

AQAR 2022-2023



Lady Irwin College
University of Delhi

Supporting Document: 3.3.2

3.3.2 - Number of research papers per teachers in the Journals notified on UGC website during the ye

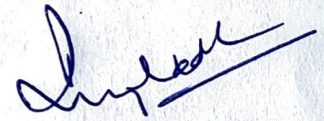
Anupa Siddhu

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3.3.2 Number of research papers per teachers in the Journals notified on UGC website during the assessment year (2022-2023)

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History and Evolution of Indian Food

PROFESSOR (Dr.) PRITI RISHI LAL

Introduction

Indian food culture has evolved alongside Indian civilization and has been mentioned throughout history. Tracing the evolution of food from Indian history, is pivotal to understanding Indian cuisine and dietary practices. In fact, across many cultures, one can historically trace socio-cultural reasons behind culinary choices in India.

For extended periods in Indian history, each of India's conglomerations of kingdoms had a royal court where chefs created a hub, where food innovations, new dishes and methods of cooking evolved. This influenced the kitchens of the common man, cooks or housewives who imbibed these cooking practices using ingredients at their disposal. Modern Indian cuisine, therefore, is an outcome that can socio-historically trace the interaction between personal and social choices, based on available resources.

Methods of Tracing Evolution of Food

The evidence of evolution of food is collected with thorough document analysis. A survey of ancient religious scriptures from archives, newspapers, memoirs, travelogues, research articles, poems, history books and books written on food cultures, is conducted and comprehensive notes are made to record all findings. These notes need to be verified through information collected from more than one source. As a result, common patterns in the data are revealed, under which the entire data is organized.

Important Eras in Indian History

The four significant eras of socio-cultural development in Indian history are as follows:

- Prehistoric Era
- Vedic Period
- Mughal Era
- European colonization.

These eras also mark the four most frequently found patterns in food culture. For each era the evolution of food may be looked at through a close interplay between sociocultural factors and the

Nutrition and Lifestyle Transition

Dr. SWATI JAIN

Common terms and definitions:

1. **Nutrition transition:** Modernization, urbanization, economic development, and increased wealth lead to predictable shifts in diet, referred to as "nutrition transitions."
2. **Non communicable diseases (NCDs)** : Also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors. The main types of NCD are cardiovascular diseases (such as heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes. NCDs disproportionately affect people in low- and middle-income countries, where more than three quarters of global NCD deaths (31.4 million) occur.
3. **Processed foods:** Processed foods are foods that have been altered during preparation. Some, but not all, processed foods contain high levels of salt, sugar or fat. Processed foods can be classified according to their level of processing into minimally processed foods, processed foods and ultra processed foods.
4. **Demography:** (from Ancient Greek δῆμος (dêmos) 'people, society', and -γραφία (-graphia) 'writing, drawing, description') is the statistical study of populations, especially human beings. Demographers use census data, surveys, and statistical models to analyze the size, movement, and structure of populations.
5. **Physical activity-** WHO defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity refers to all movement including during leisure time, for transport to get to and from places, or as part of a person's work. Both moderate- and vigorous-intensity physical activity improve health.

Introduction:

Traditional diets and lifestyles change as nations and civilizations, on average, become wealthier, more urbanised, and more open to international trade. Today, the most pervasive transition is the series of adjustments that come along with nations growing wealthier and more industrialised: a shift towards an abundance of fatty, sugary, and highly processed meals, as well as a more sedentary lifestyle at home, at work, and during leisure time. A paradigm known as the "nutrition transition" has been used to describe these dietary and lifestyle shifts, which have implications for both environmental sustainability and human health.

Regional Food Traditions of India

Dr. (VAIDYACHARYA) VINAYA BALLAKUR
AND
PROFESSOR (Dr.) PRITI RISHI LAL

India is geographically and demographically a large country. Culinary diversity is one of the strengths of our country. India is home to many regions, religions, castes and ethnicities. It is not a surprise that cultural diversity gets translated to culinary diversity. Our country has a large percentage of vegetarians too. There is prevalence of vegetarianism and non-vegetarianism and food stuffs sanctified by religion. Many factors favor the continuity of diverse food traditions. India is centrally located between east and west Asia. She has every possible landscape that the earth has, mountains, deserts, plains, plateau and a vast coastline. The country has clearly demarcated seasons, a good monsoon, tropical climate favour the variety of seasonal fruits, vegetables and food crops. It supports the growth of variety of crops and animal products. As an agrarian economy historically, many varieties of cereals, vegetables and fruits are locally grown. There is no shortage of locally grown fresh foods.

Food: Vedic History

The Vedas are the source and reservoir of all knowledge in India. They are the oldest texts that humanity is aware of. They are the source of our glimpse into the old Indian way of life because they have been translated into the most widely spoken languages. When society is viewed through the lens of food, we discover a very civilised ancient society, that was aware of food ethics and eating customs.

Rigveda only describes barley (*yava*) as a food grain, not rice or wheat. In addition to a panicum cereal (*priyangu*), an oilseed (*tila*, sesame), and a number of pulses, including *masha* (*urad*), *masura* (*masoor*), *mudga* (*mung*), and *kalaya* (peas or *matar*), the Yajurveda lists rice, wheat, and barley as the main foods.

The *Brhadaranyaka Samhita* states that there are ten food grains namely, rice, wheat, barley, sesame, kidney beans (*masha*), millet, panicseed (*priyangu*), lentils (*khalva*), canake and horse gram (*khalakhula*, later *kulthi*).

Aman rice, wild rice (*nivara*), a novel variety of "flute barley" (*venuyava*, bamboo grains), *gavedhuka* (coix, Job's tears), chickpeas (*chana*, Bangal gramme), and shyamaka are all mentioned in the *Markendeya Purana* and the *Vishnu Purana*, p. 31.

A prayer, from the *Yajurveda*, composed around 800 BC, gives us a pretty good indication of the food of that people ate during that period.

1

Introduction to Traditional Indian Knowledge Systems

PROFESSOR (Dr.) PRITI RISHI LAL

Traditional Knowledge

Traditional Knowledge is unique to any specific region or socio-cultural group and reflects the evolutionary path that marked the development of such knowledge. It is integral to the cultural identity of the social group in which it operates and is preserved. The World Intellectual Property Office (WIPO) defines traditional knowledge as "indigenous knowledge relating to categories such as agricultural knowledge, medicinal knowledge, biodiversity-related knowledge, and expressions of folklore in the form of music, dance, song, handicraft, designs, stories and artwork". Traditional knowledge, therefore, provides an open-ended method of referring to traditional literature, artistic work, scientific inventions, discoveries, names & symbols, designs, marks, undisclosed information, and all creative work and innovations resulting from intellectual activities.

In the modern era of "patents", the development of new technology and the new use of traditional knowledge based products may pose a serious threat to the survival of many traditional communities. Modern, culturally oriented industries may exploit the traditional knowledge based products, manufacturing them using modern technology without permission and sharing of profits with these communities. This is being used extensively in biotechnology, medicine and agricultural industries. Some of this knowledge has no formal documentation. Hence, knowledge of traditional social and cultural origin needs to be collated and protected for protecting the livelihoods and survival of communities it got generated from.

Traditional Indian Knowledge Systems

India is a civilisation with origin in ancient eras, hence, it has a plethora of traditional information and work. The Government of India, in a pioneering effort, has collected traditional knowledge from various sources in India and collated it in a digital form in a library, called Traditional Knowledge Digital Library (TKDL). It is available free of cost at the following URL:

URL: <http://www.tkdli.res.in>

The entire knowledge of India was traditionally contained in **2 main domains**:

Domain 1: This is termed as the "*Para Vidya*". It was originally addressed as the "higher form" of knowledge and covers all aspects related with "Metaphysical knowledge."

Traditional Medicinal Plants in the Management of Stress and Prevention of Non-Communicable Diseases

Dr. MEMTHOI DEVI HEIRANGKHONGJAM

Introduction

Traditional medicinal plants have been using for centuries in various cultures around the world for their therapeutic properties. Ayurveda, a traditional system of Indian medicine, has been in practice for over 3,000 years and utilizes traditional medicinal plants to prevent and treat diseases. Ayurvedic medicine emphasizes a holistic approach to health, considering the whole person and their environment.

The use of medicinal plants in Ayurveda is based on the concept of “rasa,” which refers to the taste, energy, and effects of the plant. Different tastes of plants, such as sweet, sour, salty, pungent, bitter, and astringent, are believed to have varying effects on the body and mind, and are used to balance the different doshas or energies in the body.

The traditional practice of Ayurveda involves the utilization of several medicinal plants, among which aloe vera holds a preeminent position and is acknowledged as the “King of medicinal plants.” Aloe vera is employed in the treatment of various ailments, including skin problems, digestive disorders, and diabetes. Furthermore, mint, a widely used medicinal plant in Ayurveda, is recognized for its ability to enhance mood and alleviate indigestion. Fennel, also known as saunf, is used to increase breast milk supply. Tulsi is another plant widely used in Ayurvedic medicine and is characterized by its potent anti-bacterial, anti-inflammatory, and anti-viral properties. It is frequently employed to treat respiratory ailments, digestive disorders, and skin conditions. Ashwagandha, on the other hand, is employed to boost the immune system, enhance cognitive function, and promote overall well-being. Lastly, Triphala is a blend of three fruits - Amalaki (Indian gooseberry), Haritaki (chebulic myrobalan), and Bibhitaki (belleric myrobalan) - and is utilized to promote digestive health, improve liver function, and support healthy bowel movements.

Importance of traditional medicinal plants in managing stress and prevention of non-communicable diseases

Traditional medicinal plants have been utilized for centuries for their medicinal properties, which are due to the presence of bioactive compounds. The use of these plants has gained importance in recent years because of their effectiveness and minimal side effects. Stress is a prevalent problem in modern society, which can lead to various health conditions such as anxiety, depression, and

Understanding Rich Sources of Nutrients

Dr. SWATI JAIN

Terms and definitions:

Health: is a state of complete physical, mental and social wellbeing, and not merely the absence of disease and infirmity.

Disease: is a particular abnormal condition that negatively affects the structure or function of all or part of an organism, and that is not immediately due to any external injury.

Food: is anything solid or liquid which when swallowed, digested and assimilated, nourishes the body.

Food ingredient: is any substance, including a food additive used in the manufacture or preparation of food and present in the final product, possibly in a modified form.

Nutrition: is the science of foods, the nutrients and other substances therein, their action, interaction and balance in relationship to health and disease.

Nutrients: are the constituents in food that must be supplied to the body in appropriate amounts.

Macronutrients: are the nutrients that our required by our body in large amounts on everyday basis (in gms) like carbohydrate, protein and fat.

Micronutrients: are the nutrients that our required by our body in lesser amounts on everyday basis (in miligrams or micrograms) like vitamins and minerals.

Diet: is the usual food and drink consumed by an organism (person or animal).

Menu: is a list of food and beverages available or to be served in a restaurant or at a meal.

Thali: is a meal in Indian cookery consisting of several small meat or vegetable dishes accompanied by rice, bread, etc, and sometimes by a starter or a sweet.

Calorie(kcal): is the heat required to raise the temperature of 1 kilogram of water by 1°C from 14.5°C to 15.5°C.

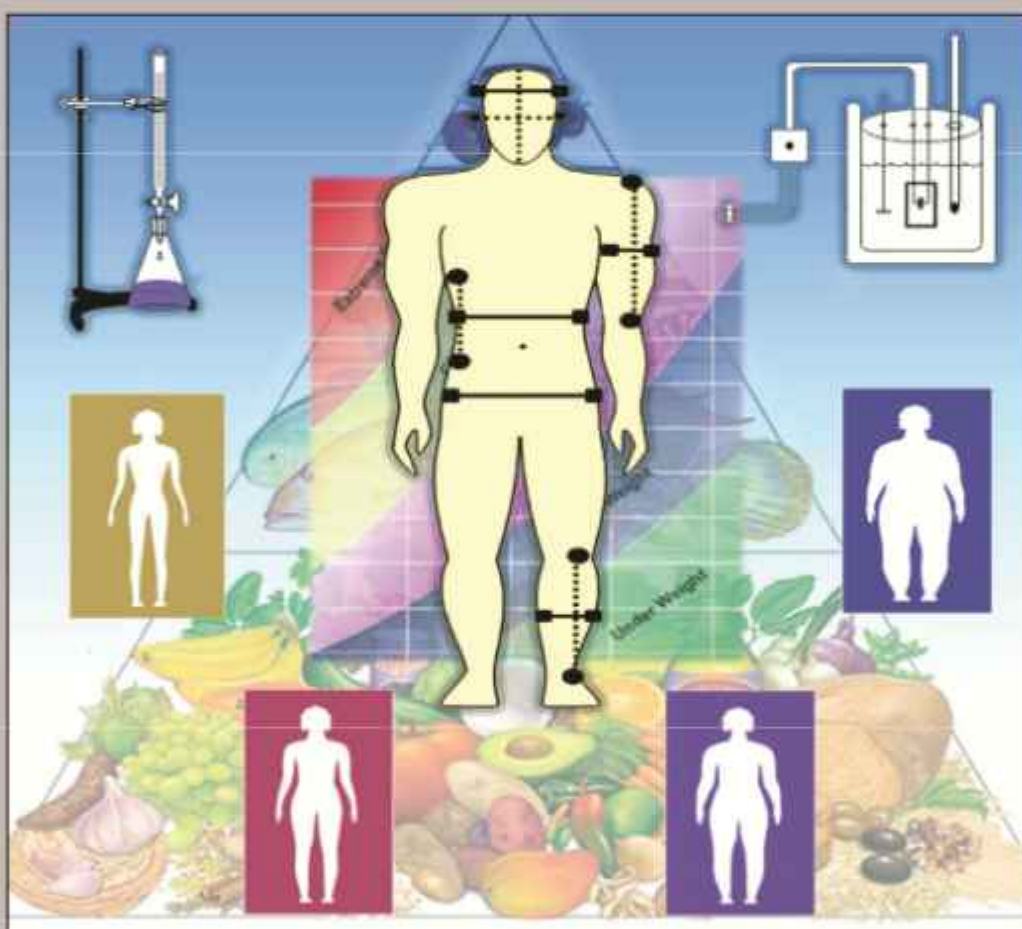
Nutrient-Rich source: "High," "Rich in," or "Excellent Source of" any nutrient contains 20% or more of the daily value per serving.

Serving size: Measured amount of food or drink that people typically eat. Eg- a slice of bread or glass of milk



Indira Gandhi National
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BBCEL-142 NUTRITIONAL BIOCHEMISTRY



LABORATORY

NUTRITIONAL BIOCHEMISTRY

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Acknowledgement: Mr. Sumit Verma for CRC Preparation and Word Processing.

June, 2021

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ISBN:

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Food Waste to Green Fuel: Trend & Development pp 25–41

Bioenergy and Food Processing Waste

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[Kanika Agarwal](#)

Chapter | [First Online: 18 May 2022](#)

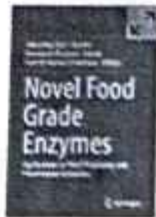
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Abstract

Food wastage is a serious issue worldwide and has been anticipated to increase considerably in the subsequent 25 years because of the growth in economy and population across the globe. The biodegradable wastes discharged from several sources such as households, food industries, and hospitality sector are known as food wastes. Fresh fruits, vegetables, bakery products, meat, and dairy products are the chief food items lost throughout the food supply chain. In this chapter, we briefly discuss overall food wastage, focusing mainly on food processing wastes (FPW), the residuals which are left over after a primary product have been processed in the food processing industry. And it

Dr. H. Memthoi Devi
Heirangkhongjam



[Novel Food Grade Enzymes](#) pp 139–164

Enzyme in Milk and Milk Products: Role and Application

[Aparna Agarwal](#), [Naman Kaur](#), [Nidhi Jaiswal](#), [Memthoi Devi Heirangkhongjam](#) & [Kanika Agarwal](#)

Chapter | [First Online: 22 September 2022](#)

2 Accesses

Abstract

Enzymes are biocatalysts that catalyse a desired chemical reaction. Enzymes are specific in their action and yield into products. The enzymes that are utilized in the dairy industry for processing milk and milk products, like yoghurt, cheese, and fermented milks, are commonly known as dairy enzymes. These enzymes mostly aid in coagulation, cheese production, and enhancing shelf life of various dairy products. The most used dairy enzymes include lactase, amylase, lipases, transglutaminase, protease, catalase, and rennet. The functions of enzymes vary with the kind of the product to be processed. Both endogeneous and exogeneous enzymes are important for dairy

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Heirangkhongjam

3 Waste Management of the Fruit and Vegetable Industry

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3.1 INTRODUCTION

Fruit crops are those yielding fruits and berries, which generally are characterized by their sweet taste and their high content of organic acid, fiber, and pectin. Fruits are generally found in great numbers attached to the branches or stalks or trunks of the plants, in most cases singly, in other cases grouped in bunches and clusters (e.g. bananas and grapes). The commercial crops are cultivated in well-ordered orchards and compact plantations. Bananas, plantains, grapes, and dates are considered fruit crops by the Food and Agricultural Organization (FAO), while nuts, olives, and coconuts are not considered fruit crops. Fruits at times are classified into pome fruits (with seeds/pips contained in rather light endocarp, e.g. apples and pears) and stone fruits (with seeds/kernels enclosed in hard woody shells surrounded by the pulp or mesocarp, e.g. peaches and plums). Fruits are broadly classified as either sub-tropical/tropical fruits, or fruits of the temperate zones.

DOI: 10.1201/9781003207689-3

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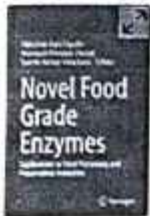
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Novel Food Grade Enzymes pp 65–105

Role of Enzymes in Fruit and Vegetable Processing Industries: Effect on Quality, Processing Method, and Application

Memthoi Devi Heirangkhongjam, Kanika Agarwal, Aparna Agarwal & Nidhi Jaiswal

Chapter | First Online: 22 September 2022

Abstract

The significance of enzymes and their application in food processing industry is increasing rapidly. Different kinds of enzymes are extensively used based on their effective application. In fruits and vegetables processing, several endogenous enzymes and newly developed enzymes are used. Enzymes present in fruits and vegetables play a huge role in determining the texture, colour, flavour, and taste attributes of the processed products. The continued enzymatic activity in fruits and vegetables affects the storage quality, shelf life, and palatability of the product. Therefore, several processing methods such as grinding, crushing, slicing, juices, or preservation are used to prolong

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A HANDBOOK OF AYURVEDA AND NUTRITION



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© ELITE PUBLISHING HOUSE

ISBN: 978-81-9555-67-1-7

Published by **R. Gangadharan** for **Elite Publishing House**

Sales Office: 5, Ansari Road, Daryaganj, New Delhi -110002

Phone: 011- 41635471, 9818521451

E-mail: elitegph@gmail.com

Typeset by Sai Graphic Design, New Delhi-110055

Printed at Chaman offset Printers, New Delhi-110002

PRINTED IN INDIA

Ayurveda Aahar: FSSAI Regulations

Dr. MEMTHOI DEVI HEIRANGKHONGJAM

Introduction

Ayurvedic Aahar is a term in Ayurveda, that refers to the dietary principles and guidelines recommended to promote holistic health. According to Ayurvedic principles, Aahar is considered an essential aspect of overall well-being, along with lifestyle choices, mental and emotional wellness, and spiritual practices. The main goal of Ayurvedic dietary principles is to nourish not only the body but also the mind and soul.

The Ayurvedic diet focuses on the consumption of natural, whole foods that are suitable for an individual's unique constitution and dosha type. The diet emphasizes mindful eating, proper food combining, and avoiding foods that are not compatible with one's body constitution or health condition. Ayurveda recognizes that every individual is unique, and dietary choices must reflect that individuality.

The significance of Ayurvedic Aahar in Indian culture and medicine dates back thousands of years and is still widely practiced today. Ayurvedic dietary principles are deeply rooted in Indian cuisine and are followed by millions of people worldwide. The benefits of an Ayurvedic diet are numerous, including improved digestion, increased energy, and enhanced mental clarity. In Ayurveda, food is considered a form of medicine, and specific foods are prescribed to treat specific health conditions. For instance, ginger is used to aid digestion, turmeric is used as an anti-inflammatory, and ghee is used to nourish and strengthen the body.

Logo of Ayurveda Aahara

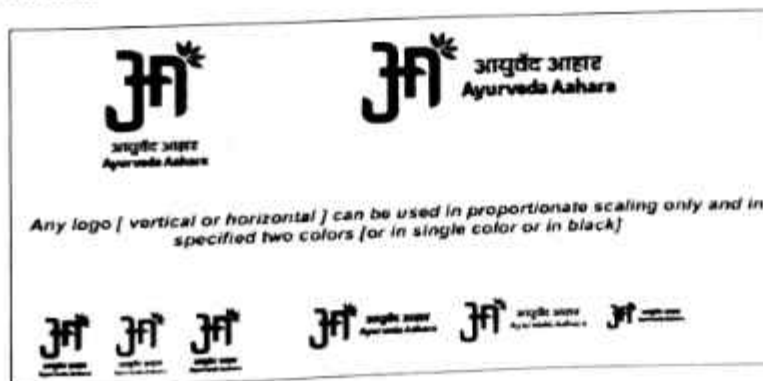


Figure 12.1: Logo of Ayurveda Aahara

Source: Food Safety and Standards (Ayurveda Aahara) Regulations, 2022.

A group of women in brown uniforms with red sashes are marching in a parade. They are wearing black berets and have their arms raised. The background shows trees and a clear sky.

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Chapter 2 - Microwave: An overview

[Neha Bakshi](#), [Swati Jain](#), [Aishwarya Raman](#), [Taru Pant](#)

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<https://doi.org/10.1016/B978-0-323-95991-9.00014-X> ↗

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Abstract

The uses and applications of microwave for processing at industrial level have gained immense interest over the years due to the notable decrease in consumption of energy and cooking time. Drying and sterilization as microwave processing techniques are significantly contributors for food quality and safety control processes. This chapter provides an overview of the microwave processing techniques used in the food industry. An introduction is presented to the fundamentals and principles of microwaves. This chapter also describes the advantages and benefits of microwave-assisted techniques as compared to conventional techniques. The varied applications of microwave energy in the food industry are summarized and an insight is provided into the current research and up-to-date developments.

Reflective Teaching : Perceptions and Practices

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ABSTRACT :-

Reflective teaching requires a teacher to pause and analyze the classroom transactions carried out by her. It is built upon the teacher's ability to introspect and speculate about one's own work. It allows her to find gaps in her teaching practice and to address the same. Reflective teaching is a major focus in all the teacher training programmes. This study was conducted on 120 student teachers of the Preservice Teacher Education Programme of the University in Delhi. Purposive sampling was used to collect the sample. The reflections were collected in the form of a self-report form. Students' interest and motivation came out to be the most vital factors affecting the teaching process. Hence, this study has important connotations for the practicing and future teachers.

Keywords : teaching learning process, reflective practices, reflective teaching, student teachers

INTRODUCTION :

Reflection is in distinction to solely thinking about one's teaching instruction. It is a tenaciously resolute act that begins with a stumbling block occurrence or milieu, elucidates the problem, hunts for the credible solutions, investigation with solutions, and finally assesses the outcome. In various teacher training programs reflection is proclaimed as an intent but how it might be proselytized in student teacher and its denotation are conflicting. Here, an exposition is provided of the result of reflections of student teachers, specifically pointing on plan of action which aids its evolution in pre-service teaching learning programs.

Reflective Teaching :

In teacher education, reflective teaching has become a pivot of delight and a robust movement and for their own professional blooming in order to refine and to enhance learners' performance the intricacy of teaching requires teachers to re-visit their practices. In the course of teaching practice period, this article intend at scrutinizing student teachers' reflective experiences. Issuing of the report by National Institute of Education in 1975, however laid emphasis on the inception of reflective teaching discourse, centralizing on teachers' thought. As far as the teachers are concerned for reflecting there is an interrelation between thought and action, the report, then, prompted. Accordingly, the investigator began to ponder upon and consider that teaching behaviour is affected by teachers' idea.

Killen (2007) stated that reflection assist teachers to cherish that they too can be the builders of educational proficiency. By this, teachers superintend their own progress. It enables teachers to be aware of their experiences and analyze their own practice. Hence, it is a revolution in teacher education and climacteric kind of thought (Fatemipour & Hosseingholikhani, 2014).

Use of Smartphones to Increase the Learning Potential of Mild Intellectually Disabled Persons

Ram Niwas*, H B Patel** and Shankar Lal Bika***

Intellectual disability is a condition characterized by significant limitations in both intellectual functioning and adaptive behavior that originates before the age of 22 (AAIDD, 2021; Parekh, 2017). Individuals' adaptive functioning is measured via standardized exams and interviews with family members, teachers, and caregivers. Around 85% of people with intellectual disabilities are classified as mild, and many of them succeed academically. Mild ID is defined as the ability to benefit educationally within a regular class with the help of significant instructional modifications and supportive service; the inability to profit academically within a mainstream school due to slow cognitive growth; and the opportunity for academic advancement, autonomous social growth, and financial independence. Children with mild ID may have literacy and numeracy levels that are three or even more years below their age-appropriate levels. They may also tend to get easily distracted, have short attention spans, struggle in all academic subjects, experience delays in language development, and have memory problems. Students with mild ID may have trouble comprehending nonverbal clues (e.g., body language, gestures), social linguistic and behavior, understanding and expressing a range of emotions, childish behavior, and excessive behavior (Fey, et al., 2006). Children with Intellectual disabilities may appear awkward and require assistance with personal care/hygiene skills; use unsophisticated, ambiguous, or vernacular language; demand routine consistency; and regularly "lose" pencil, pen, notebooks, and homework (The Ontario Curriculum Unit Planner Special Education Companion, 2022). Children with mild ID may be afraid to try, use denial or inappropriate behaviour to divert attention from their incapacity, withdraw in reaction to stress or

fear of failure, absent independent work behaviors, be incredibly irritable, and be vulnerable to peer pressure, taunting, and embarrassment. They may also need help or significant support to establish a positive self-image. They could be easily misled by metaphorical and complex language, take language literally, require assistance in generalizing and applying taught concepts to new contexts, and prefer regular and repetitive work. Current techniques to assist these pupils, as well as current intelligence theories, such as multiple intelligence and emotional intelligence theories, provide different teaching methods and modifications that teachers can utilize to accommodate a variety of student requirements. They exhibit a wide spectrum of abilities and requirements. It's vital to keep in mind that not all children will exhibit all of the traits. Children with mild ID need training in functional communication skills, empathy, social judgment, the ability to follow rules, and the ability to form and maintain friendships (Jurisperitus, 2017) are all examples of social skills. Practical means being self-sufficient in areas like personal care, enjoyment, school organization, job duties, money management, and work assignments.

Potentials of Children with Mild Intellectual Disabilities

Individuals with mild intellectual disabilities have the potential to live independently, maintain employment, access community facilities, and services, engage in meaningful family and social connections, and participate in leisure and recreational activities with the right support (O'Connor, 2014). While not all of these pupils will exhibit all of these qualities at the same time, they will all show a widening disparity between their abilities and those of their peers their age. The likelihood of these children failing increases as the demands of the curriculum and daily life become much more sophisticated and abstract (The Ontario Curriculum Unit Planner Special Education Companion, 2022). We can repeat every instruction or direction several times and ask the learner if further clarification is needed; we should avoid distractions; we should use basic, short,

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EFFICACY OF TRADITIONAL FLOOR GAMES FOR PROMOTING ELECTORAL LITERACY: A STUDY IN DELHI

Dr. Aparna Khanna¹, Ms. Sapna Rani², Ms. Arushi Srivastava³, Ms. Aprajita Sharma⁴

Abstract

The research titled 'Efficacy of Traditional Floor Games for Promoting Electoral Literacy: A Study in Delhi' was conducted to inquire into the urban youth's knowledge and opinion about the importance, myths and misconceptions, and process of voting in India. Further, the study sought feedback about the content and the design of five traditional floor games to create awareness about the electoral process. Perceptions of the youth regarding the use of a games-based approach to learning were also studied. The sample comprised sixty youth (equal number of males and females) in the age group of 18-30 years. A semi-structured questionnaire was administered to the youth to assess their knowledge, and get their views about the floor games as tools for entertainment, information, and education. It was found that a large number of respondents were not aware of the way to register themselves on the electoral rolls, the process of casting a vote, and the concept of social inclusion and diversity in the electoral process. The results indicated that the youth's knowledge increased after playing the traditional floor games. Youth expressed happiness and appreciation for the traditional floor games. They found the activity-based approach to learning very engaging and a lot of fun.

Keywords: *Electoral Literacy; Floor Games; Entertainment; Information, Education, and Communication (IEC)*

1. Introduction

India is the largest democracy in the world. Democracy is defined as a government of the people, by the people, and for the people. All the people in a big country like India cannot participate in the government. Due to this, they are required to exercise their franchise and elect their representatives at regular intervals. The Election Commission of India is an autonomous constitutional authority responsible for administering election processes in India. The body administers elections to the Lok Sabha, Rajya Sabha, and State Legislative Assemblies in India and the offices of the President and Vice President in the country. The Election Commission operates under the authority of the Constitution per Article 324 and the subsequently enacted Representation of the People Act. Developing

RESURGENCE OF SELECTED INDIAN CRAFTS IN COVID-19 PANDEMIC

Ashima Anand & Dr. Seema Sekhri

Abstract

Traditional crafts have been practiced in India since time immemorial. These have been renowned worldwide for their unique designs, intricate work and quality. Their production has always engaged various craft communities and other stakeholders associated with it. Craftspeople earn their living by practicing such age-old traditions along with preserving the legacy of Indian crafts. However, traditional crafts have always been known for struggling with multitude of factors to keep themselves thriving in today's competitive fast paced society. In spite of it, craftspeople have always tried to physically reach out to the consumers through various platforms like exhibitions, fairs and retail outlets to make the consumers understand the value of crafts' legacy and inculcate appreciation for their skills. But, the recent pandemic COVID-19 posed a new and bigger challenge in front of the craft community. Direct interface with consumers through fairs and exhibitions for selling their products was not possible. At the consumers' end too, considering the change in lifestyle, deviations were seen with respect to the consumption of craft-based products. Hence a need was felt to bridge the gap between producers and consumers of craft-oriented goods. The present paper shares the details of resurgence of selected Indian crafts in pandemic times and asserting its relevance in twenty first century. For this purpose, a systematic model was developed, tested and executed. This involved multi-stage approach viz. communication, design and product intervention, product development, marketing and sales. Efforts were also made to generate awareness and popularize Indian crafts through series of webinars. The model developed was tested with

Solar Energy Policies for Commercial Buildings Sector: Experiences from India

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OIDA International Journal of Sustainable Development, Ontario International Development Agency, Canada.

ISSN 1923-6654 (print) ISSN 1923-6662 (online) www.oidaijsd.com

Also available at <http://www.ssrn.com/link/OIDA-Intl-Journal-Sustainable-Dev.html>

Abstract: In an effort to meet the demands of a developing nation, the Indian energy sector has witnessed a rapid growth. However, the country lacks sufficient domestic energy resources, and must import much of its growing requirements. Given this scenario, it is of paramount importance that the country develops all possible domestic energy sources. At the same time, India is still heavily dependent on fossil fuels which is set to lead to multiple challenges like depletion of fossil fuel reserves, global warming and other environmental concerns. Renewable energy, particularly solar is the solution to the growing energy challenges as they are abundant, inexhaustible and environmentally friendly. Given the vast potential of solar energy in India, all it needs is comprehensive policies. It has been seen that there are many initiatives taken by the Indian government, both at the National and the State level for promoting solar energy, but its use and production in the commercial buildings sector is still limited. On studying some of the initiatives of the central and selected state governments, it was found that there were a number of policy related impediments associated with implementation of these initiatives. Thus, there is an urgent need to take steps to minimize these impediments and generate awareness among the stakeholders regarding the government initiatives, so that solar energy can be tapped to its best possible extent.

Keywords: Commercial Buildings, Government Policies, Impediments, India, Solar Energy

Introduction

Future economic growth crucially depends on the long-term availability of energy from sources that are affordable, accessible and environmentally friendly [1]. There is a strong two-way relationship between economic development and energy consumption. On one hand, growth of an economy hinges on the availability of cost-effective and environmentally benign energy sources, and on the other hand, the level of economic development relies on the energy demand [2]. Global energy consumption is projected to increase by 48 percent from 1990 to 2040. The combination of the growth in world population and in Gross Domestic Products (GDP) of all the nations, will, in the absence of dedicated policies, lead to a steady growth in energy consumption [3]. Figure 1 illustrates the projected world energy consumption from different sources.