Chapter 1

Introduction

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1.1. Background

"Education minus Information Technology seems almost improbable. We at Microsoft strongly believe that the single most important use of Information Technology is to improve education." – Bill Gates

Political Science as a subject encompass diverse concerns of society and it carries a normative responsibility to create and widen the popular base for human values namely freedom, trust, mutual respect, respect for diversity etc. The selection and organization of material into a meaningful political science curriculum, enabling students to develop a critical understanding of society, is therefore a challenging task. The possibilities of including new dimensions and concerns are immense, especially in view of the student's own life experiences.

At the secondary stage, the subject-area of political science draws its content from Democracy, Constitutional Design, Electoral Politics and Democratic Rights. Political science teaching needs to be revitalized towards helping the learner acquire knowledge and skills in an interactive environment. The teaching of political science must adopt methods that promote creativity, aesthetics and critical perspectives and enable children to draw relationships between society and self to understand changes taking place in society. Teaching should utilize greater resources of audio-visual materials, including photographs, charts and maps, and replicas of institutions and material cultures.

Recent developments have created new opportunities for making teaching of school subjects more effective, assisted by technology. Major improvements have taken place in both hardware and software. The

technological advancements have made society take a leap towards much success. Every technological reform is a small step towards advancement. Every new invention in technology is a step towards progress of mankind. Centuries ago, hardly anyone would have even dreamt of working on a computer. Generations of the yester years would have hardly imagined being able to communicate with people on the other side of the globe. But there were some intelligent minds who dared to dream of such revolutionary discoveries and they made it possible.

For quite a time now, educational experts had been proposing a new style of education involving using multimedia, which differs radically from the traditional ways. Changing the education systems in a novel way towards a new paradigm for teaching (Rosenberg, 2001).

The development of multimedia technologies for learning offers new ways in which learning can take place in education areas. In past decades, there has been a growing interest in the creation and use of multimedia technologies throughout the education world. There have been many experiments and innovations in the field of education and training regarding knowledge delivery (Tally, 2002). From face to face to virtual education, different technologies have played significant roles at different times.

In the last decades, due to the advent of multimedia, technologies have got new meaning. Development, access and transfer of text, sound and video data has given a unique face to education center, in the form of multimedia learning. The development of multimedia systems can be very rewarding. So, interest and investment in this technology are increasing and multimedia technologies are the need of the day (Mayer & Gallini, 1990).

Multimedia Technologies as an Educational Tool

Throughout the 1980s and 1990s, the concept of multimedia took on a new meaning, as the capabilities of satellites, computers, audio and video converged to create new media with enormous potential. Combined with

the advances in hardware and software, these technologies were able to provide enhanced learning facility and with attention to the specific needs of individual users (Fensham, 1990; Mayer & Gallini, 1990).

Multimedia is a term frequently heard and discussed among educational technologists today. Now multimedia technologies these days are called "hypermedia", "integrated media" or more commonly "multimedia" have been defined in a number of ways. Actually, the term "multimedia" covers a lot of territory. "Multimedia", in its broadest sense, means graphics, music, sound effects, voice, video and animation, in any combination in the same program or presentation (Blumenfeld et. al., 1991; Fensham, 1990). It can be defined as an integration of multiple media elements (audio, video, graphics, text, animation etc.) into one synergetic and symbiotic whole that results in more benefits for the end user than any one of the media elements can provide individually. Multimedia can be defined generically as any combination of two or more media such as sound, images, text, animation and video.

For educational technology purposes, multimedia refers to computer-based systems that use associative linkages to allow users to navigate and retrieve information stored in a combination of text, sounds, graphics, video, movies, music, lighting and other media as for education (Moreno & Mayer, 2000; Sandholtz, Ringstaff, & Dwyer, 1997). When the term is used with computer technology, multimedia refers to a variety of applications that combine media and that use CD-ROM, video, audio, DVD and other media equipment.

As it seen multimedia is the combined use of media, such as images, video, audio, CD/DVD-ROMs, the internet and interactive applications such as applets and flash for education and entertainment (Finn, 2002). Multimedia hardware requirements include a basic computer system with the standard input devices central processor and output devices CD-ROMs or DVDs, sound boards or cards, speakers, video boards, high- speed central

processors, extensive secondary storage or hard disk (Millar, 2005). Multimedia's basic technologies include text, maps, graphic images, electronic presentations, animation, videoconferencing, digital audio and video, web learning environment, videoconferencing systems.

Multimedia combines five basic types of media into the learning environment – text, video, sound, graphics and animation, thus providing a powerful new tool for education. These are to demonstrate abstract concepts, to accommodate students with a variety of learning styles, to engage students, to enable active learning, by incorporating multimedia into learning activities, students can manipulate, create and interact with material rather than just absorb representations created by others (Kearsley & Shneiderman, 1998; Person, Chambers, & Hall, 2003).

Multimedia technologies have a lot of advantages such as

a. widely available,
b. reusable,
c. multimedia decrease pressure on lecturer,
d. better individual student engagement,
e. globalism (Repman, Weller, & Lan, 1993).

Advantages and Benefits of Using Multimedia Technologies in Political Science Education

i. The pedagogical strength of multimedia is that it uses the natural information processing abilities that we already possess as humans. Our eyes and ears, in conjunction with our brain, form a formidable system for transforming meaningless sense data into information.
ii. The old saying that *a picture is worth a thousand words* often understates the case especially with regard to moving images, as our eyes are highly adapted by evolution to detecting and interpreting movement. For example, a photograph of Constitution of India, apart from being aesthetically pleasing, can contain a wealth of information relating to the citizenship,

fundamental right, DPSPs, about the Central and State government and its working. Similarly, a recording of a politician's speech can allow us to discern significant semantic features not obvious in a written transcript (Sherin & Van, 2002).

iii. For the student, one advantage of multimedia courseware over the text-based variety is that the application looks better. If the courseware includes only a few images at least it gives relief from screens of text and stimulates the eye, even if the images have little pedagogical value (Yadav, 2006).

iv. More often than not, the inclusion of non—textual media into courseware adds pedagogical value to the application. For example, a piece of courseware describing the process of election of the President will include sounds, graphics and bring information in playful way about the former Presidents of the country (Jonassen, 1995).

Benefits to learners

i. Work at own pace and control their learning path,
ii. learn from an infinitely patient tutor,
iii. actively pursue learning and receive feedback.
iv. Provide students with opportunities to represent and express their prior knowledge.
v. Allow students to function as designers,
vi. using tools for analyzing the world,
vii. accessing and interpreting information,
viii. organizing their personal knowledge and representing what they know to others (Smith, 1993).

Multimedia applications engage students and provide valuable learning opportunities. Empower students to produce and design rather than absorbing representations created by others. Produce personally meaningful learning opportunities (https://www.tech4learning.com/).

Benefits to teachers

i. allows for creative work,
ii. saves time for more challenging topics,
iii. replaces ineffective learning activities,
iv. increases student contact time for discussion (Moursund, 1999).

Educational benefits of multimedia tools— Giving students an opportunity to produce documents of their own provides several educational advantages.

i. Students that experience the technical steps needed to produce effective multimedia documents become better consumers of multimedia documents produced by others.
ii. Students indicate that they learn the material included in their presentation at a much greater depth than in traditional writing projects.
iii. There is another aspect to developing multimedia documents that empowers students. Students quickly recognize that their electronic documents can be easily shared. Because of this, students place a greater value on producing a product that is of high standard (Ambrose, 1991; Kinnear, McWilliams, & Caul, 2002).

Applications of Multimedia for Effective Political Science Education

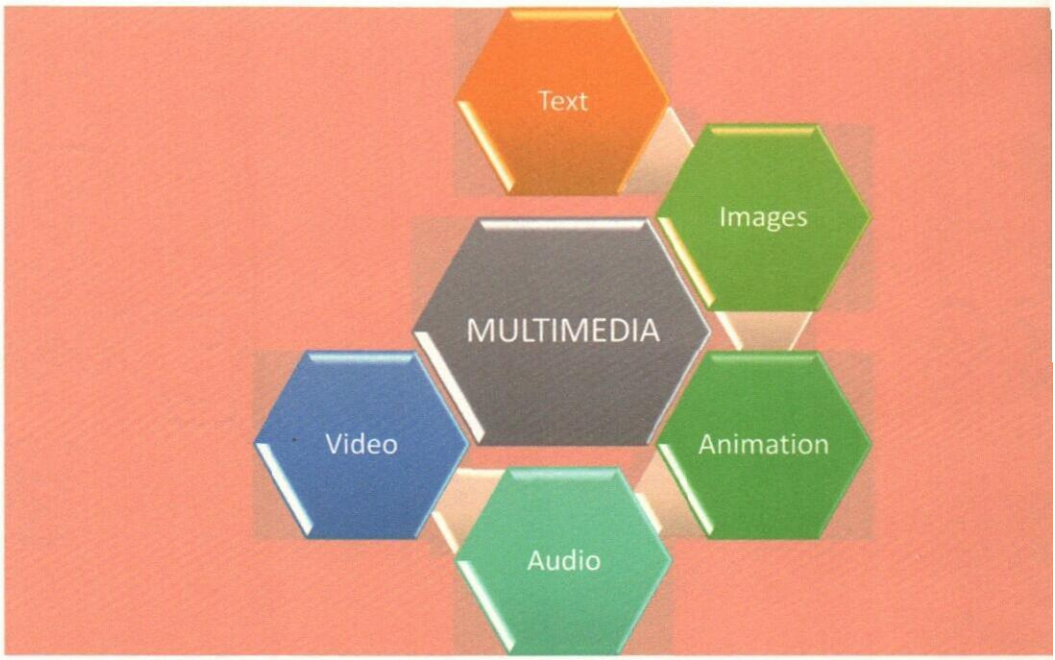
Human knowledge, the study of the world and everything in it has developed over thousands of years. However recently, over only the last two centuries or so, accompanying the rise of industrialization and imperialism in the world, new methods, claims, assumptions, theories and practices of knowledge production have emerged through the rise of specialized fields, usually referred to as disciplines. These disciplines can be further grouped together under broad umbrella categories— Mathematics and Sciences, Engineering, Business and Social Sciences etc.

The Social Sciences can be said to be the study of human systems. There are various disciplines within this broad classification, all of which have developed their unique approaches over time, though with significant overlap. History, Geography, Anthropology, Political Science, Psychology,

Sociology are main social sciences disciplines. These sub-branches can be taught effectively through various multimedia components or different forms of media.

Figure 1.1.

Components of Multimedia



As mentioned earlier, multimedia learning integrates five types of media (See figure) to provide flexibility in expressing the creativity of a student and in exchanging ideas. Out of all of the elements, text has the most impact on the quality of the multimedia interaction. Generally, text provides the important information. Text acts as the keystone tying all of the other media elements together. It is well written text that makes a multimedia communication wonderful.

Sound is used to provide emphasis or highlight a transition from one page to another. Sound synchronized to screen display, enables teachers to present lots of information at once. Sound used creatively, becomes a stimulus to the imagination; used inappropriately it becomes a hindrance or

an annoyance. For instance, a script, some still images and a sound track, allow students to utilize their own power of imagination without being biased and influenced by the inappropriate use of video footage. A great advantage is that the sound file can be stopped and started very easily.

Videos motivate students by showing real-life situations, in ways that are often superior to a teacher narrating them or a text describing them. Video can be used to give examples of phenomena or issues referred to in the text. Videos can be used when introducing a new theme to motivate and contextualize learning, after a topic has been addressed in a few class periods to aid students in applying the knowledge they acquired, or after an entire module is completed to show connections to other subjects and disciplines.

Animation is used to show changes in state over time, or to present information slowly to students so they have time to assimilate it in smaller chunks. Animations, when combined with user input, enable students to view different versions of change over time depending on different variables. Animations are primarily used to demonstrate an idea or illustrate a concept. Video is usually taken from life, whereas animations are based on drawings.

Graphics provide the most creative possibilities for a learning session. They can be photographs, drawings, graphs from a spreadsheet, pictures from CD-ROM, or something pulled from the Internet. With a scanner, hand-drawn work can be included. Standing commented that, "the capacity of recognition memory for pictures is almost limitless". The reason for this is that images make use of a massive range of cortical skills: color, form, line, dimension, texture, visual rhythm, and especially imagination.

A Multimedia Learning environment involves these basic components or elements in order to enable learning to take place, whereas hardware and software are only part of the requirement.

1.2. Statement of the Problem

The title of the present study is as follows – **"A Study of Multimedia Packages Used by CBSE Schools for Teaching of Political Sciences in Class IX"**.

1.3. Operational Definitions of the Terms Used in Study

1.3.1. Multimedia Package

According to Educational Multimedia (A Handbook for Teacher Developers), "Multimedia is characterized by the presence of text, pictures, sound, animation and video; some or all of which are organized into some coherent program" (Phillips, 1997). According to Webopedia – 'The use of computers to present text, graphics, video, animation and sound in an integrated way is called Multimedia.'

Multimedia Package refers to combination of different forms of media, which include texts, graphics, audio, video, still images, moving images, animation, computers and educational software. By multimedia package the investigator means, an organized learning system for auto instructional purpose which includes an interrelated use of different media from modern communication methods, materials and various learning and teaching strategies to create effective learning experiences. The textual matter of the Political Science in the text books of standard IX prescribed by the CBSE is recorded on CDs. The CDs are run on computer only. The content in the CDs is presented by text, sound, pictures and animation. This multimedia package may have several media that may range from visual literacy activities to fairly complex individualized instruction sequences.

1.3.2. CBSE Schools

According to Wikipedia— the Central Board of Secondary Education (abbreviated as CBSE) is a Board of Education for public and private

schools, under the Union Government of India. CBSE Schools refers to those English medium multimedia package using schools which are affiliated to Central Board of Secondary Education schools, New Delhi. By CBSE schools in this study, investigator means those schools of Bokaro Steel City (Jharkhand) which are using multimedia package and are affiliated to CBSE board.

Figure 1.2.

Bokaro Steel City on the Map of Jharkhand

(Source – https://www.mapsofindia.com/maps/jharkhand/jharkhand.htm)

1.3.3. Political Science

According to NCERT Position paper on Teaching of Social Science, the political sciences encompass diverse concerns of society and include a wide range of content drawn from the philosophical foundations that underlie the value framework of the Indian Constitution, i.e., an in-depth discussion of equality, liberty, justice, fraternity, dignity, plurality, and freedom from exploitation. According to Economic and Social Research Council – Political Science is, in its broadest sense, the study of society and the manner in which people behave and influence the world around us.

1.4. Rationale of the Study

Technology does not necessarily drive education, that role belongs to the learning needs of students. With multimedia, the process of learning can become goal—oriented, more particularly, flexible in time and space, unaffected by distances, tailored to individual learning styles and increase collaboration between teachers and students. Multimedia enables learning to become fun and friendly, without fear of inadequacies or failure.

Studies have shown that people retain 25% of what they hear, 45% of what they see and hear, and almost 70% when they actively participate in the process (Myers, 1990). It shows that two different modes of sensory input led to greater retention and recall than either mode itself. Lee & Sullivan (1995) found that the use of multimedia—based classroom instruction, as support materials is an effective medium for reinforcing student attention and understanding. Many other studies found positive correlations between multimedia use such as computer software program, animation, motion picture with sound and students learning (achievement, understanding and interest).

Similarly, Mouza, Parson, & Ferreira (2003) investigated the impact of technology integration on students' learning. The findings reveal an interesting link between technology enhancements in the learning environment and the motivation of learners in early childhood (2—10 years old). These studies show that multimedia is considered as having potential to increase the students' learning. Technology offers several advantages for improving the teaching of political science, for helping students understand complex concepts and for enabling them to develop the problem solving and decision—making skills that can promote their participation as informed citizens of a democratic society.

Furthermore, technology can add a much—needed motivational boost to a subject that rarely ranks at the top of students' list of favorites (Rosenzweig & Thelen, 1998). Although studies indicate that political sciences teachers do not make widespread use of technology in instruction (Ehman & Glenn, 1991), a growing body of research suggests how technology may improve outcomes for students who are not disabled.

Also, where applicable, conclusions about the potential impact and challenges are extrapolated from studies of technology use in literacy and other content areas. Students tend to learn about political science topics in a fairly passive manner, but research indicates that comprehension is enhanced when classroom study is paired with civic experiences (Hahn, 2001; Marri, 2003). This integrated approach is an essential means both for teaching the strengths and problems of democracy and for providing students with an understanding of its processes (Wenger, 1998).

Therefore, it seems that the personal and situational variables of the teachers affect their efficiency to use multimedia for teaching their subject. Educational institutions now often encourage the use of multimedia aid in teaching and educators from fields such as medicine already use videos to enhance teaching on a regular basis, as videos can serve as good visual aids.

On the other hand, faculty members from certain social study fields use multimedia sources less often, possibly because appropriate instructional material for those areas are difficult to find. Similarly, there are studies which show that teachers' performance may also be affected by their personal variables. For instance, Kulkarni (2000) has shown influence of gender on the teaching competency and teaching effectiveness of the teachers. Further, he found that CBSE teachers were found to have higher level of application of the Intel's training Program than the ICSE and SSC teachers. Therefore, in the present teaching learning system the use of multimedia is recommended for making it more effective.

Realizing the importance of this, the Indian government has started Computer Literacy and Studies in Schools (CLASS) project which is now merged with the Educational Technology scheme & named as "Information & Communication Technology (ICT)" in schools' scheme. Under this scheme, many government schools are provided with ICT tools and other facilities to integrate ICT in education. Consequently, these days many non-government schools are also integrating advanced multimedia—based teaching learning activities and therefore teachers have now more access to these resources.

Therefore, it appears that continuous monitoring and evaluation is needed to effectively integrate latest multimedia technology in the classrooms in Indian school. It became inevitable to investigate teacher's efficiency in terms of using multimedia in subject teaching and schools' adaptability to use modern technology. This study reviews the use of multimedia technologies and is to provide a panorama of the application of multimedia technologies in political sciences education.

The aim of this study is to highlight the range of innovative use of multimedia technologies in political science education with reference to their relative pedagogical value. This study is also hoped to awaken critical enthusiasm for an effective and beneficial implementation of the multimedia technology in the political science education.

Above findings indicate that multimedia technology is widely accepted as a valuable and successful component in teaching-learning process. However, none of the studies focused on the conformity of multimedia packages of political science with text book contents and their actual effectiveness. Therefore, this study was conducted to find answers to the following research questions:

I. Whether the multimedia packages provided by the companies follow the content of text book in Political Sciences subject for class IX?

II. What are the expectations of Political Sciences teachers and students from multimedia packages used for class IX?

Therefore, this study is an effort to identify the effectiveness and challenges of using multimedia for classroom teaching in Political Science

1.5. Objectives of the Study

The study had following objectives—

1.5.1. To study the conformity of the content of Multimedia packages with content of text books of Class IX Political Science NCERT text book.

1.5.2. To study the opinion of teachers and students of Political Science of Class IX about the multimedia packages.

1.6. Research Hypotheses

The following research hypotheses were formulated for the study—

1.6.1. Male and Female Political Science teachers of Class IX have different opinion about the multimedia packages of Political Science.

1.6.2. Male and Female students of Class IX have different opinion about multimedia packages of Political Science.

1.7. Chapterization of the Study

The Dissertation was categorized into 5 parts namely – Introduction, Review of the Literature, Design and Methodology, Data Analysis and Interpretation and Results. While the first chapter laid the foundation of why the Research was undertaken. This chapter gives us an overview of what the dissertation is about. We also come to know about the objectives intended

to be achieved in the research process. This chapter is followed by the Review of Literature wherein we come to see the Journals, books, periodicals, magazines online resources that have been quoted to review earlier works on the similar topics. Review of Literature constitutes an important aspect of the entire dissertation process. This chapter is followed by Research Design and Methodology wherein tools used and manner of data collection is elaborated in detail. In this dissertation, I have used "*chi square test*" as a statistical technique. This chapter is followed by the chapter on data analysis and interpretations wherein we discuss the results of our experimental research. In the final chapter, we suggest based on our findings of the Research Problems and also discuss the educational implications of the study. Two noteworthy sections of the Dissertation involve the structure and the Appendices without which the dissertation seems to be a void.

1.8. Delimitations of the Study

The present study had been delimited as follows—

1.8.1. The present study is delimited to schools of Bokaro Steel City (Jharkhand).

1.8.2. The present study includes English medium CBSE Board schools only, which are using multimedia packages.

1.8.3. The present study considered students of Class IX and Political Science only.