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Technology Integration and Innovative techniques in English Language Teaching

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Abstract

Language as a means of communication has always been subject to several influences like social, environmental, regional and many more. In the present-days language as a means of communication influences technology, social media sites and digital platforms. There are a limited number of colleges using the Learning Management System for teaching, assessment and evaluation. They use innovative methods for teaching English like role play, storytelling, online assignment and quiz, audio-video presentation, group discussion etc. A new paradigm for teaching English is needed to increase the creativity and active participation of students. There is a shift from a teacher-centred approach to a student-centred approach. This transition is more effective in the learning process through technology and innovative teaching methods. The teachers have adopted numerous methods of teaching English in India includes old and new. In this precept, it is high time to have a holistic approach to teaching and learning English with the help of both old and new methods. The perfect combination of traditional and modern methods may bring innovations in the process. The paper focuses on the use of technology in English class, innovation in English language teaching, new trends of teaching English and advantages of technology in improving language skills.

Key words: Technology, Innovation, Technique, Integration, Blended Learning, Learning Management System

Introduction

India is the land where people use different languages and dialects for writing and speaking. However, English itself is preferred in everyday use, though slightly differs from the native languages. The English language affects international communication activities. So, most of the Universities imparts education through English medium at UG and PG levels. In this respect, teaching and learning English has become an essential strategy in modern India. Indeed, a teacher has to improve and update knowledge of innovative techniques to meet the needs of the present scenario. With the advent of the globalization, India is

marching towards excellence day by day in every possible way. Numerous innovative methods and strategies may prove beneficial for the betterment of students. The future of the students depends on the efforts made by the teachers.

Today the students are digitally savvy. They are growing up with digital technologies, like a computer, laptop, internet, smartphones etc. The teachers have a great responsibility to adapt to the different learning style of students. Today the task for any teacher is to make students attentive in the class. To tackle the challenges, the teacher has to adopt modern technology and innovative techniques to make the class experience interesting for the students.

Traditional teaching methods are no longer impressive, and the technical approach alone cannot provide a meaningful learning experience to the students. We need blended learning because the old traditional approach will only become attractive and impressive when there is technological integration. ICT has made tremendous innovations in the field of teaching and learning.

Definition of Technology:

Technology has been defined by many scholars. It is defined "as the entities, both material and immaterial, created by the application of mental and physical effort in order to achieve some value. In this usage, technology refers to tools and machines that may be used to solve real-world problems" (Wikipedia). W. Brian Arthur defines technology in a similarly broad way as "a means to fulfil a human purpose." According to ISMAN (2012) technology is the practical use of knowledge particularly in a specific area and is a way of doing a task especially using technical processes, methods, or knowledge. He further states "Human's use of technology involves not only machines (e.g., computer hardware) and instruments, but also includes structured relations with other humans, machines, and the environment. In short, technology is more than a collection of machines and devices" (ISMAN, 2012).

Definition of Technology Integration:

Technology integration is defined as "the use of technology to enhance and support the educational environment. Technology integration in the classroom can also support classroom instruction by creating opportunities for students to complete assignments on the computer rather than with normal pencil and paper" (Wikipedia). Different researchers have defined technology integration, according to Pourhosein Gilakjani (2017) it is defined in terms

of how teachers use technology to perform familiar activities more effectively and how this usage can reshape these activities. Dockstader (2008) defines the integration of technology as the use of technology to improve the educational environment and supports classroom instruction by providing opportunities for learners to complete assignments on a computer rather than a regular pen and paper.

Use of Technology in English Language Class

Technology is an effective means for both teachers and students. They must use educational technology as an important part of their teaching and learning process. Teachers should initiate and adopt the use of technology to support the course so that students are encouraged to use the technology in learning their language skills. (Murphy, DePasquale, & McNamara, 2003). Students participation and concentration increase through technology. It results in student's cooperation which is one of the important tools for learning. Through the discussion forums in learning management systems, students cooperatively work together and solve each other's doubts and query. They learn from each other by reading their peers' work.

The use of computer technology, along with educational technology improves the performance of the teacher and the students learning in the class. EdTech helps teachers to fulfil students' educational needs. ICT enables teachers and students to collaborate with global societies and expand opportunities for their learning. The benefits of technology depend totally on the teacher's application of it in their language class.

The use of technology in English class will enhance the teaching environment. It is more effective than traditional lecture-based teaching. According to Susikaran (2013) "Chalk and Talk teaching method is not enough to teach English effectively. We should change our teaching ideas and recognize its impersonal attribute as one kind of teaching method. Thus, we can utilize modern education technology reasonably to fulfil the target of college English teaching". A blended learning, offline and online teaching will help the students the most. The teachers will have to overcome the barriers of e-Learning and apply technology as a useful medium of instruction for their students. They are not computer experts, but the teachers will have to show a positive attitude towards e-learning and integrate technology into the teaching process.

The use of technology has significantly changed English teaching methods. Technology integration makes teaching-learning innovative and more creative in terms of

progression. In traditional classrooms, teachers use blackboard or whiteboard for instruction and stand in front of students and give a lecture. These methods have considerably changed due to the rapid development of technology. The usage of multimedia texts in classrooms and language laboratory assists students to become familiar with vocabulary and language structures. The multimedia enhances student's linguistic knowledge and offers them different study materials.

According to Dawson, Cavanaugh, and Ritzhaupt (2008), the application of technology creates a learning atmosphere which is student-centric rather than teacher-centric. It brings positive changes, as the use of computer technology makes the language class more active. Here the students are responsible for their learning. The independent use of technologies motivates students to acquire responsible behaviour and gives them self-direction. Arifah (2014) believes that the use of the internet increases learners' motivation. The use of multimedia in teaching supports the students to understand the subject with interest and grow their knowledge. The students can learn with self-pace with the use of technology in the process of learning through using computer and internet. Apart from this, when learners learn with technology, it develops their thinking skills. So, we can conclude that the right blend of multimedia and teaching methodology is essential to draw a student's interest in English language learning.

Innovation in English Language Teaching

India is a land where different languages and dialects are in use for writing and speaking. Most of the universities impart education through English medium at U.G. and P.G. level. In this respect, teaching and learning English has become an essential strategy in modern India. In the last ten years, English language teaching has observed a tremendous change. And the teacher has to improve and update knowledge of innovative techniques to meet the needs of the present scenario. Many careers options which were regarded insignificant are gaining importance at present such as communication skills, soft skills, technical skills, interpersonal skills, ICT literacy etc. To develop these skills, new trends in the teaching-learning process of the English language has to change for advancement. Numerous innovative methods and strategies may prove beneficial for the betterment of students.

Modern trends of teaching English

1. **Digital platforms:** A Digital platform is a set of computer applications that facilitate the education, development and distribution of courses through the internet. It has emerged as one of the best measures to help the students of all ages and all backgrounds. Government of India has provided following e-learning platforms where students can learn English language:

- i. Swayam
- ii. NPTEL
- iii. Curriculum classes
- iv. Diksha
- v. E-skill India
- vi. National Digital Library of India
- vii. E-Pathshala
- viii. E-PG Pathshala
- ix. Sakshat
- x. E-kalpa

Like government of India, there are many digital platforms for e-learning created by other countries.

Learning management systems (LMS) are platforms for teachers to manage and organize online courses. There are many learning management systems to help teachers and students to create a space in which teachers and learners can connect, ask questions to enhance learning, host classes on the cloud and create different types of assessments. The best learning management systems are:

Canvas: Through open, usable, cloud-based technologies, Canvas enables easy integration of the content, tools, and services that teachers need and students want.

Blackboard: It is a flexible learning platform that allows teachers to spread online learning, increase student's engagement and optimize learning outcomes.

Google Classroom: Google Classroom is a product, developed by Google, especially for educational institutions managing a virtual classroom. It is a structured tool that assists the teachers in managing their coursework and establishing communication with the students. Using the google classroom, the teachers can easily share their course material with the students.

Edmodo: Edmodo is an educational technology company which offers a platform for distance learning. Here the teachers share contents, distribute quizzes, assignment and manage communication with students, colleagues and parents.

Moodle: Since 2001 Moodle empowered teachers to create and manage course online. It has innovative features like a calendar and a gradebook. Moodle is based on plugins. Plugins are flexible tool set. There are hundreds of plugins for different kinds of content.

Schoology: Schoology is a virtual learning environment for educational institutions. It allows the teachers to design and develop a course and manage the online classroom. In Schoology, the teachers can give assignments and message students. Schoology also provides attendance records and online grade book. In it, the teacher can conduct test and quizzes. There is also a feature of homework drop boxes.

2. **Open Educational Resources (OER):** The William and Flora Hewlett Foundation provides the following definition of open educational resources: "OER are the teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and repurposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software and any other tools, materials, or techniques used to support access to knowledge" There are different websites which provide open education resources. The most commonly used OER is Wikipedia, students and teachers can use the content of Wikipedia freely. Another OER, Project Gutenberg has more than 60 thousand free e-books. MIT Open Courseware have full courses online. Open.edu and cnx.org are websites of OER where e-books, videos. All the different OER are available on oerworldmap.com. There is again one more site pitt.libguides.com where students get links of open access books, online courses, multimedia and access to a large repository.

OERS are of great significance to English teachers and students.

- OERS have freedom of access to all
- Teachers can use OER to prepare their course content. It has freedom from proprietary systems and corporations.
- OERS Saves time and efforts of the teacher for content development.
- Co-creation empowers more collaboration and creativity.
- It shares the development costs among institution.
- It contributes to the local and global community.
- The resources which were previously available to few people are accessible to all.
- Students can access the material at lowers costs.

3. **Online corpora:** A corpus is a collection of texts. Corpora is a plural term of the word corpus' which refers to electronic authentic language databases. This database is available via the internet or as software installed in the computers. Online Corpora is

available for studying linguistic structures. Some of the tools that are available to the analysis of texts are

- i. Linguae
- ii. Vocabulary Profilers
- iii. Toeic Word Lists
- iv. New General Service List and Academic Word List.

4. **Online Continuous Professional Development:** With the help of the internet, teachers may connect with other teachers to acquire knowledge. It makes a difference in their lives and in the lives of those they teach. Professional Development Courses are available online, some of them charge a fee to enrol, and some are free.

Smartphones have enabled teachers and students to access the internet and a variety of apps. Use a cell phone for teaching English. There are near about 15 impressive YouTube channels for teaching and learning English.

5. **Video Conferencing:** Video conferencing continues to be a highly efficient way of inviting visitors into classrooms and for enabling learners to collaborate with distance learning. There are many advantages of video conferencing. Firstly, the students learn from the native speakers of the English language. There is a cultural exchange between the student and the speaker. Secondly, Experts of the English language come to virtual classrooms for direct teaching. There are many free apps available for video conferencing, such as Skype, ooVoo, iChat and FaceTime or Flash Meeting.

6. **Digital Game-Based Learning:**

Game-based learning involves the use of computer and internet. They are designed to produce learning outcomes. There are some user-friendly and fun online platforms for teaching the English language. The English teachers can incorporate the right tools and techniques to make the classes enjoyable for students. These online digital platforms can help students to master their language skills. When we discuss innovations in English Language Teaching, following digital platforms come to our minds.

Kahoot!

Kahoot! is used as educational technology in schools and institutions. It is a game-based learning platform. The teachers can create quizzes based on grammar and vocabulary with the help of Kahoot!

In the discussion forums, the teachers and students can easily communicate via posting comments. Each new material posted is notified to the students. Attachments can be made to announcements and posts to share content like YouTube Videos and files from Google Drive.

The rubric is a feature in LMS to create a formative assessment for the students which involves performance as well as feedback. The teacher sets parameters to judge the submission of the students. It also helps the students to know the grading system while writing an assignment because he has the rubrics in front of him. The student is aware of the scorecard and the aspects on which he is judged before he submits the assignment. Even the rubrics benefits the teacher while evaluating the submission.

Advantages of Technology in Improving Language Skills

Integrating technology, online platforms and various ICT tools into modern blended English Language teaching is very important in the present scenario. It not only has advantages but it is essential in the present COVID-19 scenario. English learning is effective when it is integrated with educational technology.

- Education technology is the best complementary tool for English teachers in the classroom.
- Technology can develop better teacher-student relationships.
- Digital learning platform is motivating and stimulating for the students.
- New technology promotes creativity and allows students to be participative.
- Digital technology in English classes creates a unique experience both for the teacher and the students.
- Digital technology enhances productivity and improves the performance of the teacher.
- With digital platforms, voice recording and analysis tools ease in managing and monitoring student progress
- The e-learning platforms having inbuilt administrative features which helps in the reduction of much administrative work to a great extent.
- There are many user-friendly tools and applications beneficial for teachers for designing and developing of e-content.
- Teachers can conduct various learning activities simultaneously and can scale up to meet the requirement of numbers of students depending on the platform used.

- Unlike traditional classroom teaching, with technology, students can access the content an unlimited number of times, whenever he wants with ease. It provides individual learning prospects for all English language students.
- It helps in developing English language proficiency through social media.
- The students & teachers will develop wider life-skills such as resilience, adaptability, collaboration, communication, empathy, creativity and emotional intelligence, etc.
- It also helps them in acquiring the various technical skills required for using the available information and communication technology tools and online resource material.

Hennessey (2005) asserts that ICT acts as a motivating factor for teachers and learners to work in new ways. Students become more independent and teachers feel that they should urge and support their learners to act and think autonomously. Eaton (2010) expressed that computer-based communication is a useful and convenient feature for language learning. Computer-supported discussion and argument have more participation than face to-face discussion. Peregoy and Boyle (2012) carried a study on use of technology in improving students reading and writing skills. The results of this study show that with the assistance of technology tools the student can learn fast, more effectively. The finding of the study also indicate that the technology tools are user friendly and it enhances reading and writing skills of the students.

Conclusion:

The technology integration and use of innovative techniques in English language learning depend on the attitude of the teacher towards it. Teachers should agree to the usefulness and benefits of technology in enhancing students learning. The teachers should get facility and training for using technology in language teaching. The appropriate use of technology and innovative techniques solves the learning problems. The modern technology plays a significant role in language learning as it motivates the students to learn with their own pace, students become self-independent, and it provides good interaction with the teacher. Technology improves a student's language skills because it develops their creativity. English language learning is now enjoyable and exciting with the use of technology integration and innovative techniques. Though this is a student-centric initiative, it is beneficial for the teachers too. There are skill enhancement and exposure to technology and collaboration.

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Effect of Aerobic Dance on Cardiovascular Parameters of Female Obese Adults

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The purpose of this study was to investigate the six weeks of aerobic dance impact on cardiovascular parameters of female obese adults. To achieve sixty (60) obese women were selected as samples for the experimental study. These subjects age ranged between 30 and 45 years. For this, a purposive sampling technique was used. Those who are diagnosed as obese by the consultant physician of the Wardha Institute of Medical if the body mass index (BMI) was more than normal limits > 27.8 . Further, the sample subjects were randomly assigned into almost two equated groups, namely Aerobic dance group (ADG) ($n=30$) and Control group (CG) ($n=30$). All these subjects were residing within radius of one to ten kilometers range in Wardha city. Blood pressure and heart rate was selected as criterion variable and measured with Blood pressure and heart rate monitor. The aerobic dance training was administered 60 minutes per day for 6 days in a week for total period of 6 weeks. The data was collected before and after 6 weeks of training and analyses using ANCOVA. The result of the study showed that systolic and diastolic blood pressure between the groups was significant, $F(1,57) = 7.69$ and 4.488 , indicating that after adjusting pretest scores, there was a significant difference between the two groups on post-test scores on systolic and diastolic blood pressure. In contrast, heart rate found to be not significant, $F(1,57) = 3.33$. The findings of the study show that systolic and diastolic blood pressure tends to decrease as a result of aerobic dance training. It is concluded that aerobic dance is the proper physical activity form for 30-40 years old females obese subjects for developing cardiovascular system capacity. The stress on the cardiovascular system is minimized due to aerobic dance which was fun and re-creative. This might improve the life status of the obese subjects.

Keywords: Obese, Blood pressure, Heart rate, Female, Aerobic dance.

Introduction:

Good health might be defined as the presence of sufficient energy and vitality to accomplish daily tasks and active recreational pursuits without under fatigue. Good health to an individual means that they can lead a full and active life day in-and-out (working, running a household, attending classes, studying, participating in recreational activities etc), contract infectious diseases less often, and tend to fight off infectious disease better than those who are sedentary. The sedentary life style of the adults which affects not only their health, but also it affects the quality of life in later years.

Today obesity is recognized as a major global burden to health. In India when the child reaches adolescence their level of physical activity declines. There is evidence that children and adolescents of urban families are more overweight than rural, possibly because of decreased physical activities, sedentary lifestyle, altered eating patterns and increased fat content of the diet. Increase in sedentary activities, such as television viewing and computer games, is suspected to be responsible for the decline in physical activity levels. Obesity contributes to the progression of cardiovascular disease, such as dysfunction, hypertension, inactivity and poor exercise capacity. Moreover, a number of well-established blood markers, such as cholesterol, (triglycerides), glucose and insulin resistance, are also used to complement the risk assessment. In general, exercise, in particular endurance exercise training, decreases

cardiovascular risk.

Aerobic dance is an activity which produces more complex impacts on one's ability and health. Aerobic dance constitutes a group of exercise accompanied music of a certain tempo, rhythm and dynamics. It is one of the workouts used to develop cardiovascular fitness. It consists of various dance steps, skips, jumps, turns and

movements which are performed in all directions and on various plains and are used in accordance with the shape and abilities of the person exercising. Coaches often regulate the intensity of the exercise during the workout itself by activating a number of different body parts. The intensity is always greater if several body parts are activated at the same time. Much research exists which has confirmed the positive influence of physical exercise on cardiovascular endurance, muscular strength, flexibility and body composition.

The research analyzed the changes of VO₂max, heart rate, diastolic blood pressure, the accumulation of blood lactate under the influence of an aerobic dance program (one group) and an aerobic dance program accompanied by simultaneous strength exercises (the second group) for the upper body (1 kg weights). The male subjects who trained aerobic dance with weights had better results. There were no differences in the values of heart rate, arterial blood pressure and lactate between the groups. The purpose of this

study was to investigate the six weeks of aerobic dance impact on cardiovascular parameters of female obese adults.

Methods:

Sixty (60) obese women were selected as samples from Wardha City for the experimental study. These subjects age ranged between 30 and 45 years.

for this, a purposive sampling technique was used. Those who are diagnosed as obese by the consultant physician of the Wardha institute of medical if the body mass index (BMI) was more than normal limits >27.8 . Further, the sample subjects were

randomly assigned into almost two equated groups, namely Aerobic dance group (ADG) ($n= 30$) and Control group (CG) ($n = 30$). All these subjects were residing within radius of one to ten kilometers range in Wardha City. The research scholar made sure from the subjects that the entire groups were ready to go through the experimental treatment. Finally it was decided to select 60 subjects for the post test having 30 subjects in each group for data collection after 6 weeks experimental training. Blood pressure and heart rate was selected as criterion variable and measured with Blood pressure and heart rate monitor.

Daily Administration of Training Interventions:

Training programmes on aerobic dance were scheduled separately. Although attendances of the subjects were taken regularly, the percentage of attendance of majority of the participants after completion of training was found more than 90%.

Aerobic Dance Exercises:

Formal aerobic exercises will be divided into different levels of intensity. This allowed participants to select their level of intensity according to their fitness level. Many gyms offer a wide variety of aerobic exercise for participants. Each pattern is designed for a certain level of experience. Following Dance- Group were included in one hour programme of aerobic exercise for these obese persons for 3 to 5 minutes each with the help of western music. The exercises are basic Warm up stepping, basic V step, basic L step, basic A step, straddle step Jump and turn Jump and bend forward Climbing action with a right leg and raising hands above head Climbing action with a left leg and raising hands above head climbing action with right leg and clap Climbing action with left leg and clap. Duration of training intervention was 60 minutes per day for 6 days in a week for total period of 6 week

Statistical Analysis:

Descriptive statistics was applied to process the data before employing the inferential statistics. Blood pressure and heart rate was tested before and after six weeks of aerobic dance training. ANCOVA was applied to assess the difference between the groups and impacts of training interventions are assessed

Results

Levelness test was not significant for systolic blood pressure $F(1,58)=0.312$, ($p=0.578$), diastolic blood pressure $F(1,58)=0.020$, ($p=0.889$) and heart rate $F(1,58)=1.21$, ($p=0.080$) indicating that the assumption of homogeneity of variance has not been violated.

ANCOVA on Cardiovascular parameters using pre-test

Variables	Source	SS	df	MS	F	p
Systolic blood	Covariate	966.509	1	966.509	63.08*	0.000
	Groups	117.919	1	117.919	7.69*	0.007
	Error	873.224	57	15.32		
Diastolic blood Pressure	Covariate	505.510	1	505.510	102.15*	0.000
	Groups	22.210	1	22.210	4.488*	0.035
	Error	282.090	57	4.949		
Heart rate	Covariate	237.959	1	237.959	18.37*	0.000
	Groups	43.155	1	43.155	3.33	0.073
	Error	738.075	57	12.949		

Table 1

clearly shows that systolic and diastolic blood pressure between the groups was significant, $F(1,58)=7.69$ and 4.488 , indicating that after adjusting pre-test scores, there was a significant difference between the two groups on posttest scores on systolic and diastolic blood pressure. In contrast, heart rate found to be not significant, F

(1,58)=3.33. The findings of the study show that systolic and diastolic blood pressure tends to decrease as a result of aerobic dance training. It is obvious from table 1 that covariate pre testing significantly determines the difference between ADG and CG on systolic, diastolic pressure and heart rate as obtained $F(1,21)=63.08, 102.15$ and 18.37 . This finding implies that the post testing data is influenced significantly by pre testing data on the difference between groups.

parameters before and after training

Variables	Source	ADG (30)	CG
Systolic blood	Pre-test	131.03 ± 4.642	134.93 ± 5.877
	Post Test	11274.93 ± 4.89	133.93 ± 6.281
	Mean Different	3.1	1
	Percentage of Changes	2.36%	0.74 %
Diastolic blood Pressure	Pre-test	84.00 ± 4.02	80.20 ± 3.79
	Post Test	82.33 ± 3.88	80.21 ± 3.57
	Mean Different	1.67	0.01
	Percentage of Changes	1.98 %	0.01%
Heart rate	Pre-test	81.53 ± 2.90	79.56 ± 6.10
	Post Test	78.26 ± 4.57	79.16 ± 3.56

	Mean Different	3.27	0.4
	Percentage of Changes	4.01 %	0.50%

Table 2

Systolic Blood pressure shows Pre-test count ADG (30) 131.03 ± 4.642 CG (30) 134.93 ± 5.877 , Post Test 1274.93 ± 4.89 and 133.93 ± 6.28 . Mean Different ADG is 3.1 and CG is 1. Percentage of Changes ADG 2.36% and CG 0.745%.

Discussion Findings:

It is evident in this study that significant decrease in systolic and diastolic blood pressure noticed in aerobic dance training group. These results were also in line with the previous literature that aerobic dance training decreases both systolic and diastolic blood pressure. The effect of aerobic dance program on blood pressure was positive in the sense that there was a decrease in both systolic and diastolic blood pressure. The magnitude of changes on systolic blood pressure are numerically greater compared to those of diastolic blood pressure. This is probably the result of aerobic dance and its impact on the increase of the elasticity of the blood vessels, which in turn leads to a decrease in the obstruction to the blood flow. However, no difference is noted in heart rate.

Conclusion

Aerobic dance is the proper physical activity form for 30-45 years old men obese subjects for developing cardiovascular system capacity. The stress on the cardiovascular system is minimised due to aerobic dance which was fun and re-creative. This might improve the life status of the obese subjects.

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Implications of Climate Change on the Agricultural Production and Demand-Supply

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Abstract

The agricultural productivity decreases with an increase in annual average temperature in most of the crops. The adverse impact of climate change on agricultural production specifies food security threat to small and marginal farming households and adversely affected due to climatic fluctuations. This paper focuses on the impact of climate change on the agriculture sector.

Keywords : climate, environment, demand-supply

Introduction :

Weather is the condition of the atmosphere at a particular place and time. It is characterized by parameters such as temperature, humidity, rain and wind. Climate is the long term pattern of weather conditions for a given area. Climate change refers to a significant variation in either the mean state of the climate or its variability, persisting for an extended period. India is home to extraordinary variation of climatic regions, ranging from tropical in the south to temperate and alpine in the Himalayan north, where elevated regions receive sustained winter snowfall. The nation's climate is sturdily influenced by the Himalayas and the Thar Desert. Four major climatic groupings dominate into which fall seven climatic zones which are defined on the basis of temperature and precipitation.

Currently we are able to secure food supplies under these varying conditions. All climate models predict that there will be more extreme weather conditions, with more droughts, heavy rainfall and storms in agricultural production regions.

Climate change is the supreme important global environmental challenge facing humanity with implications for natural ecosystems, agriculture & health. The perusal of general circulation models (GCM s) on climate change indicate that rising levels of greenhouse gases (GHGs) are likely to increase the global average surface temperature by 1.5-4.5°C over the next 100 years. The difference of average temperature between the last ice age and present climate is 6°C. This will raise sea-levels, shift climate zones pole ward, decrease soil moisture and storms. Global warming is predicted to affect agricultural production.

Food Consumption in India