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## **APPLICABILITY OF TEACHING AIDS IN EXTENSION EDUCATION**

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#### **Article History**

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#### **Keywords**

Instructional technology Educational technology Teaching aids Basic material Non-basic material Transference of the bookish knowledge is not enough for effective teaching so teaching should be supplemented with new teaching models or new emerging technology. However, do the students give importance to teaching aids for better instruction and learning? is the concerned area. This question is answered in this study by identifying the importance of teaching aids from students' perspectives. Data were collected through the questionnaires from secondary school students (aged 14-15 years). Collected data were analysed by employing frequency, percentage, mean and standard deviation. Findings indicated that teaching aids bring accuracy to get first-hand knowledge for obtaining the desirable objectives among students. Students' learning becomes easy, quick and long-lasting as these aids leave a high level of impressions on students' minds and behaviour eventually. Teaching aids help teach difficult and complex concepts. No one can deny the importance of teaching aids in students' learning. This study urges more practice of technology aids

in teaching and training process either being practised formally or non-formally.

ABSTRACT

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#### INTRODUCTION

The goal of education is attained when teaching acts as an art and as a science. When the imaginative and artistic abilities of the teachers are shown for creating worthwhile situations in class, it acts as an art and when teachers use logical, mechanical and procedural steps to attain goals, teaching becomes science (Shashank, 2005). Just transferring information to students is not teaching. Teaching is a planned activity about how to teach and guide the students for maximum learning. It is a dynamic process in which all efforts are put to maximize learning experiences. It is a way to improve thinking, understanding and the learning process by utilizing several methods, techniques and instructional aides to improve the quality of instruction (Khan, 2011). Quality of instruction is directly linked with the way the teachers teach in the classrooms. Teachers utilize several methods, techniques, strategies and teaching aids to make their teaching effective. They know that without using all these, they would not be able to achieve their desired objectives. To achieve these objectives, they properly utilize technology in the classroom.

The meaning of technology is different in the context of education. Before defining instructional technology, it is desirable to clear the concept of technology. Technology can be considered as a thing as well as a social process. When we apply scientific and systematic knowledge to the practical work by involving 2 M's – man and machines, it is termed as the technology of things. When we apply scientific and systematic knowledge to practical work by involving hierarchical

order, it is called the technology of the social process. So, it is not only the "tool" for the development of science but also the "change" in the social process (Aggarwal, 1995).

The application of scientific knowledge to attain practical purposes is technology. The practical application of technology is to attain the specific purpose i.e. application of scientific knowledge and attainment of pre-determined objectives. It is a manmade device to produce a reproducible effect. There is ample reason to use technology in the classroom. When technology applies in the educational setting, it is termed educational technology. Instructional Technology, Educational Technology, Audio-visual aids, educational communication Technology, Audio-Visual Media, Learning Resources, Instructional or Educational Media, and Teaching aids, all have approximately the same meaning due to their same purpose, i.e. achievement of objects, goals or purpose. Hence instructional technology is the part and section of educational technology.

The practical application of new and innovative skills and technology to impart knowledge and training by using media (print and electronic), new teaching methods and provision of a congenial atmosphere in which students are free to grow is educational technology. Educational technology is concerned with that theory and practice which applies to education by applying design and use of messages to control the environment. The use of scientific, practical, procedural and systematic knowledge about learning and its conditions to enhance the teaching-learning process in educational technology (Aggarwal, 1995).

The scope of educational technology is as wide as education itself. Its scope ranges from the concrete educational process to the most abstract one that includes the use of hardware, software and system analysis. There are three major areas of education in which technology has direct linkage:

- (1) Technology related to general education, administration and management
- (2) Technology related to general educational testing
- (3) Technology related to the general instructional process (Aggarwal, 2014).

Researches on educational technology always have an ambiguous agenda. Its agenda aim is to increase the efficiency of current practices, pedagogical change, design the science, address the basic issues of the teaching-learning process and social organizational structure. Because of its broad agenda, it utilizes all methodologies applied in social and life sciences (Rashid, 1998).

Educational technology promotes constructive and productive relations among new facilities and other factors that affect the theory and practice of education. Educational technology embraces the utilization of new apparatus, equipment, methods, techniques, and their selections, adoption and coordination for effective learning. The shift is from predominantly intuition to a critical, procedural, systematic and analytical approach. This shift includes adequate objectives; and proper use of appropriate technology for the effective assessment and modification of the students' learning. Thus, the importance of technology in education settings is quite evident (Rashid, 1998).

Learning does not occur in a vacuum. It takes place in an environment where instructional practices are appropriate to previous knowledge, cognition, aptitude, attitude, styles and strategies of thinking and so on. It is necessary to find out the ways to successful application these technologies. Now the shift is from its applicability to its impact on student's effective learning (Marshall, 2002).

New technology is immensely used in instruction. Instruction is no more without technology. Instructional technology or teaching aids are used for teaching any subject; assessing students' achievement and behaviour; checking the attainment of instructional objectives, and modifying students' behaviour etc. Instructional materials comprise written and published textbooks and other supplementary materials (used by teachers in teaching) required in school.

Teaching aids comprised of a system of 5 M's i.e. (machines, materials, media, men and methods) which are interrelated with one another and work for the common cause i.e. fulfilment of specific educational objectives (Aggarwal, 2014).

The description of 5 M's is:

Machines: Electronic or non-electronic

Materials: Teaching aids, textbooks, or any supplementary material

Media: Print and Electronic

Men: Personnel involved in the education process i.e. teachers, students, advisors etc.

Methods: Teaching methods to impart education

Teaching aids are applied or practical study where the

aim is to maximize the educational effects on students' learning, controlling educational purposes, educational content, teaching aids, teaching methods and materials, educational environment, the conduct of students, the behaviour of teachers or instructors; and interrelation of students with teachers/instructors, teaching methods with objectives and content, educational content with teaching aids and so on (Aggarwal, 1995).

Teaching aids mean two things – introducing technological innovations in the field of education and technologizing education to optimize students' learning. Teaching aids are supplementary devices by which the teacher, through the utilization of more than one sensory channel, can clarify the concepts of students. It is concerned with determining and providing appropriate stimuli to the learner to produce certain types of responses for making learning more effective. The print, non-print or combination of both is instructional technology or teaching aids. Teaching aids are divided into two categories:

#### **Basic Material**

The curriculum is considered as basic material and adopted as a primary means to help students' attainment of program outcomes. Subject-matter of the Textbook and the educational approach also need to be considered as the basic learning material for students' proper learning. The construction of the content of instructional materials is an ongoing process. As the new technology is added, its contents will progress with the speed of its development.

Textbooks, supplementary reading materials, apparatus, tools, charts, maps etc. even pen pencils, chalk, notebooks and projected and non-projected aids used by teachers and students, all are referred to as basic learning materials. Some of these projected and non-projected aids are costly or require advanced technology and handling perfection so these expensive aids have little attention from the teachers.

Instructional techniques are important as they influence students' academic achievement, behaviour modification and other outcomes. Instructional materials provide the physical material to optimize the students' learning. These are helpful to direct the teachers on how to teach and instruct, how to impart scientific knowledge, how to develop them professionally etc. They act as a tool to promote standardized science education. Such materials are undoubtedly useful for the improvement of curricula and leave a deep impact on everyday teaching.

#### Non-basic Material

Specially designed materials according to the need of circumstances, resources for individualized learning, library books, pamphlets etc. are non-basic material. These aids are used by the subject specialists, teachers and administrators. For the selection of non-basic material, it is required to select them based on predetermined objectives and program outputs (non-basic material, 2003).

Vicarious experience can be gained from teaching aids. The more concrete and realistic the vicarious experience, the more nearly it approaches the learning effectiveness of the first level. Of course, unless the learner realizes that he is dealing with a substitute; his learning may not be comparable to that of real-life learning.

Teaching aids are devices that help in the clarification, establishment and correlation of different and complex concepts and enable the teachers to make their teaching concrete, effective, efficient, meaningful etc. They help promote the learning process i.e. motivationclarification-stimulation. The purpose of using instructional media is to clear the channel between learners and supportive materials. The basic assumption underlying teaching aids is that learning from teaching aids enhances the understanding of the students. The teacher must "show as well as tell". Teaching aids provides significant gains in informational learning, retention and recall, thinking reasoning, and interest, imagination, better assimilation and individual's development. These aids are considered as the best stimuli for learning these areas i.e. why, what, how, when and where and answer the natural curiosity of the child by answering these questions. The most complex concepts become clearer by intelligently and skilfully designed teaching aids (Aggarwal, 1995).

The teaching aids are the best motivators. The students reduce verbatim by taking clear ideas and bringing accuracy in learning. When our senses are involved, the formation of clear images is confirmed. It is beyond doubt that first-hand experience is the best type of educative experience. There is no substitute for the first-hand experience in educational settings. But it is neither practicable nor desirable to provide such an experience to pupils. Substituted experiences may be provided under such conditions. There are many inaccessible objects and phenomena, for example, an average man can't climb Mount Everest. There are innumerable such things to which it is not possible to have direct access so, in all such cases, these aids help us. "Mere chalk and talk" do not fulfil the teaching requirements. The provision of a variety of tools for classroom teaching enhances students' learning. When teaching aids are employed, the chances of freedom for children will increase as they are free to move, walk, talk, comment etc. In such a congenial atmosphere of the classroom, students start work because they want to work not because of their teachers' willingness. Many teaching aids invite students to handle them so they will become more confident as compared to earlier. Teaching aids contribute to increasing receptivity. The maxims of teaching are properly utilized with the help of these aids.

The teaching-learning process retains attention. Teaching aids are those helping aids that capture and sustain the students' attention and interest throughout studies. The teaching aids provide a touch of reality to the learning situation. Mughal (2015) said that students find teaching interesting and attractive when it is supplemented with teaching aids. With the help of these aids, they communicate easily with their peers and teachers. According to Ashfaq (2009), teaching aids are the backbone in teaching by which students can easily learn and grip complex concepts. To reduce monotonous of verbatim, teaching aids improve teaching effectiveness. Seven and Engin (2007) reported that the provision of natural learning setting inspires the students to do well, in return teachinglearning process will be enhanced.

The teaching-learning process retains attention. Teaching aids are those helping aids that capture and sustain the students' attention and interest throughout studies. The teaching aids provide a touch of reality to the learning situation. The use of a variety of teaching aids helps in meeting the needs of different types of students. The teaching aids stir the imagination, thinking process and reasoning power of the students and calls for creativity, and inventiveness and other higher mental activities on the part of students and thus help the development of higher faculties among the students. The teaching aids are helpful for the learning of other concepts and principles. The students become able to solve the real problems of life by appropriate positive transfer of learning and training received in the classroom. A balanced, rational and scientific use of these aids develops motivation, attracts the attention and interest of the students and provides a variety of creative outlets for the utilization of their tremendous energy and thus keeps them busy in the classwork. In this way, the overall classroom environment becomes conducive to create discipline (Gillani, 2005). What is gained in terms of learning, need to be fixed and imprint on the minds of the students. Teaching aids help in achieving this objective by providing several activities, experiences and stimuli to the learner.

Many teachers do not give importance to its use in teaching. They think that if they use them in teaching then it will be difficult for them to cover their syllabus in time. They also claim that students take a long time for a task or an activity and may distract in the discussion that creates problems of classroom management. Due to the importance of these aids, it is desirable to find out the students views also about the use of teaching aids for better and effective learning. The literature shows the importance of these aids, whether students give importance for utilizing it and how much importance they are given to these aids; this is the concerned area of this study.

## MATERIALS AND METHODS

Sample: The respondents of the study were two hundred (200) students from five Government Secondary Schools. These Government Secondary Schools were randomly selected from District Rawalpindi. One section from the science and arts stream of the 9<sup>th</sup> and 10<sup>th</sup> class respectively was randomly selected. The age range of the students was 14-15 years. Ten students; five high achievers and five low achievers from each section were selected based on their previous results. These students belonged to different socio-economic statuses and have diverse abilities and intelligence. The students were asked to provide information about school, class, section, stream and age.

		9 <sup>th</sup> Class			10 <sup>th</sup> Class				T - 4 - 1
Schools	Science	Science Stream		Arts Stream		Science Stream		tream	Total
	f	%	f	%	f	%	f	%	f
Government School No. 1	10	25	10	22	10	24	10	22	40
Government School No. 2	10	26	10	24	10	24	10	23	40
Government School No. 3	10	24	10	22	10	23	10	22	40
Government School No. 4	10	24	10	23	10	26	10	23	40
Government School No. 5	10	25	10	24	10	28	10	24	40
Total	50		50		50		50		200

Table 1. Distribution of respondents by station.

Initially, the study was approved by the Departmental Board of Studies (DBS). The Departmental Board of Studies is comprised of all teachers of the department. Then the Faculty Board of Studies (FBS) approved the whole research. All the faculty members of Social Sciences were involved in the Faculty Board of Studies. Finally, the research got approved by the Board of Advanced Study and Research (BASAR). The Board of Advanced Study and Research consisted of Vice-Chancellor, Registrar, Deans, Faculty members and students of Social Sciences. After the approval of the study from BASAR, permission to conduct the study was taken from the selected five Government Secondary Schools. After the grant of permission, the students were accessed to collect the data with the help of a selfdeveloped scale.

Research protocols were ensured by briefing students about the importance of research objectives, the confidentiality of data and the right of withdrawal in the study. Research Instrument and Statistical Tool: A selfdeveloped validated questionnaire on a three-point rating scale was administered to check students' views about the applicability of teaching aids on their learning. The questionnaire was prepared after a thorough review of related literature. The construction guidelines for preparing the questionnaire were kept in mind. The aspects to check the importance of teaching aids to supplement students' learning were teaching aids' effect on students' learning, teachers' training effect on students' learning, teachers' effort about the use of teaching aids in the classroom, students' likeness for teachers, availability of a place for the safety of teaching aids, the accuracy of teaching aids and impact of teaching aids on students' behaviour. The appropriateness of items was validated by the educationists and psychologists. Field-testing of the questionnaire was conducted on 2% of the total population that was not included in the sample. In the light of pilot testing and guidance of the experts and supervisor, the research questionnaire was improved. The reliability of the instrument was determined by applying rationale equivalence reliability as it estimates internal consistency by determining how all items on a test related to all other items and the total test (Mills and Gay, 2016). The reliability of the questionnaire was found to be 0.714. Mean and standard deviation was used to check the student's views regarding the importance of teaching aids in the teaching-learning process. The mean of the different aspects regarding teaching aids' importance was interpreted by the following criteria.

Mean Interval	Description
2.50-2.99	Very Good
2.00-2.49	Good
1.50-1.99	Fair
1.00-1.49	Poor

Table 2. Mean intervals and description.

#### **RESULTS AND DISCUSSION**

Table 3 displays the mean level of effects of teaching aids on students' learning of the secondary school. Effects of teaching aids were measured in terms of the impact of teaching aids on students' learning, develop interest, get the first-hand experience, provide in-depth and variety of learning, effective learning, more clear concepts, learning become the most natural and consequently easiest, provide a concrete basis for the development of understanding and direct impact on what is taught in the classroom. The subject matter alone is not enough to cater to all the requirements of students' learning so teaching should be supplemented with teaching aids. When teaching aids are used properly then the learning process will be facilitated, learning will be secured and students will be encouraged to take part in the learning process (Nasab et al., 2015; Alshatri et al., 2019). Learning is inherent in the quality of instruction that may be ensured with the use of teaching aids. So, the use of teaching aids is indispensable (Lei and Zhao, 2007; Alkhresheh et al., 2020). Audio-visual skills are augmented by the appropriate use of teaching aids. Concrete things and actual demonstration of the concepts increase the first-hand experience (Ismail, 2011). A way forward for education success is the correct and proper use of teaching aids that can significantly enhance a student understanding of concepts. Abstract and difficult concepts transform into concrete ones (Isman et al., 2007) that retains in memory for a longer period. A comprehensible image of the lesson is presented to the students that creative aptitude and passion among them to gain insight into knowledge and skills (Ellington, 2003; Adebayo and Adigun, 2018). There is a strong bond between taught content and interest; and the need of the students as it brings originality and variety in the

teaching-learning process. A wide range of student's abilities is covered in which teachers encourage their active participation in the learning process. Instant feedback is provided to the students that are helpful for them to know their strength and weaknesses during instruction. Meaningful concepts are developed by students' rich experiences gained through teaching aids. Due to this, conceptual developments of ideas are ensured as the order and clarity of thoughts arise in students' minds (Abbas, 1998).

Flexibility in the use of teaching aids breaks the traditional verbatim in classroom teaching. Due to this, the prevalence of a congenial atmosphere in the classroom, students' motivation in learning, increments in students' learning (Chandra, 2005) and creation of interest in subject-matter learning is evident (Ali, 2002). The results showed that students are in favour of the usage of teaching aids in the classroom as because of these aids, their learning will be more tangible as indicated by the overall mean of 2.78. This implies that secondary school students want that teaching aids should be used in classroom teaching as these aids leave a deep sense in their minds. The students are in the view that in the presence of teaching aids, the attention is attracted; interest is raised and a suitable atmosphere for proper understanding is automatically created. Teaching aids specifically and sensitively impress the real world and the sensational characteristics of concepts.

Aspects	Mean	SD	Description
Impact of teaching aids on learning	2.81	0.49	Very Good
Develop interest	2.71	0.57	Very Good
Get first-hand experience	2.59	0.60	Very Good
Provide in-depth and variety of learning	2.87	0.44	Very Good
Effective learning	2.93	0.25	Very Good
More clear concepts	2.82	0.41	Very Good
Everlasting learning	2.90	0.30	Very Good
Learning become the most natural and consequently easiest	2.72	0.58	Very Good
Provide a concrete basis for the development of understanding	2.76	0.55	Very Good
Direct impact on what is taught in the classroom	2.73	0.52	Very Good
Total	2.78	.471	Very Good

Table 4. Mean Level of Teachers' Training Effect on Students' Learning

Aspects	Mean	SD	Description
Use of teaching aids by trained teachers	2.42	0.711	Good
Use of teaching aids by newly trained teachers in classroom activities	2.59	0.68	Very Good
Total	2.50	0.69	Very Good

Table 4 showed that the training of teachers has effects on students' learning as indicated by the overall mean of 2.50. Training of teachers can have a momentous, positive and encouraging impact on student achievement (Jacob and Lefgren, 2002). Training timings have a deep impact on students' success. Even short training courses leave a deep impression on students' achievement and teachers' behaviour. Trained teachers use teaching aids effectively in teaching (Van Der Sijde, 1989). Effective learning and teacher professional development is inseparable from one another. In addition, experienced and skilled teachers use teaching aids appropriately during instruction (Harris and Sass, 2007). Training and teaching are interrelated with one another; both are driven by the skills required to use teaching aids effectively in the classroom (Eric, 2007). The results revealed that students are in the view that trained teachers use instructional aids in interesting ways. They use aids not only in teaching subject matter but also in different curricular and co-curricular activities that are a good way to enhance students' learning.

Table 5. Mean level of teachers' effort for the use of teaching aids.

Aspects	Mean	SD	Description
Use modern technology to make teaching attractive	2.42	0.79	Good
Use teaching aids for the clarification of concepts	2.23	0.86	Good
Encourage students to prepare teaching aids	2.44	0.73	Good
Use teaching aids according to the topic demand	2.44	0.76	Good
Students avail library facilities	1.94	0.94	Fair
Use available material effectively to achieve the target objectives	2.4	0.64	Good
Total	2.31	0.78	Good

Table 5 showed the mean level regarding teachers' effort for the use of teaching aids as indicated by the overall mean of 2.31. Teachers' responsibility is to put the required effort to deliver the instructions in a way to change and communicate ideas, construct the contents and clarify the concept for the learner. Although teachers rely on spoken words when these words are accompanied by teaching aids then concepts can be more effectively communicated (Walking, 1987). Recipients' attention and assimilation level are enhanced as interest is added in teaching-by-teaching aids (Khan, 1998).

Lectures become monotonous by the excessive use of words, so teachers give importance to use teaching aids as the supplement of their instruction to increase the effectiveness of teaching (Ashfaq, 2009). The teaching aids catalyze the teaching-learning process that speeds up this process (Perveen, 2003). Standard and quality of education; students' purposive learning; improvements in teachers' behaviour and realization of instructional objectives is only possible by teaching aids (Khan and Rind, 2012). Teachers use teaching aids to enhance the students' inner abilities which contribute towards their upbringing. The results of the study indicate that students are giving weight-age to teachers' efforts about the proper use of teaching aids to increase and clear their concepts. Teaching aids promote students' thinking analytical reasoning. Many students and also demonstrated that they rarely visit library although school has rich library and there is a fixed period allotted in time table.

Table 6 showed the mean level of the likeness of secondary school students for those teachers who use teaching aids in the classroom. Results revealed their likeness as indicated by the mean of 2.94. Students are aware that teachers are putting maximum effort to make teaching more interesting and livelier. With the technological touch, a simple schoolhouse turns into a

systematized learning centre, so students like those teachers who add teaching aids in their teaching. The

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teachers' effort by lessening teaching time and energy.

Table 6. Mean level of the likeness of students for teache	rs.			
Aspects		Mean	SD	Description
Students likeness for those teachers who use teaching ai	ds in the class	2.94	0.23	Very Good
Table 7. Mean level of availability of space to keep teachi	ng aids safe.			
Aspects	Mean	SD	De	escription

Aspects	Mean	SD	Description
Availability of resource room	1.94	0.93	Fair

Table 7 showed the mean level of availability of space in schools for keeping teaching aids safe as indicated by a mean of 1.94. The quality of teachers and effective educational settings depends upon the availability and utilization of educational resources. But unfortunately, the resources and budget available to schools are scarce. Many schools have no proper place for keeping teaching aids safe. Due to this, many aids break during their use and move from one class to another (Perveen, 2003). Shortfalls in the availability of some materials and space were evident (Adebayo and Adigun, 2018). The present study showed that in rare schools' resource room is present. In some schools, although resource room is available; but its condition is not good. If available then there is no caretaker of such room. If the caretaker is hired then his/her qualification and experience are not up to the requirement. Even teachers are not trained to handle such expensive aids. Resource room does not exist in many schools.

Table 8. Mean level of accuracy of the use of teaching aids.

Aspects	Mean	SD	Description
Importance of teaching aids to get progress	2.95	0.42	Very Good
Use of teaching aids according to the grade level and age level of students	2.58	0.56	Very Good
Total	2.76	0.49	Very good

In all indicators of the use of teaching aids, students showed their confidence about the use of teaching aids that are aligned with the subject matter, grade, age, mental and difficulty level as indicated by the overall mean of 2.76. The teaching-learning process is a way to enhance knowledge in which the crucial role is of teachers (Rasul *et al.*, 2011). Teachers present clear and concise concepts that bring accuracy to the teaching-learning process (Aggarwal, 2014).

This study indicates that students admired the teachers' attempt to prepare and select the best suitable teaching aids to enhance students' learning. Teachers are well aware of the suitability of teaching aids with students' age and minds.

Table 9. Mean Level of Teaching Aids'	Impact on Students' Behavior.
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Aspects	Mean	SD	Description
Create positive interaction between student and student, and teacher and student.	2.73	0.57	Very Good
Quick learning	2.87	0.33	Very Good
Keep the students attentive and busy	2.97	0.43	Very Good
Possibility of creative work	2.73	0.56	Very Good
The positive impact of teaching on students' minds	2.69	0.55	Very Good
Make difficult concepts easy to understand	2.86	0.37	Very Good
Offer opportunities to exchange ideas with other students.	2.61	0.64	Very Good
Provide opportunities for creative work.	2.72	0.60	Very Good
Total	2.77	0.50	Very Good

The overall mean level of the impact of teaching aids on students' behaviour is 2.77. Positive and productive interaction; and mutual understanding in the classroom among teachers and students produce a noteworthy change in students' behaviour (Abbas, 1998). Teaching becomes more attractive and students become more attentive when instruction is decorated with teaching aids by which students can exchange their views very easily with themselves and with teachers (Khan, 1998; Abdullah et al., 2019). Learning of difficult, complex and abrupt concepts; and the creation of something new becomes comparatively easy because of teaching aids (Ashfaq, 2009). The students can freely move around, converse, exchange ideas and comment upon any content they like (Chandra, 2005) so they become more confident to handle and communicate. Teaching aids can be used for self-analysis by the students or peer's analysis to create healthy competition. The students are of the view that their behaviour is changed due to the logical presentation of concepts in teaching aids. When they create something by themselves then they become able to know the mechanics of different concepts that ultimately sequenced their mind.

## **CONCLUSION AND RECOMMENDATIONS**

In this research, it is discussed that how important the teaching aids are. Teaching aids are helpful for the academic achievement of the students and they also increase the independent study of the students. The teacher training improves the process by enabling the teacher to use the latest aids. These help the teacher in the planning of lessons, especially in lower classes. Investment in teaching aids will result in a rich teaching toolbox. Teaching aids have a positive effect on students' behaviour as it produces and explores the ideas in detail and the students can learn more. While using teaching aids, it is important to maintain that the teacher can use them in future for a long time which will reduce the cost on one side and improve the learning on the other side. This research concludes that the teaching aids must be according to the mental level of the students and that these must be used properly in teaching. It is desirable to select teaching aids very carefully according to the topic and age level of students. Proper training may be given to the teachers to use them accordingly and prepare them also if needed. Teaching aids may be used in such a way that

they should give the real picture of the object used in classroom teaching. The importance of teaching aids in instruction may be inculcated among teachers as some teachers think teaching aids as a hurdle to cover the syllabus and claim them a waste of time. The momentousness of teaching aids is proved so it is a dire need to use them effectively and efficiently. Based on the findings, the following recommendations are drawn:

- Information about sound philosophy, its importance and the working mechanism of teaching aids may be given in in-service training and especially in pre-service which may be proved as a good atmosphere to dig out the teachers' problem about not to use these aids in the classroom.
- Proper training may be given to the teachers to use them accordingly and prepare them also if needed.
- The importance of instructional technology in instruction may be inculcated among teachers as some teachers think instructional technology is a hurdle to cover the syllabus and claim them a waste of time.
- Teaching may be supplemented with these useful aids to enhance students learning. Teaching aids may be best used if they cater critical thinking of students.
- A special place in the school may be allotted to keep expensive teaching aids safe. If such room is in schools, then proper caretaker will be recruited to issue and return these aids and proper stock register to be maintained for a record.
- Appreciation and support may be given by the school Principal to use these aids properly as students like those teachers who use them in classroom teaching for students' concept clarification.
- Teaching aids may be selected very carefully according to the topic and mental level of students.
- Teaching aids may be used in such a way that they should give the real picture of the object used in classroom teaching.
- Proper and adequate funds may be fixed to schools to purchase teaching aids.
- Teachers may use these aids to take formative and summative evaluations to check and enhance their teaching.

#### REFERENCES

- Abbas, N. 1998. A comparative study of the availability and utilization of physical/instructional facilities in public and private secondary schools. Pir Mehr Ali Shah Arid Agriculture University. Rawalpindi.
- Abdullah, R. N., J. Abdul Muait and G. Ganefri. 2019. Students' perception towards modern technology as teaching Aids. Asian Journal of Assessment in Teaching and Learning, 9: 37-42.
- Adebayo, O. O. and S. Q. Adigun. 2018. Impact Of Instructional Aids On Students' Academic Performance In Physics In Secondary Schools In Federal Capital Territory (FCT) Abuja, Nigeria. European Scientific Journal, ESJ, 14: 366.
- Aggarwal, J. 1995. Essentials Of Educational Technology Teaching Learninig Invovations In Education.
- Aggarwal, J. C. 2014. Essentials of Educational Teaching Learning Innovation in Education. New Delhi: Vikas Publishing House Pvt. Ltd. Place Published.
- Al-khresheh, M. H., A. Khaerurrozikin and A. H. Zaid. 2020. The Efficiency of Using Pictures in Teaching Speaking Skills of Non-native Arabic Beginner Students. Universal Journal of Educational Research, 8: 872-78.
- Ali, I. 2002. Development model of using audio visual aids for literacy program Allama Iqbal Open University Islamabad.
- Alshatri, S. H. H., K. Wakil, K. Jamal and R. Bakhtyar. 2019. Teaching Aids Effectiveness in Learning Mathematics. International Journal of Educational Research Review: 448-53.
- Ashfaq, M. 2009. A study to evaluate the availability and utilization of teaching aids at secondary school level (Unpublished master thesis). Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi.
- Chandra, R. 2005. Technology Integration in Education. Delhi: Kalpaz Publications. pp. 3-4.
- Ellington. 2003. Handbook of Educational Technology (3rd ed.). New Jersey: Kogan Pvt. Ltd. p. 15.
- Eric, J. 2007. Strategies to put instruction ahead of technology. National Association of Secondary School Principals.
- Gillani, N. S. 2005. Effectiveness of instructional technology in teaching Biology to secondary school students. Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi.
- Harris, D. N. and T. R. Sass. 2007. Teacher training, teacher quality and student achievement. Test

accounts.

- Ismail, S. A. A. 2011. Student Teachers" Microteaching Experiences in a Preservice English Teacher Education Program. Journal of Language Teaching and Research, 2.
- Isman, A., H. Yaratan and H. Caner. 2007. How Technology Is Integrated into Science Education in a Developing Country: North Cyprus Case. Turkish Online Journal of Educational Technology-TOJET, 6: 54-60.
- Jacob, B. and L. Lefgren. 2002. The Impact of Teacher Training on Student Achievement: Quasi-Experimental Evidence from School Reform Efforts in Chicago. National Bureau of Economic Research.
- Khan, A. S. 2011. Effects of Teaching Chemistry through Concept Formation Teaching Model on Students' Achievement. Language in India, 11.
- Khan, A. S. and M. Q. Rind. 2012. Instructional technology: a tool of effective learning. pp.1.
- Khan, H. H. 1998. The Effectiveness of Audio Visual Aids in the Subject of Science at Elementary Level in District Bannu. Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi.
- Lei, J. and Y. Zhao. 2007. Technology uses and student achievement: A longitudinal study. Computers & Education, 49: 284-96.
- Marshall. 2002. Educational technology. Retrieved from. http://www.ncrel.org/sdrs/pathwayg.html.
- Mills, G. E. and L. R. Gay. 2016. Education research: Competencies for analysis and applications. London, England: Pearson Education. 2, 1.
- Mughal, R. A. 2015. A comparative study of the application of audio-visual aids at secondary school level in Islamabad and Rawalpindi (Unpublished master thesis). Preston University, Kohat.
- Nasab, M. Z., R. Esmaeili and H. N. Sarem. 2015. The use of teaching aids and their positive impact on student learning elementary school. International Academic Journal of Social Sciences, 2: 22-27.
- Perveen, T. 2003. A comparison of the availability of the educational facilities and their impact on the quality of education in public and private school of Lahore Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi.
- Rashid, M. H. 1998. Educational Technology. Karachi: Kamal Printers. pp. 8-10.

- Rasul, S., Q. Bukhsh and S. Batool. 2011. A study to analyze the effectiveness of audio visual aids in teaching learning process at uvniversity level. Procedia - Social and Behavioral Sciences, 28: 78-81.
- Seven, M. A. and A. O. Engin. 2007. The Importance and Effect of Using Aid Materials in Foreign Language Teaching. Online Submission.
- Shashank, R. J. 2005. Teaching of Science. New Delhi: Ashish Publishing House. p. 27. Place Published.
- Van Der Sijde, P. C. 1989. The effect of a brief teacher training on student achievement. Teaching and Teacher Education, 5: 303-14.
- Walking, L. 1987. Instructional Techniques and Practice. Press Avon.

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