



Comparison between Activity-Based Learning and Traditional Learning

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## **ABSTRACT**

The classroom teaching strategies used by teachers have a major impact on the quality of education. These days, schools, colleges, and universities are using an increasing amount of activity-based learning techniques. In terms of the student, teacher, learning environment, and education, this paper compares and studies two approaches to higher education: activity-based learning and traditional learning. These two approaches was examined and contrasted by utilizing the benefits of qualitative research, applying the qualitative descriptive type method, and assessing the literature review, presented virtual lesson plans, and other texts. Comparative tables are used to display the findings. The study's conclusion explained that, when compared to traditional learning, activity-based learning was more effective for both teaching and learning.

# **KEYWORDS**

Activity-based learning, Traditional learning, Documentary Study



#### INTRODUCTION

The 20th century saw significant changes in education around the world, mostly as a result of advances in science and technology (Demirci et al., 2010). The only instrument available that seeks to provide its students with the knowledge they need to not only take advantage of favorable job opportunities but also to make a positive contribution to society is education (Anwer, 2019). The teaching and instilling moral past, especially in the elementary grades is unsuccessful, as the lectures that focus on rote learning make to the students was not interested in boring lessons (Lijanporn and Khlaisang 2015). Everybody relied on teacher-centric instruction in the past, but these days, we focus learning-centric instruction (Samaddar and Sikdar, 2023). Student-centred learning and applied learning are just two of the numerous strategies that have been developed thus far within the framework of active learning, Collaborative learning and project-based learning (Nan, 1992; Shelagh, 1997; Hannafin, 1997; Hmelo-Silver, 2004; Pawson, et al., 2006; Helle et al., 2006). This method is very effective for the overall development of students. Acquiring an understanding of students' learning styles can be beneficial for students as well as teachers. In order to engage students in an active learning process, it is necessary to recognize and appreciate the learning styles of both teachers and students (Awala, 2014). In this study researcher will mainly discuss about activity learning and traditional learning.

Through actively participating in hands-on, mind-based learning, students can connect abstract ideas and theories to real-world observations through activity-based learning approaches (Noreen and Rana, 2019). Teachers can present the content in front of the students in different ways in this method so that the attention of all the students is maintained. A perfect setting for the teaching and learning process occurs when activity-based learning is combined with peer instruction (Hussain, Anwar and Majoka, 2011). Fallows and Ahmet (1999), "Learning is most effective when it maximizes students' association, contribution, and collaboration; this helps students develop intellectual models that consider 'higher-order' presentation, such as data exchange and applied critical thinking" (Churchill, 2023). If the learners are engaged in these activities as individuals, they will be highly motivated (Hug, Krajcik and Marx 2005).

Traditional education refers to that group of teachings the basic portion of whose order is based on the teaching system, in another word, in traditional education, the learner is obliged to harmonize his own techniques and learn ability with the types, techniques, skills and desires of the teacher (Fooladvand and Yarmohammadian, 2011). Traditional education is generally more effective for college and higher education because all students are adults and mature. In a traditional classroom, students actively listen to teachers deliver lessons while sitting still and taking notes (Haghighi, Vakil, and Weitba, 2005). The teacher remains even more dynamic, subjective, and less affective in this (Singh (2004). The traditional approach to teaching undermines the way the mind functions normally (Weber, 2006). Learners' interests and consideration cannot be met in the lengthy traditional teaching periods (Cangelosi, 2003). This study aimed to compare activity-based learning and traditional learning in education. So here the two methods are compared in different aspects and finally which method is better is described.

# **OBJECTIVES OF THE STUDY**

The Objectives of the study are as follows:

- 1. To analyse the characteristics of both activity-based learning and traditional learning.
- 2. To find out the comparison between activity-based learning and traditional learning.

## METHODOLOGY OF THE STUDY

In this study, qualitative methodology and documentary analysis techniques were employed by the researchers (Samaddar and Sikdar, 2023). "Documentary research is one of the three major types of social research and arguably has been the most widely used of the three, throughout the history of sociology and other social sciences" (Ahmed, 2010).

This study included advertisement, agendas attendance register, minutes of meetings; manuals, background papers books and brochures diaries and journal, event programs letters, and memoranda, maps and charts, newspapers, press releases, program proposals, application form and summaries and televisions programme scripts, organizational and institutional reports survey data and various public records (Bowen, 2009).

# COMPARISON BETWEEN ACTIVITY BASED LEARNING AND TRADITIONAL LEARNING:

# Philosophy of existence

"It is the old pattern to give all the resources to the inactive learner by the teacher. The innovative pattern is to dynamically connect learners with the resources and each other" (Johnson, Johnson and Smith, 1998; referred in Ahlfeldt, Mehta, and Sellnow, 2005). The opposite side the traditional teaching mode is a kind of classroom teaching form which uses the traditional teaching means to complete the specific teaching content. It is characterized by teachers dictating, writing on the blackboard, students listening and taking notes (Huang, Yangand Li, 2021).

## **Mode of Education**

The traditional classroom teaching is "Teacher-Centered", in which students only need to follow teachers to passively accept knowledge, but it is difficult for them to have the opportunity to put forward their views and collaborates with other classmates (Bo et al., 2022). According to Davydov (1990), "The basic principle of practical activity involving objects is idealised through thought, and the universal forms of objects, their measures, and their laws are reflected in that activity." The kinesthetic learning styles are used by students because they are active learners who actively participate in learning as opposed to passive learners. It is further assumed that activity-based learning is energetic learning where students involve themselves in activities by moving their body parts. (Qamar et al., 2022).

## **Educational interaction**

Activity-based learning Instruction places a strong emphasis on the child, or alternatively, it is a child-centred approach that empowers students to learn on their own terms and at their own pace (Noreen and Rana, 2019). Traditional classrooms are defined by two-way communication between teachers and learners; this is a situation where two people may interact face-to-face (Hassan et al., 2014).

# **Student's requirements**

Teachers can understand students' mastery of knowledge according to students' timely feedback information, and adjust teaching strategies accordingly to achieve the expected teaching objectives (Bo et al., 2022). On the other hand, practical experiences facilitate the exchange of knowledge among students, enabling them to apply what they learn to a variety of situations (Edward, 2001).

# **Educational responsibility**

Activity-based learning, also known as activity-driven learning, aims to help students build mental models that will enable "higher-order" performance, such as applied problem solving and the transfer of knowledge and skills and this is achieved through the students' active interaction with a learning object (Raghunath, 2012). Traditional teaching methods are characterised as being rigid, speech-oriented, and teacher-arranged; Teachers usually use a whiteboard to present their lessons, supplemented by verbal explanations or lectures (Yuosuf et al., 2018).

#### **Educational environment**

Geographical barriers separate students and teachers in traditional learning settings. Colleges, universities, and other educational institutions are typically located in specific areas and accessible only during a particular period, which may not be convenient for many students (Saini and Wahid, 2019). Activity-based learning, which encompasses a wide range of in- and out-of-school activities that students participate in individually or in groups, is similar to learning by doing (Demirci et al., 2010).

# **Subject matters**

The teaching of course books in the conventional technique is heavily strained by the fact that many traditional teaching strategies are defined as being teacher-arranged, in a speech style, and are firm lessons that are typically delivered by the teachers presenting skills utilising a blackboard joined by a verbal clarification or lecture (Yuosuf et al., 2018). Students who participate in activity-based learning education actively engage in practical experiences and have the opportunity to connect abstract concepts and theories with apparent observations, which aids in their deep understanding of scientific ideas (Noreen and Rana 2019).

#### **Educational aim**

The underlying logic of traditional education is the believe of teaching as a process in which the teacher impacts knowledge, provides skill training for students, develop students' intelligence, cultivate students' ability and becomes students' moral character so, Under this circumstance, teachers are only responsible for teaching while students are only playing the role of passive learners (Weng et al., 2017). According to Churchill (2003), Through the use of activity-based learning, students can develop mental models that support "higher-order" tasks like applied problem solving and knowledge and skill transfer. According to Stoblein (2009) this method helps students learn how to learn by exposing them to a range of activities and integrating learning into their existing knowledge.

# **Educational utilize**

Active learning brings value to courses and curricula by encouraging student participation in activities, promoting higher-order thinking, problem solving, and critical analysis, and giving teachers and student's feedback on the learning process (Kckeachie, 1987). Additionally, it emphasizes the exploration of attitudes, values, and habits by students more, which can motivate them to learn and develop their skills (Prince, 2004).

## Student's satisfaction

In traditional learning, the instructor could not ensure that every student was involved in the process of learning (Saini and Wahid, 2019). Meyer & Jones (1993) pointed on the basis research that during

a lecture, learners are not attentive to 40% of the time, they retain 70% of the information from the first ten minutes of a lecture and only 20% of the information from the final ten minutes, and four months after a lecture base course they retain only 8% more than the learners who have never taken the course. Learning activities if based on real life experience help learners to transform knowledge or information into their personal knowledge which they can apply in different situations (Edward, 2001). Student's motivation is high if these activities are personally relevant to the students (Harel and Papert 1991, Kafai and Resnick 1996, Hug, Krajcik, and Marx 2005).

## **Instructional Methods**

Traditional teaching methods emphasise memorization of facts, equivalencies, and formulas through repetition and retention, which leads to a strong tendency towards class address book knowledge. Recitation typically consists of repeating what the teacher or book has said without making any changes (Noreen and Rana, 2019). Since every student learns at the same time and location, it is not possible for the instructors to give each student a different set of learning materials (Saini and Wahid, 2019). Active learning is an approach with a variety of possible methods rather than a single teaching strategy. It can entail incorporating brief, sporadic activities into already-existing courses or necessitate completely reorganizing a course by applying a unique active-learning methodology (Gleason, 2011).

#### **Evaluation**

The traditional educational model is exam-oriented, but it can be summed up in a variety of ways because exam-oriented learning is the gold standard for evaluation In the traditional educational model, the school needs the exam results to demonstrate a high enrollment rate (Zhao, 2009). McGrath & MacEwan (2011) clarified, under activity-based learning, learners engage in the learning process through practical demonstration, as opposed to traditional methods. "Activity-based learning is a learning technique where learners are busy in the educating process" (Prince, 2004).

## **DISCUSSION**

Harfield et al (2007) said, "Activity-based learning differs from traditional teaching methods in several ways, majority of educators believe that the new curriculum forced them to incorporate many more activities in different forms into their lessons than they otherwise would have (Demirci et al., 2010). Celik (2018) describes, Activity-based learning has been shown to enhance students' academic performance and attitudes towards learning. Thus the integration of peer instruction and activity-based instruction may be analogous to laboratory class supported by group discussion that forms the core of pedagogical practices (Palmer, 2005). In order to implement activity-based learning in the classrooms, many nations have updated and modified their secondary school curricula over the past few years and created standards, such as the US and the UK. (Gesp, 1994; Karabag, 2005; Kaya, 2007). It seems that activity-based models are more popular in the developed countries than in the developing countries while transportation related problems such as congestion and air quality issues are most serious in the developing world (Yagi et al., 2009). It was also found that the students consider themselves responsible for the prevalent barriers in the implementation of Activity Based Learning (Rathee and Rajain, 2016). Recognising and addressing these obstacles will help ensure that active learning techniques are used more frequently (Gleason, 2011). Therefore it can be said that in active learning, the hand – on activity of the students keeps them interested in learning and the can easily accrue the learning content and they can apply those knowledge in their own life.

**Table 1-** Comparing of Activity-Based learning and Traditional Learning of (Fooladvand and Yarmohammadian, 2011)

Activity- Based Learning	Traditional Learning
Active learning based on subject matters	Inactive learning based on subject matters
application	narration
Learner directed education	Teacher directed education
Group work	Individual work
Interdisciplinary application	Packages of scientific subject matters
Interactive learning sources	Inactive learning sources
Indoor/ outdoor courses	Indoor courses
Getting ready for life time learning	Learning how to get ready for exams
Life time education	General –university medium
Unlimited and diversified	Limited and selected
A means for determining the level of access to	Reconstruction of the memorized content to
specified education objectives	receive a certificate

Problems with traditional learning could include a cultural divide, where the teacher and students come from various cultures and speak different languages this would pose a serious issue, particularly in India. (Saini and Wahid, 2019). The studies that are being conducted in the area of dialect instruction are unknown to the teachers, considering little input from the students, the instructor acts like a dictator in the classroom. (Behlol, 2009). Conventional methods primarily focus on reviewing true data and ignore more rational outcomes at higher levels (Rao, 2001). Most of the students and teachers preference is for traditional learning because of better interaction between students and teachers, comfortable environment, useful and accurate study materials (Lade and Patil, 2021). Lastly, comparing the two learning methods, we can say that activity learning is very active and effective for child learners, but traditional learning is effective in cases where teaching by activity is not possible in all subjects for adult learners.

## **CONCLUSION**

Engagement of students is greatly impacted by the focus on effective learning in the classroom (Anwar, 2019). Activity Based Learning (ABL), which is characterized as a learning process in which students are constantly engaged, is one such technique (Panko et al., 2007). Researchers found that students' confidence and knowledge increased, and students said that using active-learning techniques helped them learn (Darbishire, 2009). It was discovered that the activity-based teaching approach improved students' ability to respond to questions about related content. The difference in means demonstrated the effectiveness of using an activity-based approach during the teaching and learning process (Kuyate, 2019). Harfield, Davies, Hede, Panko and Kenley (2007) by quoting Prince (2004) say the way that active learning differs from conventional teaching methods on two points- First, active role of students and second, collaboration among students. Anwar (2019) was of the opinion that students' academic achievement and motivation were improved by activity-based learning. Activity-based learning is more successful in helping students develop higher order thinking skills (Dean, 1999; Martin, Chrispeels & D'Emidio-Caston, 1998; Schmidt & Van Der Molen, 2001; Schmidt, Vermeulen & Van Der Molen, 2006). After the study, it can be said that activity-based learning is much more effective for learning concerns, while traditional learning is effective for teaching and job placement purposes.

## **Reference:**

- Ahlfeldt, S., Mehta, S., & Sellnow, T. (2005). Measurement and analysis of student engagement in university classes where varying levels of PBL methods of instruction are in use. Higher Education Research and Development, 24(1) 5-20. http://dx.doi.org/10.1080/0729436052000318541
- Ahmed JU. (2010). Documentary research method: New dimensions. Indus Journal of Management & Social Science. 4(1):1-14

  <a href="https://www.researchgate.net/publication/227441751\_Documentary\_Research\_Method\_New\_Dimensions">https://www.researchgate.net/publication/227441751\_Documentary\_Research\_Method\_New\_Dimensions</a>
- Anwer, F. (2019). Activity-Based Teaching, Student Motivation and Academic Achievement. Journal of Education and Educational Development, 6(1), 154-170. https://files.eric.ed.gov/fulltext/EJ1216784.pdf
- Awala HA.(2014). Learning styles and their relation to teaching styles. International Journal of language and Linguistics. 2(3):21-245. <a href="http://dx.doi.org/10.11648/j.ijll.20140203.23">http://dx.doi.org/10.11648/j.ijll.20140203.23</a>
- Behlol, G. (2009). Development and Validation of Module in English at Elementary Level in Pakistan. (Unpublished Ph. D thesis). Islamabad: International Islamic University. 26(2). http://dx.doi.org/10.30971/pje.v26i2.168
- Bo, L., Ding, X. and Wang, S. (2022). A Comparative Analysis of Traditional Teaching and PBL Model. Advances in Social Science, Education and Humanities Research. 664; 1686-1690 https://doi.org/10.2991/assehr.k.220504.306
- Bowen, G. (2009). Document Analysis As A Qualitative Research Method. Qualitative Research Journal. 9(2): 27-40. <a href="http://dx.doi.org/10.3316/QRJ0902027">http://dx.doi.org/10.3316/QRJ0902027</a>
- Cangelosi, (2003). Quoted by National Science Foundation. Applications and Applied Mathematics (AAM): An International Journal. 1(1): 62–82
- Churchill. D. (2003). Effective design principles for activity-based learning: the crucial role of 'learning objects' in Science and engineering education.

  <a href="http://static1.1.sqspcdn.com/static/f/1751776/20693290/1350729206887/Effective-Design-Principles.pdf">http://static1.1.sqspcdn.com/static/f/1751776/20693290/1350729206887/Effective-Design-Principles.pdf</a>
- Darbishire PL, Plake KS, Nash CL, Shepler BM. (2009). Active-learning laboratory session to teach the four M's of diabetes care. Am J Pharm Educ.;73(2):22 <a href="http://dx.doi.org/10.5688/aj730222">http://dx.doi.org/10.5688/aj730222</a>
- Davydov, V.V. (1990). Types of generalisation in instruction. (Soviet studies in mathematics education: volume 2 edited by J. Kilpatrick; translated by J. Teller). Reston, VA: National council of teachers of mathematics.

  https://www.marxists.org/archive/davydov/generalization/generalization.pdf
- Dean, C. D. (1999). Problem-Based Learning in Teacher Education. Paper presented at the Annual Meeting of American Educational Research Association, April 19–23, Montreal, Quebec (ERIC Document Reproduction Service No. ED 431 771).

- Demirci, A., Kesler, T. and Kaya, H. (2010). Activity-based Learning in Secondary School Geography
  Lessons in Turkey: A Study from Geography Teachers' Perspective. World Applied Sciences
  Journal. 11(1), 53-63
  <a href="https://www.academia.edu/2515191/Activity">https://www.academia.edu/2515191/Activity</a> based learning in secondary school geograp

  <a href="https://www.academia.edu/2515191/Activity">https://www.academia.edu/2515191/Activity</a> based learning in secondary school
- Edward, N. S. (2001). Evaluation of a constructivist approach to student induction in relation to students' learning style. European Journal of Engineering Education. 26(4) 429-440. https://doi.org/10.1080/03043790127518
- Fallows, S., & Ahmet, K. (Eds.) (1999). Inspiring students: Case studies in motivating the learner.

  London: Kogan Page/Staff and Education Development Association.

  <a href="https://www.semanticscholar.org/paper/Inspiring-students-%3A-case-studies-in-motivating-the-Fallows-Ahmet/f2c40cfff404ddc37e3ab367a05a14c3273dbe36">https://www.semanticscholar.org/paper/Inspiring-students-%3A-case-studies-in-motivating-the-Fallows-Ahmet/f2c40cfff404ddc37e3ab367a05a14c3273dbe36</a>
- Fooladvand, M. and Yarmohammadian, M. H. (2011). A comparative study between virtual and traditional approaches in higher education in Iran. Procedia Social and Behavioral Sciences. 28(2011): 646-650. http://dx.doi.org/10.1016/j.sbspro.2011.11.122
- GESP (Geography Education Standards Project), (1994). Geography for life: National geography standards. Washington D.C.: National Geographic Society. https://files.eric.ed.gov/fulltext/ED375073.pdf
- Gleason,, B.L., Peeters, M.J., Resman-Targoff, B. H., Karr, S., McBane, S., Kelley. K., Thomas, T. and Denetclaw, T. H. (2011). An Active-Learning Strategies Primer for Achieving Ability-Based Educational Outcomes. American Journal of Pharmaceutical Education. 75(9): 186 <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3230347/pdf/ajpe759186.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3230347/pdf/ajpe759186.pdf</a>
- Haghighi, A. M., Vakil, R. & Weitba, J. K. (2005). Reverse-traditional/hands-on: An alternative method of teaching statistics. Application and applied mathematics (AAM.). 1(1): 61-81 <a href="https://studylib.net/doc/12061922/reverse-traditional-hands-on--an-alternative-method-of-te...">https://studylib.net/doc/12061922/reverse-traditional-hands-on--an-alternative-method-of-te...</a>
- Hannafin, M.J.L. (1997). The foundations and assumptions of technology-enhanced student-centered learning environments Instructional Science, 25(3): 167-202

  <a href="http://dx.doi.org/10.1023/A:1002997414652">http://dx.doi.org/10.1023/A:1002997414652</a>
- Harel, I., & Papert, S. (1991). Software design as a learning environment. Interactive Learning <a href="https://dailypapert.com/wp-content/uploads/2015/10/Software-Design-as-a-Learning-Environment.pdf">https://dailypapert.com/wp-content/uploads/2015/10/Software-Design-as-a-Learning-Environment.pdf</a>
- Harfield, T., Davies, K., Hede, J., Panko. M. and Kenley, R. (2007). Activity-based teaching for
  United New Zealand construction students. Emirates Journal for Engineering Research,
  12(1), 57-63
  <a href="https://www.academia.edu/18907824/Activity">https://www.academia.edu/18907824/Activity</a> based teaching for United New Zealand construction students
- Hassan, A., Abiddin, N. Z. and Yew, S.K. (2014). The Philosophy of Learning and Listening in Traditional Classroom and Online Learning Approaches. Higher Education Studies; 4(2); 19-28 <a href="https://files.eric.ed.gov/fulltext/EJ1076417.pdf">https://files.eric.ed.gov/fulltext/EJ1076417.pdf</a>

- Helle, L., P. Tynjala and E. Olkinuora, 2006. Project-based learning in post-secondary education-theory, practice and rubber sling shots Higher Education, 51(2): 287-314. http://dx.doi.org/10.1007/s10734-004-6386-5
- Hmelo-Silver, C.E. (2004). Problem-based learning: What and how do students learn? Edu. Psychol. Rev., 16(3): 235-266. <a href="https://doi.org/10.1023/B:EDPR.0000034022.16470.f3">https://doi.org/10.1023/B:EDPR.0000034022.16470.f3</a>
- Huang, B., Yang, X.Y. Li. (2021). Research on the Application of improved Classroom Teaching Behavior Cloud Model: A Case Study of traditional classroom and flipped Classroom [J]. Curriculum Teaching research, 2021(01): 70- 77 <a href="https://doi.org/10.3761/j.issn.1672-9234.2022.05.001">https://doi.org/10.3761/j.issn.1672-9234.2022.05.001</a>
- Hug, B., Krajcik, J.S. & Marx, R.W. (2005). Using Innovative Learning Technologies to Promote Learning and Engagement in an Urban Science Classroom. Urban Education, 40(4), 446-472. <a href="https://doi.org/10.1177/0042085905276409">https://doi.org/10.1177/0042085905276409</a>
- Hussain, S., Anwar, S., & Majoka, M. I. (2011). Effect of peer group activity-based learning on students' academic achievement in physics at secondary level. International Journal of Academic Research, 3(1), 940-944.

  <a href="https://www.researchgate.net/publication/234077357">https://www.researchgate.net/publication/234077357</a> EFFECT\_OF\_PEER\_GROUP\_ACTIV ITY
  BASED LEARNING ONSTUDENTS' ACADEMIC ACHIEVEMENT IN PHYSICSAT SEC ONDARY LEVEL
- Johnson, D. W., Johnson R., & Smith K., (1998). Active Learning: Co-operation in the college classroom. Edina, MB: Interaction Book Co. <a href="http://dx.doi.org/10.5926/arepj1962.47.0\_29">http://dx.doi.org/10.5926/arepj1962.47.0\_29</a>
- Kafai, Y.B., & Resnick, M. (Eds.). (1996). Constructionism in practice: designing thinking, and learning in a digital world. Mahwah, NJ: Lawrence Erlbaum. https://doi.org/10.4324/9780203053492
- Karabag , S., (ed.), (2005). Cografya dersi Ogretim program . Talim ve Terbiye Kurulu Baþkanligi , Gazi kitabevi, Ankara.
- Kaya, H., (2007). TUrkiye'de ve Ingiltere'de ortaogretim cografya egitim ve ogretiminin mufredat, metot ve arac-gerecler acisindan degerlendirilmesi, Unpublished doctoral dissertation, Marmara University, Institute of Educational Science, <a href="http://hdl.handle.net/11424/190583">http://hdl.handle.net/11424/190583</a>
- Kuyate, P. (2019). A Study of effectiveness of activity-based teaching method in the English subject of Standard IV. Educational Resurgence Journal. 1(1): 46-52

  https://coed.dypvp.edu.in/educational-resurgence-journal/documents/july-2019/Artticle8.pdf
- Lade, S. and Patil, H. (2021). Traditional Learning Vs E-learning. Journal of Emerging Technologies and Innovative Research (JETIR). 8(6):d236-d244
  <a href="https://www.jetir.org/papers/JETIR2106436.pdf">https://www.jetir.org/papers/JETIR2106436.pdf</a>
- Lijanporn, S., & Khlaisang, J. (2015). The Development of an Activity-based Learning Model Using Educational Mobile Application to Enhance Discipline of Elementary School Students.

  Procedia Social and Behavioral Sciences, 174, 1707–1712.

  <a href="https://doi.org/10.1016/j.sbspro.2015.01.825">https://doi.org/10.1016/j.sbspro.2015.01.825</a>

- Martin, K. J., Chrispeels, J. H., & D'Emidio-Caston, M. (1998). Exploring the use of problem-based learning for developing collaborative leadership skills. Journal of School Leadership 8, 470-500. <a href="https://doi.org/10.1177/105268469800800504">https://doi.org/10.1177/105268469800800504</a>
- McGrath, J.R., & MacEwan, G. (2011). Linking pedagogical practices of activity-based a. teaching. The International Journal of Interdisciplinary Social Sciences, 6(3), 261-274 http://dx.doi.org/10.18848/1833-1882/CGP/v06i03/51803
- McKeachie, W.J., Pintrich, P.R., Lin. Y.G., Smith. D.A. (1987). Teaching and Learning in the College Classroom: A Review of the Literature. National Center for Research to Improve Secondary Teaching and Learning. Ann Arbor, MI: University of Michigan Press; <a href="https://eric.ed.gov/?id=ED314999">https://eric.ed.gov/?id=ED314999</a>
- Meyers, C. and Jones, T. B. (1993). Promoting active learning: Strategies for the college classroom pp 192. Jossey-Bass, San Francisco. ISBN 1-55542-524-0 <a href="https://eric.ed.gov/?id=ED358757">https://eric.ed.gov/?id=ED358757</a>
- Nan, G.L. (1992). Cooperative learning communities: Context for a new vision of education and society J. Edu., 174(2): 57-79. <a href="https://eric.ed.gov/?id=EJ468096">https://eric.ed.gov/?id=EJ468096</a>
- Noreen, R. and Rana A. M. K. (2019). Activity-Based Teaching versus Traditional Method of Teaching in Mathematics at Elementary Level. Bulletin of Education and Research. 41(2): 145-159 https://files.eric.ed.gov/fulltext/EJ1229426.pdf
- Palmer, D. (2005). A Motivational View of Constructivist in formed Teaching. International Journal of Science Education, 27(15), 1853-1881. https://doi.org/10.1080/09500690500339654
- Pawson, E., E. Fournier, M. Haigh, O. Muniz, J. Trafford and S. Vajoczki, (2006). Problem-based learning in geography: Towards a critical assessment of its purposes, benefits and risks. J. Geography in Higher Education, 30(1): 103-116
  <a href="http://dx.doi.org/10.1080/03098260500499709">http://dx.doi.org/10.1080/03098260500499709</a>
- Prince M. Does active learning work? (2004). A review of the research. J Engineering Educ. 93(3):223-231 <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3230347/pdf/ajpe759186.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3230347/pdf/ajpe759186.pdf</a>
- Qamar, A. M., Nadeem, H. A., Naseer, D. N., & Perveen, R. (2022). Effectiveness of Activity-Based Learning on Students' Academic Achievement in General Science at Elementary Level. VFAST Transactions on Education and Social Sciences, 10(4), 31–37. <a href="https://doi.org/10.21015/vtess.v10i4.1269">https://doi.org/10.21015/vtess.v10i4.1269</a>
- Ranganath, N. S. (2012). Activity Based Learning: An Effective Model for Business Schools. The Journal of Commerce, 4(1), 17–23.

  <a href="https://www.academia.edu/1834789/ACTIVITY\_BASED\_LEARNING\_AN\_EFFECTIVE\_MODEL\_FOR\_BUSINESS\_SCHOOLS">https://www.academia.edu/1834789/ACTIVITY\_BASED\_LEARNING\_AN\_EFFECTIVE\_MODEL\_FOR\_BUSINESS\_SCHOOLS</a>
- Rao, D. (2001). Science education in developing countries. New Delhi; Discovery Publishing House (124-126)
- Rathee, R. and Rajain, P. (2016). Effectiveness Of Activity Based Learning In Management Education. International Journal of Advance Technology in Engineering and Science. 4(3): 47-56

- https://www.researchgate.net/publication/351145808\_Effectiveness\_of\_Activity\_Based\_Lear ning\_in\_Management\_Education
- Saini, K. and Wahid, A. (2019). Comparative Analysis of Traditional and WBIs Learning Using T-Test. Akgec International Journal Of Technology. 6(2): 62-66 <a href="https://www.akgec.ac.in/wp-content/uploads/2019/06/AKG">https://www.akgec.ac.in/wp-content/uploads/2019/06/AKG</a> Int Journal Tech Vol 6 no 2 11.pdf
- Samaddar, R. and Sikdar, D. P. (2023) Development in Teaching Style on Classroom Management.

  Asian Research Journal of Arts & Social Sciences. 20(1): 47-58.

  <a href="http://dx.doi.org/10.9734/arjass/2023/v20i1441">http://dx.doi.org/10.9734/arjass/2023/v20i1441</a>
- Schmidt, H. G., & Van Der Molen, H. T. (2001). Self-reported competency ratings of graduates of a problem-based medical curriculum. Academic Medicine, 76(5), 466-468. http://dx.doi.org/10.1097/00001888-200105000-00018
- Schmidt, H. G., Vermeulen, L., & Van Der Molen, H. T. (2006). Longterm effects of problem-based learning: A comparison of competencies acquired by graduates of a problem-based and a conventional medical school. Medical Education, 40(6), 562-567. <a href="https://europepmc.org/article/med/16700772">https://europepmc.org/article/med/16700772</a>
- Shelagh, A.G. (1997). Problem-based learning: Where did it come from, what does it do and where is it going? Journal of the Education of the Gifted, 20(4): 332 http://dx.doi.org/10.1177/016235329702000402
- Singh, M. (2004). Modern teaching of Mathematics. New Delhi: Anmol publications PVT. LTD.
- Stoblein, M. (2009). Activity-based Learning Experiences in Quantitative Research Methodology for (Time-Constrained) Young Scholars -Course Design and Effectiveness. POMS 20th Annual Conference, Orlando, Florida, U.S.A.
- Weber E. (2006). Brain based business. Retrieved from <a href="http://brainbasedbusiness.com">http://brainbasedbusiness.com</a> On November 18, 2023.
- Weng. L.P., Wang. Q.X. and Zhang. Y. (2017). Analysis of the connotation of innovative education and the disadvantages of the existing classroom teaching mode. A Comparative Study of Cultural Innovation (25), 111-112
- Yagi, S., Kouros, A. and Mohammadian, A. (2009). An Activity-Based Microsimulation Model of Travel Demand in the Jakarta Metropolitan Area. Journal of Choice Modelling, 3(1), 32-57 http://dx.doi.org/10.1016/S1755-5345(13)70028-9
- Yuosuf, M., Munir, N. and Wattoo, R. M. (2018). A Comparative Study on the Effect of Activity Based and Traditional Methods of Teaching Science at Elementary Level. Case Studies Journal. 7(10): 83-89 <a href="https://zenodo.org/records/3545079">https://zenodo.org/records/3545079</a>
- Zhao, Y.L. (2001). Comparison of the Education. Modes between China and the West. Jiangsu Market Economy (02), 84-87 doi: 10.16335/j.cnki.issn1672-2604. 2001. 02. 027.