

Role of Cartoons as Pedagogical Tools in Teaching - Learning Process

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Abstract

What do you feel when you find any colorful picture, image, cartoon or simple sketch within your boring textbooks or during a boring lecture? We all have enjoyed reading comics in our childhood days. When we remember the characters' names, then their actions and statements come into the mind in the visual form spontaneously, which help us to recall the scene and content. Cartoons attract the attention and interest of children as well as adults very easily. So, these cartoons can be utilized as an effective tool to impart education from pre-primary level to higher levels of education as many researches have proved. The present study aims to reveal those educational fields where cartoons have been utilized as pedagogical tool and their different effects on the teachers as well as on students.

Key Words: Cartoons, Pedagogy, Tool.

1. Introduction

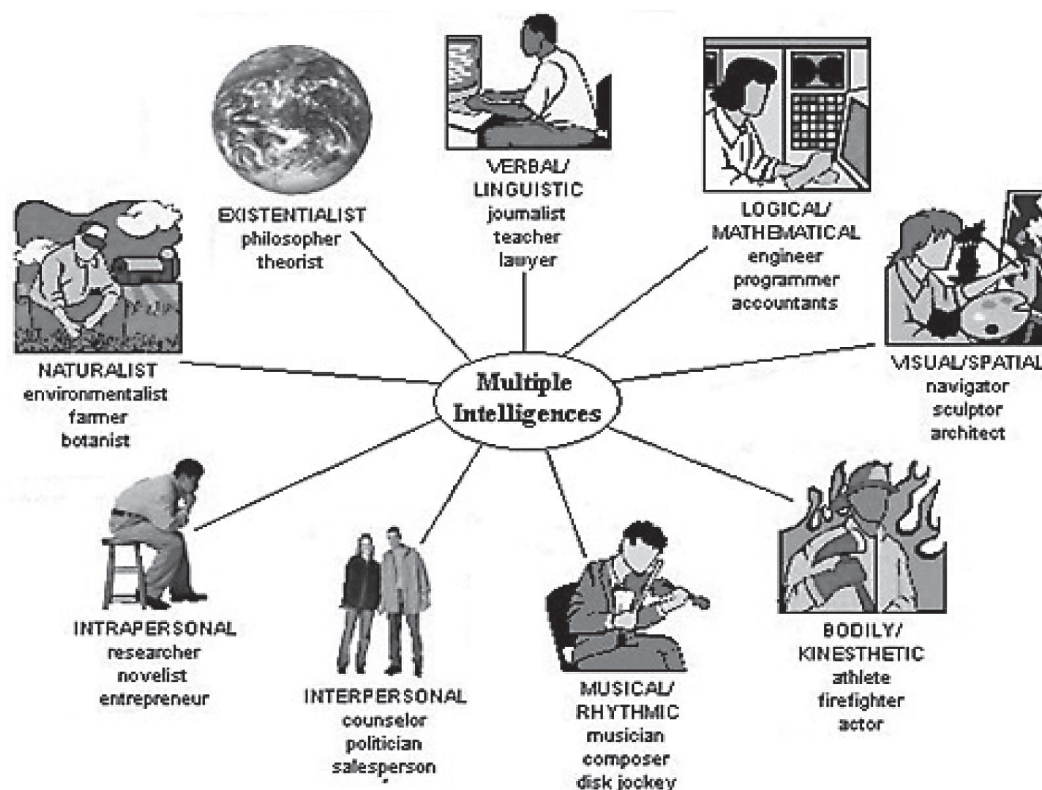
1.1 Pedagogy

Pedagogy is a study of teaching methods, aims of education and the ways in which goals of teaching-learning process may be obtained. This is based on psychological theories of learner and learning and to some extent it is also based on the philosophy of education, which considers the aims and values of education from a philosophical perspective. The learners are the primary concern for the teachers. For making teaching-learning process effective, they use some tools in teaching such as books, visuals, and any other suitable materials. So, for the same purpose various pedagogical approaches are used by the teachers also. Thus, Pedagogy refers to the methods and practice of teaching, for an academic or theoretical concept which imparts knowledge and skills to the learners. The word "Pedagogy" springs from the Greek words "Paidos" and "Agogos," where, "Paidos" means "child" and "Agogos" means "Leader," hence it is simply "To lead a child." Pedagogy is an art of teaching in which various methods and strategies are used by the teacher (Pedagogue) according to the requirement of subjects, students' level, and situation for creating learning environment fruitful and effective, in order to achieve learning outcomes.

In this context Howard Gardner's theory of visual special intelligence is also related to pedagogical strategies, which emphasizes that the visualization is a key element in the mental processing by which we primarily think in images or pictures. Our brain uses nine types of multiple intelligence for different tasks according to Howard Gardner (Frames of Mind, 1983) which can be understood by the image given here:

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Source: <https://rldworld.com/2018/03/09/multiple-intelligence-theory/>

According to Multiple Theory of Intelligence, students learn effectively when teachers deliberately incorporate various kinds of intelligence based pedagogical strategies. Accordingly, use of Cartoons have been proven very effective in teaching-- learning process because these are visual representations of the concepts through which students enjoy a learning environment, which stimulates them to think critically and creatively, when they can relate classroom instructions to tasks and experiences, they encounter in their realities, and they can learn better and achieve new skills.

Teaching is a profession in which a lot of effort is needed for transferring knowledge and information from one's brain to someone else's brain. The success of acquiring outcomes from the teaching is dependent on how the piece of information or knowledge is being communicated to the students. So, for realizing this success, teaching profession requires a lot of new innovative ideas, approaches, methods, strategies, techniques and technologies to make the task easier. We all know that teaching is also a dynamic process which keeps updating over time. In this regard, today's scenario provides a broad and open access to be updated through media and technology to the students as well as teachers. In such a situation, our education should be adopted through such mediums, which will not become a mere informer, but inspire critical and creative thinking. In this regard 'cartoon' is one of the visual media, with lot of humor, which can be either in the form of single picture or series of pictures, captioned or non-captioned and which have been found very effective by many researchers. Cartoons can also contribute pedagogically for removing the monotony of the class. It is well said that 'a picture is worth a thousand words' as it can convey many complex ideas in a very easy way without providing its description.

Students always like the classes of those teachers who can convert the boring classes into an enjoyable class. It is often heard that students form a negative attitude towards monotonous and only information giving nature of the subjects which follow only chalk and talk type of teaching strategy. In fact, very often the success or failure of the complex subjects, depend on the classroom environment and the pedagogical materials presented to the students.

In this context, various visual cartoons, images, and pictures have great potential to be utilized as sources of unquestionable input to gain crucial output from the class. Concept cartoons have been used as teaching tool, teaching approach, instructional strategy and teaching method by the researchers in various subjects like Biology, Chemistry, Physics, Mathematics, Languages, Science and Technology and Social Studies, for investigating the effect on the achievement in the mentioned subjects. In addition to this, many researches, related to attitude and perception towards using cartoons as teaching tool of teachers as well as students also, have been conducted to gather information related to their positive or negative opinions about the cartoons based pedagogy. Cartoons are liked by children and adults because they are easy on the eye and easy on the brain. It is generally accepted that the majority people absorb approximately 75-80% of data visually. It appears logical that the visual nature of cartoons would therefore make information processing easier

According to Perceptual Psychologist, Rudolf Arnheim (1969), the habit of using one's eyes to learn is acquired early. Arnheim has elaborated the method of vision as subtle and thoughtful. Gradually we learn to recognize, categorize, and sort out all manner of objects, people, activities, and phenomena such as weather, colors, or moods. Similarly, Developmental Psychologist like Jean Piaget also made it clear that we tend to learn all of this from interactions with our concrete and physical atmosphere, which gradually comes to include not just physical components, but conjointly representations of those in pictures and signs. Most images, first shown to us as simple pictures, are often used to help us learn the concepts.

For making learning atmosphere a little bit lighter, cartoons can be used as an effective resource. However, cartoons must not be used merely to fill in time. As a matter of fact, using cartoons would certainly break the monotony (Rae, 2000) of reading text after text in the schoolbooks. For example, very often a picture speaks louder than the words and has more impact than just reading the text. It is conjointly believed that the usage of cartoons will cut back ennui and reduce learners' boredom, anxiety, and disruptive behavior. The pedagogic importance of cartoons in various aspects of teaching and learning process has been brought out by some studies. In an experimental study conducted by Oruc & Teymuroglu (2011), the point was emphasized that cartoons are effective in improving the attitude of students towards social science and prevents the class from being monotonous also. In another study, it was found that cartoons have the potential to promote thinking processes and discussion skills (Clark, 2000). In the same line Alaba (2007) found that the use of educational cartoons and comics have significantly enhanced the creativity of the pupils when compared to those that did not use the creative teaching strategies. Thus, pedagogical aspect of cartoon as teaching tool cannot be denied.

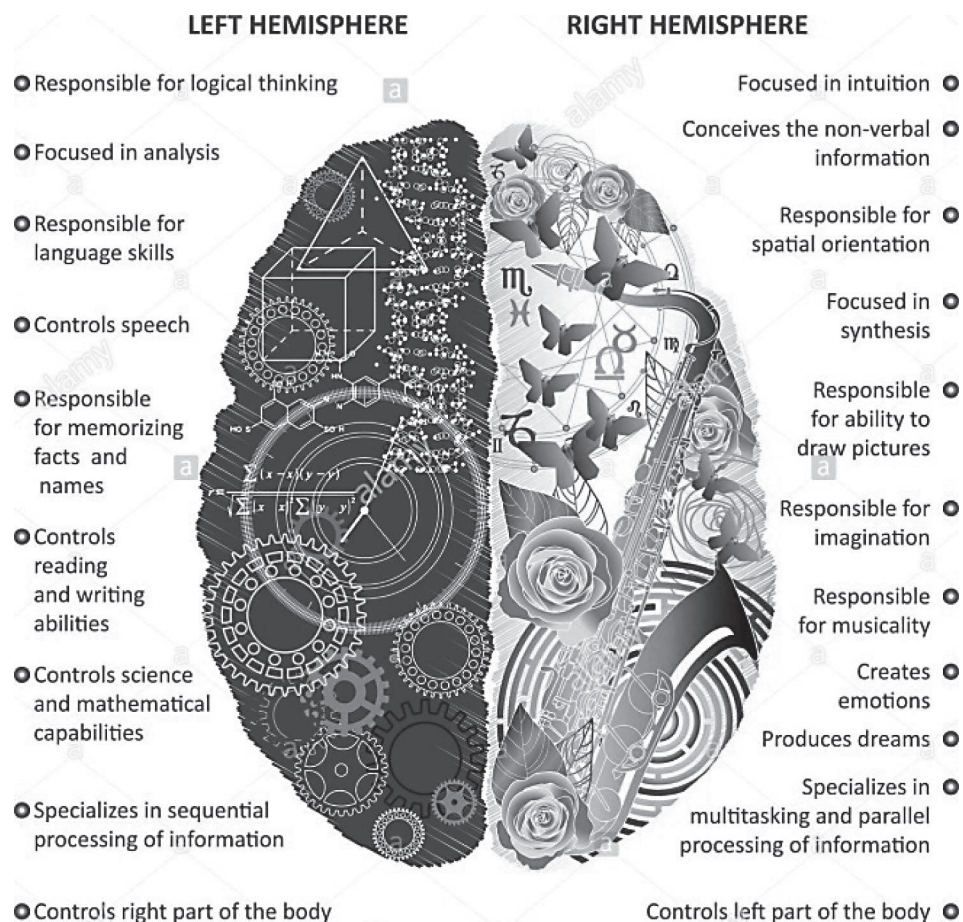
1.2 Cartoons

Cartoon is a simple drawing with the nature of humor, satire, and exaggeration. According to Tall (1991), cartoon is a drawing which is funny and thought-provoking, that is equipped to handle any event about people,

society, political irony, and present it with exaggeration. Cartoons are proven to stimulate critical thinking and provoke discussions. These cartoons have remarkable capabilities to present serious social, political, economic issues in very light but exaggerated mood. Along with this, science and maths misconceptions can also be diagnosed with the cartoons.

2. Mental Processing of Cartoons as Visual Aid

According to Kroehnert (1999), “when the cartoons are utilized, then the learners are compelled to use their lateral thinking which is the ability to think in a creative way or “outside the box.” Lateral thinking involves breaking old modes of thinking and discarding established patterns and create mental notions (Bono, 1967). Lateral thinking is also associated with humor, arguing that there is a switch-over from a familiar pattern to a new, unexpected one. It is this moment of surprise, generating laughter and new insight, which facilitates the ability to see a different thought pattern. Visual information which is being presented in the form of cartoons is usually processed by the right side of the brain which is considered to be the holistic, creative, artistic side, while the verbal engages the left facet of the listeners’ brains. The left brain is analytical, recognizes and interprets words, performs calculations and so on (Roger.W.Sperry). However, recent research says that functioning of the brain depends on the nature of task



Source: <https://www.alamy.com/stock-photo-brain-left-analytical-and-right-creative-hemispheres-infographics-124967758.html>

A lecture may be informative, but after a while, the learners will feel the humdrum of the same manner of instruction in the classroom. However, by using cartoons, we invoke the visual, as well as the auditory senses, providing an effective environment for making learning easier.

By showing the suitable cartoon(s), the teacher would be able to place vital teaching points in an exceedingly short or compact kind while not having to mention or repeat several words.

Richard (2003) pointed out in his study that information is represented in the thinking process in Verbal and Imagery dimension style. For instance, it is possible to set down thoughts on paper in two possible ways - in words or in sketches after reading any novel, concept, story, or idea - so they may also be represented during thinking in those two modes. People can think in words, or they can think in terms of mental pictures or images. On this dimension, people may be categorized as Verbalizers or Imagers. Verbalizers think about the knowledge they scan, see, or hear, in words or verbal associations. When Imagers consider information, they experience fluent, spontaneous, and frequent mental pictures either of representations of the information itself or of associations with it.

It is incontestable that cartoons have variety of uses. Cartoons can be used individually, in pairs, small groups and even in large lecture classes. Many researches have been conducted in the field of education from elementary to higher level education because Cartoons are a wonderfully versatile medium in enhancing teaching and learning. Visually, the impact of cartoons is immediate, irrespective of age or background, and are able to convey in some ways to the educational point being made. With the mixture of words and caricatures or pictures, it can attract attention and interest. Other desideratum benefits are the promotion of understanding, motivation towards learning, improved attitudes, productivity and creativity. Cartoons can also improve the relationship between teacher and students as cartoons produce a light and playful mood. However, those who associate learning only with more formal classroom activities may see cartoons as a waste of time and do not take their valuable contributions seriously. In fact, every learner responds instantly to cartoons as per his/her personal interpretation. In interacting with the cartoons' stimuli, they are refining their own learning and understanding while at the same time, being encouraged to develop critical higher order cognitive skills.

Concept cartoons, as prompted by Keogh and Naylor (1996) believed that this approach encompasses a direct and immediate impact within the room. They seemed to promote a purposeful approach to practical work. It has been found that concept cartoons result in variety of learning developments like a shift from negatively-worded statement to positively-worded statements, a shift from statements to questions and a shift from single alternatives to multiple alternatives. Concept cartoons are supposed to be a place to begin to stimulate discussion and for eliciting ideas from the learners, and thus students will be able to contemplate on their thoughts, feelings and opinions

Cartoons are commonly used in science teaching. However, sociologically, cartoons are also strong means for providing social and political comment. (Ziegler, 1998) As a result of this, typically they reveal the distinction between perception and reality (Witkin, 1999).

By nature, cartoons typically exaggerate a specific side or state of affairs that may facilitate specialization in an appropriate teaching/learning purpose. They are seen as a neutral resource, and students are able to respond, joke about possible interpretations, and react to the exaggerations without being offended. Cartoons are often used with students to objectively analyze everyday social behaviour and a stimulant to

reflection on attitudes. Without a doubt, the employment of cartoons would certainly promote a high level of involvement among learners who are normally reluctant to get involved in discussion. In this direction Wyk (2011) also conducted a survey on Bachelor of Education students, through which it was pointed out that Cartoons positively enhance constructive learning, cooperative learning, and collaborative learning amongst peers in Economics classroom. Oskey and Efil (2016) revealed that concept cartoons in Chemistry affected secondary level students' academic achievement in positive ways and also provided them with the opportunity for the reasoning. The reason behind the positive effect of cartoons on the academic achievement may be that learning can be enhanced with the use of cartoons over other visual media as it is usual in this media for visual distractions around the focal point of the image to be reduced, allowing people to concentrate on the issue at hand (Fleischer, 2010). Similarly, OzayKose (2013) studied the effect of cartoons on the achievement in Biology subject by mixed method research design. In the study it was found that achievement of experimental group was higher than the control group. Cartoons are meant to humor also which brings many desirable effects in the classroom. It increases students' attention and motivates them to participate in lessons (Ulloth, 2002). In the same way, Rule and Auge (2005) conducted a study with sixth graders for teaching concepts of Minerals and Rocks, in which they found that students in the experimental condition exhibited higher motivation and significantly gain higher scores than students in the control condition. Furthermore, Ertugrul (2010) found that students in the treatment group got significantly higher scores than the students in the control group when concept cartoons were used for teaching the concept of heat transfer. In addition, it was also observed that instructional comics increased the participation of reluctant students in the classroom.

The study also revealed that students' higher performance was attributed to their intense engagement with the content through the scaffolded cartoon activities. In addition to this, Eker and Karadeniz (2014) researched for the effect of cartoons on the retention scores of students in social studies. These researches showed that cartoon was more effective than the teaching based on traditional methods, in relation to their retention score. This result has been consistent with the research results of Mauro ve Kubovy, 1992; Kılınç, 2006; Durualp, 2006; Ozalp, 2006; Toh, 2007; Kose, 2008; Üner, 2009; Şengul, 2011. This emphasizes that drawing the cartoon/s in the lesson increases academic achievement. According to the results that had been attained by Oren and Meric's (2014) study, the students stated that it is necessary to continue using that technique in science and technology course. In addition to this, students also stated that courses taught with concept cartoons were enjoyable and there had been deep and long- lasting learning. Inel and Balm (2013) concluded from their research that including concept cartoons in the module helped to make lesson entertaining, encouraged active participation in learning process and made the learning process meaningful and permanent for the students. For investigating the views and opinions of teachers regarding the utility of cartoons in teaching –learning process, they have been executed also, using concept cartoons in instruction to rescue students from boring traditional lecturing, helping teachers improve their instruction and align it with the constructivist learning theory, making the lecture more interesting and entertaining and students becoming more actively involved in the lecture. Moreover, concept cartoons create discussion environment where students can improve their critical thinking skills and influence in positive way students' attitudes towards the lesson in particular and school in general and may have an important role in improving students' academic achievement. (Birisci, Metin and Karakas, 2010).

Similarly, Khalid, Meerah and Halim (2010) also stated that teachers had positive view towards using cartoons in teaching and learning process of Physics as it created positive learning environment for the

students and were able to stimulate students' imagination and creativity. It is unquestionable that for deciding the appropriate pedagogical strategy it is also crucial to know the students' preferences for the instructional approach for the subjects, so that desirable outcomes of the learning can be obtained by the students also. For this purpose, Sexton (2009) conducted a research for investigating the preferred approach of the students to mathematics' teaching-learning process by using concept cartoons based on behaviouristic and Constructive approach. Thus, the concept cartoons provided a way of accessing information about student learning preferences too. These cartoons, used primarily in science education, have proven to be a purposeful assessment tool and a useful way of accessing student preferences. Another study done by Kaplan (2015) in mathematics' education for investigating the effect of concept cartoons on academic achievement in instruction on the topics of Divisibility, revealed that students, who were taught by concept cartoons, showed significant difference in their academic achievement than the students taught by activity based instruction. So, cartoons can be used as a potential pedagogical tool in mathematics also. In the same way, Sengul and Dereli (2013) also indicated that use of cartoons promoted the social learning environment which was very jubilant for the students and made their attitude positive for the mathematics subject. Other than this, in the medical education field also Junhasavasdikul, Sukhato, Srisangkaew, Ampornpunt, Anothaisintawee and Dellow (2017), revealed that post test learning score of cartoon –style handout was higher than the traditional handout and cartoon style handout was also successful in attracting the attention of the preclinical medical students.

Zousel, Rule and Logan (2013) studied primary grade students in which they compared the concept learning with enjoyment about perfectionism by bibliotherapy and cartoons. This study demonstrated that students were more engaged while being taught by the cartoons which gave them opportunity to appreciate humor and encouraged to be creative.

The Researcher recommended the use of both bibliotherapy and cartoons combination. Rabbani and Amri (2017) conducted a quasi experiment with pre-test/post-test with Fourth Grade students in order to investigate the effect of cartoon/s on the awareness of water issue in social studies. From the study, it was concluded that using cartoon/s increased the awareness of water issue among the students. In addition to this the Researchers also observed a changed interaction pattern for those students who were considered as less active in class. Along with these results, strong positive attitudes toward using the cartoons in social studies was also revealed. Researchers have demonstrated that cartoons are engaging and supportive educational tool by which students enjoy the lesson till the end of the class. Moreover, cartoons make students more attentive. The aforementioned pedagogical utilities of the cartoons are also supported by the study conducted by Yin and Fitzgerald (2017). This study was a mixed method explanatory design with quantitative methods which were followed by a follow –up interview. They found that critical thinking and performance was correlated with peer learning with concept cartoons. The results also revealed that cartoons were able to improve attitudes, increase productivity, creativity, and divergent thinking in Economics education. Srinivasalu (2016) also experimented with cartoons in teaching and learning process of History. In this study positive effect of cartoons was found in the achievement of the secondary level students. The pedagogical importance of cartoons as an effective instructional material of language has been considered by some studies also. In this direction Sharma (2016) examined the effectiveness of teaching English writing skill by using cartoons through experiment. After analyzing the data gathered by feedback forms and Achievement Test, it was revealed that there was amelioration in writing skills, and it sustained the interest in the English classroom.

3. Precautions for Selecting Cartoons for Teaching and Training

Selection of the method of teaching often comes after the setting of the learning objectives. The method selected should respond to the learners' needs, not the teacher's, or the facilitators'. The same procedure applies to the selection of cartoons. It is through the careful selection and use of appropriate and relevant cartoons that an element of humor can be introduced, where appropriate, without distracting from the intention of the teaching situation. When we have decided on the particular cartoon/s to be used, it is essential to practice using it at least once with a group of learners. This will help find out if the cartoon selected is going to work in the expected way with the expected results. The cartoons selected must be evaluated for their worth and effectiveness. If they do not produce the desired effect, then it might need to be scrapped or modified. There is a need for a careful balance with humour and the content that we would like our students to learn." (Khauan Wai Bing and Chua Hong Tam 2003, Taher Bahrani Rahmatollah Soltani, 2011). In the same line, the following tips can also help the teachers to better utilize cartoons in their classrooms:

- Use cartoons that are interesting to the students
- Carefully select the cartoons, keeping in view the goals of the specific subject
- It is essential to practice using them at least once with groups of learners before finally including in the textbook.
- Overuse of cartoons or possible "unintended consequences", particularly of caption humour, which are sensitive to certain groups of people in culturally diversified society, must be avoided.

Following criteria can be used to review the cartoons:

- Based on visual relief and fun
- Improve teaching and learning
- Provides background information in the text to help the students appreciate the message
- Helps to expand students' imagination
- Be sensitive with respect to various caste, ethnic, religious, gender and regional minorities-- messages the cartoons give about the people and political Institutions.

Conclusion

As teachers, we are constantly looking for new ways of teaching to enable learners to be actively involved in their own learning particularly in developing their real life experiences. In this respect, cartoons can make a valuable contribution, if they help the doors of the conversation in classes to be opened up. This is because cartoons provide visual impact, which is immediate and permanent. As a matter of fact, cartoon as a visual media, having a lot of humor, either in the form of single picture or series of pictures, captioned or non-captioned-- have been found very effective by many researchers. This kind of artistic and creative pedagogical material helps the teachers to develop imaginative powers amongst students by building proper knowledge. Cartoons can be helpful for initiating debate and focused group discussions in a classroom among learners as it stimulates them and engages in critical thinking – and their views and opinions can be assessed. However, like any teaching strategy, one has to be careful not to overuse cartoons otherwise their effect will be diminished, if not lost.

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