| | 16-20 Years | 2.440 | .174 |
| 16-20 Years | Less than 1 Year | -5.000 | .222 |
| | 1-5 Year | -4.952* | .006 |
| | 6-10 Years | -4.262* | .002 |
| | 11-15 Years | -2.440 | .174 |

Table 8 compares the use of AV aids across different experience levels, ranging from less than 1 year to 16-20 years. The mean differences in AV aid usage between the different experience levels are as follows: The mean difference is -4.952, indicating a substantial difference in the use of AV aids. P= 0.006 suggests that this difference is statistically significant. The mean difference is -4.262, indicating a substantial difference in the use of AV aids. P= 0.002 suggests that this difference is statistically significant.

## Discussion

The findings suggest that the use of audio-visual (AV) aids, including projectors, whiteboards, educational videos, multimedia presentations, charts, maps, flashcards, educational websites, and social media platforms, significantly impacts students' academic achievement at the secondary level. While the study initially found no significant correlation between teachers' qualifications or experience and their use of AV aids, further analysis revealed that both qualifications and

experience play a significant role in enhancing students' academic achievement through the effective use of these aids (Chien, 2020; Kesici & Sahin, 2021; Yapıcı, 2022)

The integration of AV aids such as projectors, whiteboards, and educational videos has been found to enhance students' understanding, interest, and performance, ultimately leading to improved academic achievement (Kesici & Sahin, 2021; Yapıcı, 2022). For instance, educational videos help develop students' interest and understanding, resulting in improved final scores, while PowerPoint presentations facilitate note-taking and encourage academic improvement. Similarly, the use of maps and flashcards aids in knowledge retention and understanding, thus positively impacting students' academic achievement (Chien, 2020).

Moreover, while social media platforms have been found to have a positive impact on students' grades by providing access to educational content and study groups, it is crucial to note that responsible use is essential to avoid any negative impacts (Kesici & Sahin, 2021)**..**

## Conclusions

1. SSTs use projectors, whiteboards and educational videos to interact with digital or visual content. They also use multimedia presentations to organize information in a structured manner and use charts, maps and flashcards to represent data visually. Moreover, SSTs recommend educational websites to students and also utilize social media platforms for educational purposes.
2. Projectors help students in enhancing their academic achievement by getting higher grades. Whiteboards boost students' performance and understanding which results in improving their final grades. Educational videos develop students' interest and improve their performance which enhances their final scores. PowerPoint presentations help students to note key points during lesson and also encourage them to improve their academic achievement.
3. Maps improve students' knowledge by grasping geographical concepts which results in improving their academic achievement. Flash cards help students remember information to improve their final grades. Educational websites improve student's grades and performances by providing interactive resources. Social media platforms have a positive impact on students' grades by providing access to educational content or study groups. And also have a negative impact if not used responsibly.
4. It is found that there is no significant role of teacher's qualification in the use of AV aids. It means that the qualification of teachers do not create hurdle in using AV aids in the classroom at secondary level.
   It is also found no significant role of teacher's experience in the use of AV aids. It means that all the teachers having different experience do not face difficulty in using AV aids in the classroom at secondary level.
5. It is concluded that a significant role of teacher's qualification found in the role of AV aids in enhancing student's academic achievement. Furthermore, a significant role of teacher's experience found in enhancing student's academic achievement.it means that qualification and experience of teachers enhance the academic achievement of the students at secondary level.

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