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Chebyshev Spectral Projection Methods for Fredholm Integral Equations of the Second Kind



Bijaya Laxmi Panigrahi  and Jitendra Kumar Malik

Abstract In this paper, we will propose the Chebyshev spectral Galerkin and collocation methods for the Fredholm integral equations (FIEs) of the second kind with smooth kernel and its associated eigenvalue problem (EVPs). The convergence rates of approximated solutions, iterated solutions with exact solution in L^2_ω norm have been investigated. We will evaluate the errors between exact eigen-elements and approximated eigen-elements both in L^2_ω and L^∞_ω norms. We will show that eigenvalues and iterated eigenvectors have super-convergence rate in Chebyshev spectral Galerkin methods.

Keywords Fredholm integral equations · Eigenvalue problems · Compact integral operator · Chebyshev polynomials

1 Introduction

Let ω be a non negative, continuous and integrable real valued function on $[-1, 1]$. Then the weighted space $\mathbb{X} = L^2_\omega[-1, 1]$ is defined by

$$L^2_\omega[-1, 1] = \{u|u : [-1, 1] \rightarrow \mathbb{R} \text{ and } \|u\|_{L^2_\omega} < \infty\}$$

where

$$\|u\|_{L^2_\omega} = \left(\int_{\Omega} |u(t)|^2 w(t) dt \right)^{\frac{1}{2}}.$$

Let \mathcal{T} be an integral operator defined on \mathbb{X} by

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Gender Equality and Empowerment Workspace, Safety and Wellbeing

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Covid-19 Induced Displacement and Vulnerability of Migrant Labourers of Odisha, India: A Gender Analysis

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Abstract

Covid-19 has become an issue of concern for the whole world. Today, all countries are facing the same crisis, and none will prevail over COVID-19 by acting alone. Given that we share the same future, all of us must work to ensure that it is built on solidarity and partnership. Although the pandemic-affected people are surviving through various means, the number of people suffering from COVID-19 is elevating daily and it has started affecting various aspects of people's lives including income, livelihood, health, education, relationships, etc. It created an unpredictable situation that no one could have ever imagined. With this, displacement and migration has been a big problem in human settlement. Migration of youth mass has increased in huge numbers for getting better opportunities in education and high income. Simultaneously a large number of migrants are found in unskilled labour sectors. They migrated to different work sites within and outside state borders and country borders. The present paper is going to focus on Covid-19 induced migration.

Keywords: Covid-19, pandemic, migration, quarantine, livelihood

1. Introduction

Covid-19 is an emerging current issue that has destroyed the lifestyle and economic status of every country in the world. For the first time, a new type of flue was found in Wuhan, China and this disease killed many people in 2019. It was immediately reported to the World Health Organisation (WHO) in

Advertisements as Stories of Empowerment

Sony Parhi¹ and Meera Swain²

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Abstract

While society is still on the patriarchal mind-set and the advertisements are created with the ultimate motive to generate profits, it's time to reflect on the depiction of gender stereotypes. Advertisements that portray individuals as objects and are not sensitive to gender identities should come under scrutiny. Women have penetrated all walks of life and challenged the traditional gender roles. Advertisements today portray the image of women in a gender equality dimension. This paper brings to scrutiny the gender equal portrayals and discusses advertisements as instruments of change and empowerment.

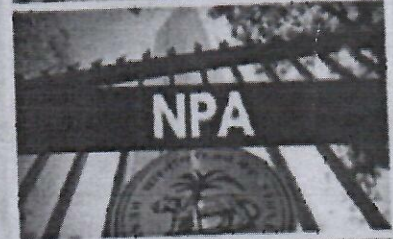
Keywords: Gender, Equality, Advertisements, Stereotypes

1. Introduction

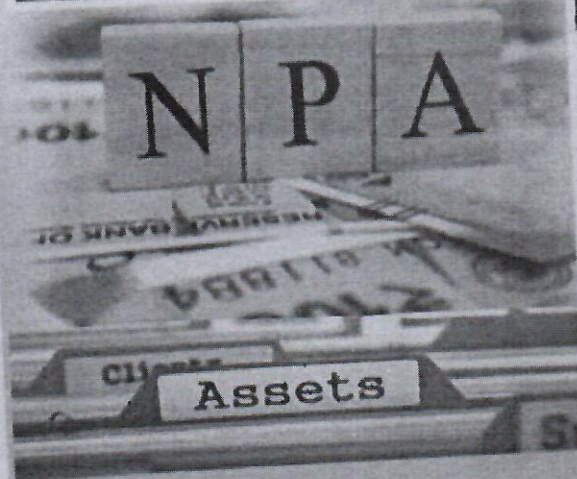
Achieving gender equality and empowering women and girls is the unfinished business of our time, and the greatest human rights challenge in our world, the then UN Secretary-General, Mr. António Guterres had stated. UN support for the rights of women began with the Organization's founding Charter. Among the purposes of the UN declared in Article 1 of its Charter is "To achieve international co-operation ... in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion".¹

¹<https://www.un.org/en/global-issues/gender-equality>

MANAGEMENT OF NON-PERFORMING ASSETS IN COMMERCIAL BANKS OF INDIA



NON PERFORMING ASSET (NPA)



Dr. Manoj Kumar Sahoo
Dr. Muralidhar Majhi

Chromium Dynamics in Soil-Plant System

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Symbiosis Institute of Geoinformatics (SIG), Symbiosis International (Deemed University) (SIU)

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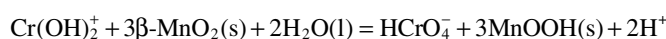
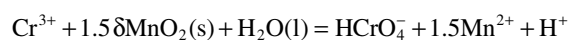
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5.1 Geochemistry of Chromium

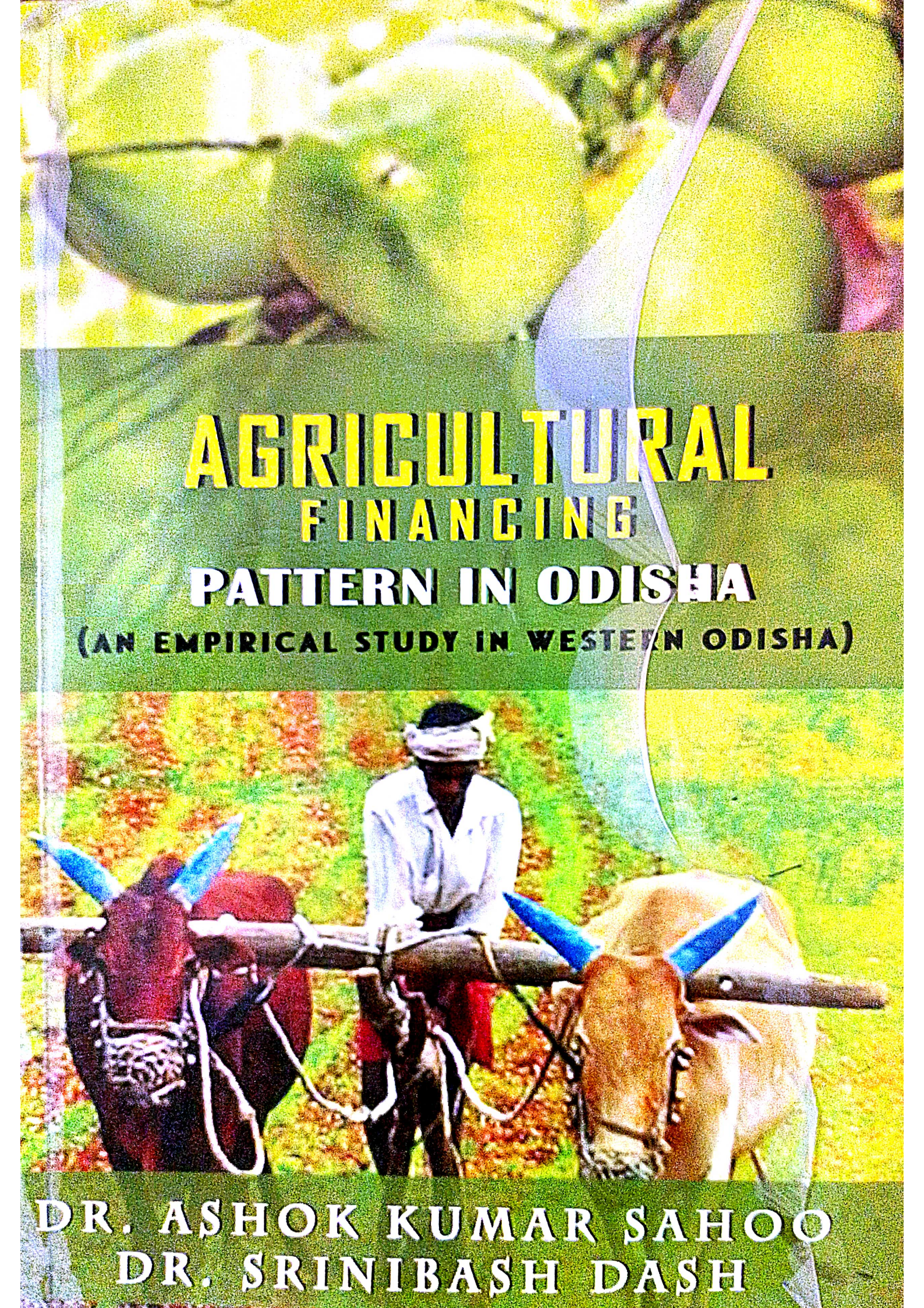
Trivalent (Cr(III)) and hexavalent (Cr(VI)) forms of chromium (Cr) are the most stable form available in nature (Xia et al., 2019), although chromium varies from –2 to +6 valence state due to vacant d-orbital (Fendorf, 1995; Richard and Bourg, 1991). Intermediate redox reaction of chromium produces unstable Cr(IV) and Cr(V) (Wrobel et al., 2015). Speciation of chromium dictates the mobility, bioavailability and toxicity of chromium in the soil-plant system (Kožuh et al., 2000). Cr(III) acts as a glucose tolerance factor inside the human body which is required for proper functioning of insulin; on the contrary, Cr(VI) attracted the attention of scientists around the globe as a dangerous carcinogen. Anderson (1997) provided a detailed insight into the carcinogenic properties of Cr(VI). Danish et al. (2019) explained non-biological role of chromium in plant, which makes Cr a potentially toxic material.

Geochemistry of chromium is mostly governed by redox transformation mechanism, adsorption/desorption and precipitation/dissolution processes (Rai et al., 1989). Availability of redox couples can initiate the redox reaction in favourable pH conditions in soil. Hydrogen peroxide (H₂O₂), Fe(III) oxyhydroxide, Mn-oxides, dissolved oxygen and gaseous oxygen act as a probable electron donor for the oxidation of Cr(III) (Fantoni et al., 2002; Schroeder and Lee, 1975). There are uncertain evidences on the role of Fe(III) oxyhydroxide in the oxidation of Cr(III), which needs more in-depth investigation. Hydrogen peroxide oxidizes the Cr(III) at a very fast rate, as it is a strong oxidant (Pettine and Millero, 1990). Ball and Izbicki (2004) correlated high Cr(VI) concentration in groundwater of the western Mojave Desert, California with high concentration

of dissolved oxygen. On the contrary, oxidation of Cr(III) to Cr(VI) by dissolved oxygen is a very slow process (Cranston and Murray, 1978). Mn oxide plays a crucial role in the oxidation of Cr(III) (Bartlett and James, 1979; Fendorf and Zasoski, 1992). In oxidizing condition of soil environment hexavalent chromium gets mobilized as CrO₄²⁻ and Mn(IV) get precipitated as MnO₂; but in reducing condition, trivalent chromium gets precipitated as Cr(OH)₃ and Mn gets mobilized as Mn²⁺. Thus Mn and Cr demonstrate an inverse relationship in the context of solubility pattern in soil environment (Bartlett and James, 1979). Eary and Rai (1987) identified that oxidation of Cr(III) can take place on the surface of β-MnO₂ mineral within the pH range of 3–10.1; in addition to that, δ-MnO₂ (birnessite) and α-MnO₂ (cryptomelane) can also provide high surface energy for the oxidation of Cr(III). Trivalent chromium is found attached to the mineral surface which gets oxidized in the presence of Mn and gets converted to hexavalent form. During this process desorption of Cr(VI) and precipitation of Mn takes place (Schroeder and Lee, 1975). Richard and Bourg (1991) found traces of Mn mineral precipitated at site of oxidation of Cr(III) on mineral surface. Amacher and Baker (1979) explained the process of oxidation of Cr(III) by Mn through the following equation:



Hexavalent chromium gets reduced to trivalent chromium in the presence of various reducing agents like hydrogen sulphide



AGRICULTURAL FINANCING PATTERN IN ODISHA

(AN EMPIRICAL STUDY IN WESTERN ODISHA)

**DR. ASHOK KUMAR SAHOO
DR. SRINIBASH DASH**

**AGRICULTURAL
FINANCING PATTERN
IN ODISHA
(AN EMPIRICAL STUDY IN
WESTERN ODISHA)**

By

Dr. Ashok Kumar Sahoo

&

Dr. Srinibash Dash



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S. Kumar

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Recent Advances in Management, IT & Social Sciences (Vol-2)

Editor

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Pygmalion Effect or Rosenthal Effect on Investment Decision of Indian Millennial

Yadav Devi Prasad Behera, Shibani Sharma & Srinivas Rao K

Abstract

Sustainable economy need sustainable pumping of finance in the economy for the incessant growth and the rise in the contribution of millennial investors brought a hope for sustainable flow of capital to the financial markets, especially the stock markets. The study purposed to find out the factors that affects the Indian millennial investment sentiments and investment decision. The study followed inductive research approach with causal research design. A self-structured questionnaire was formed to collect 111 responses from 4 strata of southern Odisha. Factor analysis was used to find the factors affecting the investment decision and regression was used to find the magnitude of effect of these extracted factors on the investment decision. The study found that different elements of Pygmalion effect or the Rosenthal effect are risk tolerance capacity, meta cognitive behavior, herding and social effect, and active involvement, which affect the millennial investment decision positively and significantly.

Keywords: *Pygmalion effect, Rosenthal effect, behavioral finance, investment decision, investors' sentiments* JEL classification: G11, M20, O11

Introduction

Indian economy has become the 5th largest economy beating United Kingdom, which shows the progressive move of India as a country (PTI, 2022). With economic strength, India can reach out in the world as a global power. But to continue with this growth, India must focus on growing its gross domestic product (GDP) and this can be possible with huge amount of capital. India has proved itself as the most preferential tourist destination, with highest foreign direct investment (FDI) inflow after the COVID-19 pandemic (ANI, 2022). But depending heavily on the FDI inflow cannot make the



Machine Learning Algorithms for Diabetes Prediction

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Abstract. Diabetes has emerged as one of the most deadly and prevalent illnesses in the modern society, not just in India but also everywhere else. Diabetes now impacts individuals of every age and is associated with lifestyle, genetics, stress, and ageing. Different types of machine learning approaches are now applied to forecast diabetes and also the disorders brought on by this disease. In this study we have used five machine learning classifiers such that Extra Tree (ET), Decision Tree (DT), Random Forest (RF), K-Nearest Neighbour (KNN) and Passive Aggressive Classifier (PAC) for diabetes mellitus prediction. The experimental findings demonstrate that Random Forest and Extra Tree have the lowest error rates with the highest accuracy (81.16%).

Keywords: Diabetes · Machine learning · Accuracy · Classifiers

1 Introduction


A subfield of Artificial Intelligence (AI) known as Machine Learning (ML) enables programmes to forecast outcomes more accurately even when they weren't explicitly intended to do so. In order to forecast future output values, algorithms of machine learning utilize the past data as its input. These algorithms employ mathematical approaches that are highly helpful in assessing a lot of data and making recommendations for actions based on these data. Machine learning is now being utilized in many facets of medical health. Numerous researchers [1, 2] are now using algorithms of ML to predict and manage a variety of diseases. In order to take the required steps to prevent diabetes, machine learning algorithms are being applied to investigate their potential for diabetes prediction. These algorithms may be grouped basically into 3 types: Supervised, Unsupervised and Reinforcement learning [3]. Commonly referred to as Diabetes Mellitus (DM) by medical experts, diabetes disease is a collection of metabolic illnesses where an individual has excessive blood sugar due to insufficient insulin secretion, improper insulin cell response, or a combination of both. [4]. Diabetes illness is separated into 2 groups namely type 1 and type 2. The main distinction between these two is that person with type 1 diabetes can not make insulin while those with type 2 diabetes produce a small amount of insulin that is not effective enough. Urinating frequently, experiencing frequent hunger and thirst, feeling exhausted, and having impaired vision are the main symptoms of people with type 1 or type 2 diabetes [5]. The early this disease is

Transforming Mind Through Value Education

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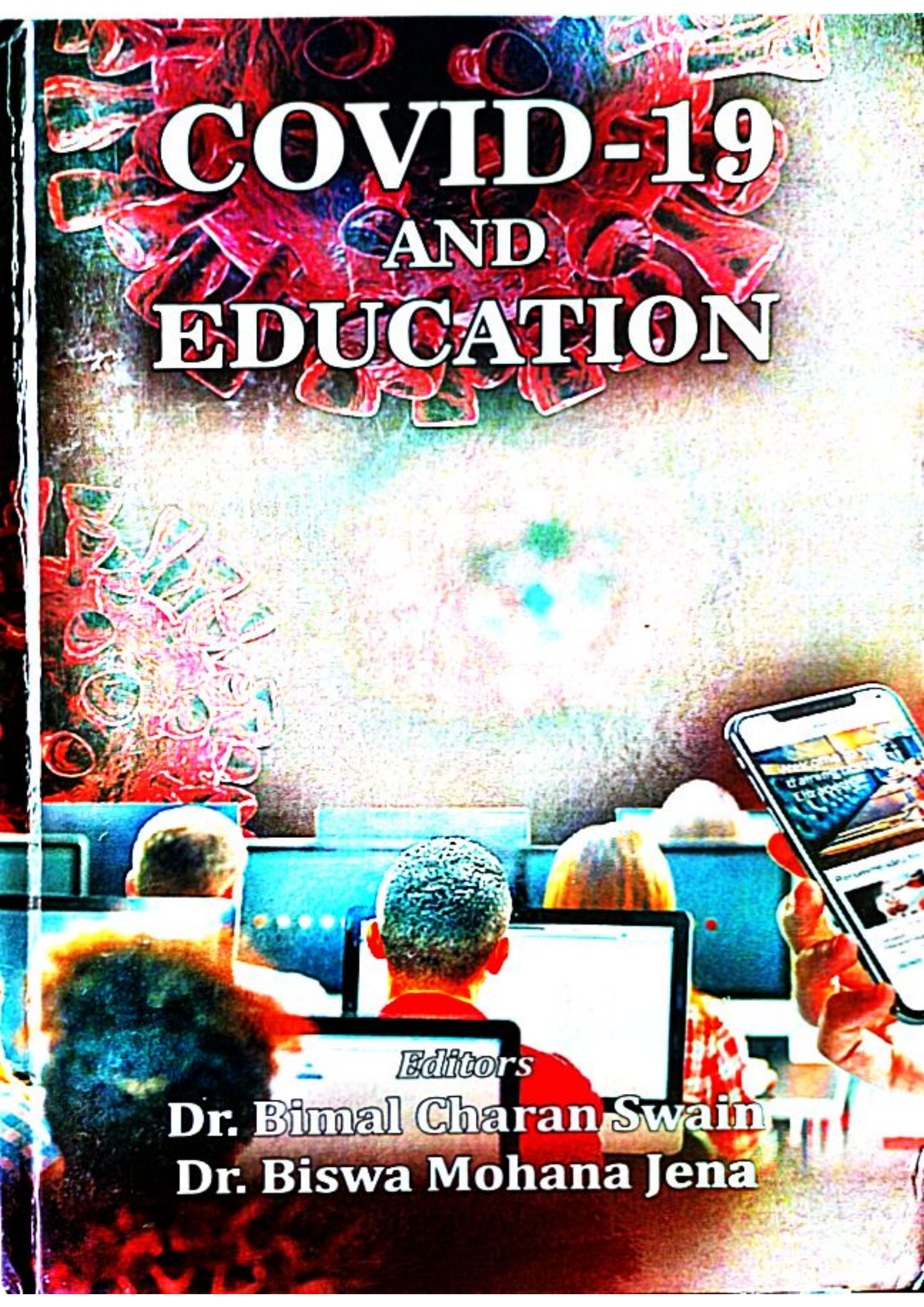
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Pedagogical Model for Value Education at School Level : TAUGHT vs. CAUGHT MODEL

*Omkarshri Panda
Partha Sarathi Mallik*

Introduction :How to impart value education to students in an effective and sustainable ways is a primary agenda of academicians and researchers. Academicians have primarily suggested two approaches for imparting value education at school level in different names i.e.curricular and co-curricular; separative and integrative; direct and indirect or whole school / ecological approach. These approaches can be conceptualised from provider or teachers point view and recipient or students point of view. Though, it was a trend in last two decades that the nature of values to be imparted to school going students is socio-cultural and contextually framed but recently focus of researchers has been changed from what to how aspect.Predominantly the approaches for value education as suggested is curricular in nature, i.e. either in the form of separate chapter/unit or may be by co-curricular activities but all are centres around how to impart or provide. But reality is that value is itself an amalgamation of cognitive, affectiveand psychomotor perspective. Therefore, how to design value education from student's point of view is least focused in research literature. In this paper attempt have been made to present the value education model from taught versus caught model and suggest how caught model is more effective and sustainable from taught model. This will not only extent the value education literature but also helps a lot for appropriate designing of value education by practitioners.

Background of Value Education :Value means something worthwhile and desirable to the individual or society, hence worthy



COVID-19 AND EDUCATION

Editors

Dr. Bimal Charan Swain

Dr. Biswa Mohana Jena

COVID-19 AND EDUCATION

The outbreak of COVID-19 was first identified in Wuhan, China in December, 2019. The World Health Organisation (WHO) declared the outbreak a Public Health Emergency of International Concern on 30th January, 2020 and a Pandemic on 11th March, 2020. The COVID-19 pandemic has affected education system worldwide, leading to the near-total closure of schools, colleges and universities. Online learning has become a panacea for this unprecedented global pandemic, despite the challenges posed to both educators and learners. The book contains thirty six papers on impact of COVID-19 on education written by academicians, teacher educators and research scholars. It is expected that the book will have immense value for academicians, policy makers, educational administrators, teachers, teacher educators and students of education and other disciplines.

ABOUT THE EDITORS



Dr. Bimal Charan Swain, Associate Professor in Education, Nalini Devi Women's College of Teacher Education, Bhubaneswar (Government of Odisha) has 27 years of teaching and research experience. He passed M.A. in Education from Panjab University, Chandigarh with 1st Class 1st (Gold Medalist) and M.Phil. in Education with 1st Class and Distinction from the same University. He was awarded Ph.D. in Education from Himachal Pradesh University, Shimla. He completed M.A. in History from Utkal University, Bhubaneswar. Dr. Swain has experience of teaching at B.A. (Hons), B.Ed., M.Ed. and M.Phil. (Education) levels.

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MOTIVATION AND NEED ASSESMENT OF JUNIOR TEACHERS TEACHING IN ONLINE MODE UNDER SHIKHYA SANJOG PROGRAMME

Maruti Kumar Tripathy & Dr. Sanjukta Bhuyan

Abstract

The present study aimed at finding out the motivation and need assessment of Junior Teachers (contractual) in online teaching under Shikhya Sanjog programme with reference to their marital status. Descriptive Survey Method was adopted in the study. The sample of the study consisted of 52 junior teachers (contractual) of Lanjigarh Block of Kalahandi District. Data were collected through two self developed tools namely i.e., Motivation Scale for Teachers & Need Assessment Questionnaire for Teachers. The results of the study revealed that JTC were moderately motivated for Shikhya Sanjog Programme.

Keywords : *motivation, need assessment, shikhya sanjog programme, junior teachers*

Introduction

World Health Organisation declared COVID-19 as a pandemic on 11th March 2020 & 1.5 billion people reported positive of COVID-19 worldwide, including 3,158,792 deaths (<https://covid19.who.int>, April 2021). The outrage of COVID-19 virus has become an international threat on every aspects of life including education. It is an unpredicted pandemic which is very challenging for every educational institution around the country. As of 28th

EMERGING TRENDS IN EDUCATIONAL TECHNOLOGY

Edited by
Dr. Droupadi Patel



EMERGING TRENDS IN EDUCATIONAL TECHNOLOGY

E-learning has opened a door of opportunity for educators to teach students without the boundaries of a classroom. Many educators also use animations, podcasts and videos to make the e-learning experience more fun and interactive for the learners. From customized learning environments to being cost-effective, e-learning has many advantages, and this is why we will see this trend grow in the future.

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CYBER CRIME AWARENESS AMONG THE HIGHER EDUCATION STUDENTS

Sarat Pursty & Dr. Sanjukta Bhuyan

Abstract

Cybercrime is on the increase everywhere in the world. A large number of people have become victims of the cyber crimes. The awareness among students will be an effort to control the crimes and protect their friends, family's members and society. The present study was conducted to investigate cyber crime awareness among higher education students studying at Gangadhar Meher University, Sambalpur. A Descriptive survey method was adopted on a sample of 120 post graduate students selected by stratified random sampling technique. The data was collected by Cyber Crime Awareness Scale developed by Dr. S. Rajasekar. The obtained data was analyzed with the help of descriptive statistics using ANOVA in Ms Excel, t-test and percentage also have been used in this studies to analyze cyber crime awareness level among the post graduate students. The study revealed that there is no significant difference in the level of awareness between male and female students about cyber crime. Furthermore, it was found that there is no significant difference among the different stream students. It is also found that 98.33% students were highly aware about cyber crime, 1.66% students were moderately aware and there were no students found who had low level awareness about cyber crime.

Keywords – Cybercrime and Awareness

COMPUTER PROFICIENCY AMONG ELEMENTARY SCHOOL TEACHERS

*Deeptimanjari Padhan &
Dr. Sanjukta Bhuyan*

Abstract

Computer proficiency is the knowledge and ability to use computers and technology efficiently. Computer proficiency can also refer to the comfort level; someone has with using computer programmes and other applications that are associated with computer. The present study was designed to investigate the computer proficiency of elementary school teachers in Lakhanpur Block, Jharsuguda District of Odisha, with the objective to find out the variation in computer proficiency among elementary school teachers with regards to locality and gender. The study adopted descriptive survey method. The sample of the study was comprised of 60 elementary school teachers covering 30 teachers from rural and 30 teachers from urban areas including 15 male teachers and 15 female teachers respectively following stratified purposive sampling technique. The standardized tool used for the study was Computer Proficiency Scale developed by Sood & P.S. Nege. The statistical techniques used for the study was Mean, SD, and t- test. The findings revealed that there exists no significant difference between computer proficiency among elementary school teachers with regards

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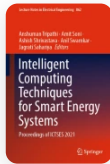
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Parameter variations adversely affect the performance of the system. Many systems are modeled as interval systems due to the ability to handle uncertainty. In this article, the Doha water treatment plant is modeled as an interval system. Interval modeling of desalination plant plays an important role which focuses on the construction of transfer function. Uncertainty is considered in all coefficients of the transfer function of the system for getting the interval model of the Doha water treatment plant. Further, the obtained interval models are analyzed for stability. Time domain response analysis of these parameters helps in designing and plotting control for the Doha plant.

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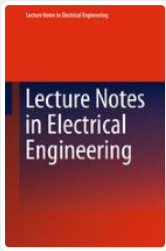
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Internet of Things (IoT) is looking ahead to a world in which any service can be connected through the use of adapted ICTs to contribute to technical transformation in a variety of fields, including health systems. In healthcare solutions, the use of the Internet of Things (IoT) tackles latency sensitivity concerns, inconsistent data load, diverse consumer preferences, and applications' heterogeneity. A present survey considers cloud computing as the base tone for creating IoT-Enable solution. This setting, however, has constraints on the distance from the data source for the multi-hop system. In order to overcome these drawbacks, a variety of solutions are extended as a means of bringing computational power closer to the data sources. As a result of the rising demand for mist computing, various vendors have arrived to provide the remedy for IoT health consumers. In this paper, we measured the estimated revenue from a mist service provider using the M/G/c/N queueing model with the average waiting time for a new service request and the probability of time delay.

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Queue or waiting lines are a common phenomenon in getting healthcare facilities such as OPD, pathology, dentists and in various health facilities. In the developing countries the increasing demand of healthcare services makes the patients to wait in queue to get services. In order to get good service facilities there is a need of sufficient resources to be allocated to avoid long waiting queue. There will be a trade off between the QoS and the optimal use of resources for the health facility. When the patients come to get health facilities they wait in a queue until their turn to come. Sometimes when a patient comes and observes there is a long queue and not to join the queue called patient balking, but if the patient joins the queue and after some time because of the long wait or due to the dissatisfaction of the healthcare services may leave is called patient renegeing. This process is shown in fig 1.

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Chapter

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New Light on a Lesser-Known Odia Palm-leaf Manuscript on 'Kāma-sūtra'

Santosh Kumar Mallik¹

The main aim of this essay is to see how translation intercedes in the emplacement of cultures. For my purpose, I shall take up an illustrated poetical composition of unknown/unpublished palm-leaf manuscript¹ called '*Chauṣhaṭhi-Rati Bandha*' by the Odia poet Gopala Bhanja, generally acknowledged as one of the makers of medieval Odia literature. I shall endeavor to explain that Gopala Bhanja's long illustrated-poem was patterned after composition of Vātsyāyana's *Kāma-sūtra*, and some relevant later works of other vernacular *Kāma-sūtras*. However, my curiosity is not so much with retracing conventions of similarities and differences between the two texts so as to agree on the question of what George Steiner pertinently calls 'fidelity' and 'betrayal'- the traditional objective of translation study. Instead, I shall treat the translated text '*Chauṣhaṭhi-Rati Bandha*' as a free and independent interpretation. I shall effort to confirm that Gopala Bhanja's translations/adaptations like '*Chauṣhaṭhi-Rati Bandha*'s regularized by a set of erotica theme and factors like erotica-literature. In unambiguous stipulations, I hope to demonstrate that Gopala Bhanja in '*Chauṣhaṭhi-Rati Bandha*'s was not very hampered by the need to evoke the classical Indian heritage or to attempt poetical innovations through the use of *Kamasutra* of Vastyana's sources. As a medieval poet working in a specific erotica matrix, Gopala Bhanja, I argue, was engaged in the formation of a regional cultural identity through the subjects of ancient legacy, those are depicted in the temple art of Odisha in every nook and corner as well in *Riti-Yugīya* poetical composition.

To investigate the subject matter comprehensively we have to explore the available sources of palm-leaf records for the translation and transcription of the specific manuscript or colophon. In the context of Odisha and its palm-leaf tradition is very old age phenomenon; subsequently far the earliest evidence of a palm-leaf manuscript dates to CE 795, when the Chinese emperor Te-Tsang received as a token of homage an autographed manuscript of *Avatamsakasutra* addressed to him by king Subhakar² of Wu-cha (Odisha).³ Mainly the paper deals with the two part or sections one is deals the form, perspective and practice in the palm-leaf manuscript traditions. The second part of the paper is concentrated through the translation and critical interpretation.

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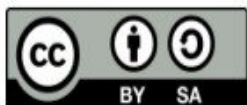
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Unit-3: DRAIN OF WEALTH: CAUSES AND CONSEQUENCES

Structure:

- 3.1: Learning Objective
- 3.2: Introduction
- 3.3: Origin and Meaning of Drain of Wealth Theory
- 3.4: Nationalism and the Drain of Wealth.
- 3.5: Causes for the Drain of Wealth of India.
- 3.6: Estimation of the Drain of Wealth.
- 3.7: Consequences
 - 3.7.1: Impact of Drain of Wealth on Indian Economy
 - 3.7.2: Impact of Drain of Wealth Theory on Indian Nationalism
 - 3.7.3: Effect of the Drain of Wealth on England
- 3.8: View of Indian Nationalist leaders over the Drain of Wealth Theory
- 3.9: Let's Sum Up
- 3.10: Exercises.
- 3.11: Further reading

3.1: LEARNING OBJECTIVE

The policy of the English Government that Creepled the economic, commercial, and material sphere of India was the Drain of Wealth. England was always worried about its commercial interest and it wanted to drain the wealth of India to England as much and soon as possible. This policy of England was named as Drain of Wealth. After going through this unit the learners will be able to;

- Understand the concept of the drain of wealth.
- Explain the meaning and nature of Drain of Wealth.
- List the various stages of Drain of Wealth.
- Understand the then consequences of the Drain of wealth on the Indian economy in particular and on India in general.



3.2: INTRODUCTION

The Industrial Revolution and favourable conditions for British traders under colonial rule in India ended the role of individual artisans, caused havoc in the rural economy and caused irreparable damage to the textile, handicraft industry of India. However, in England and other European countries, the loss of craftsmen was compensated by the growth of industry and factory systems. In India, the colonial policies did not allow the industry to grow freely and hence Indian economy shrank considerably under colonial rule. From the economy of India producing about 25% of world industrial output in 1750 before colonial rule, this figure fell to only 2% by 1900 during colonial rule. Therefore the Colonial rule in India by its inherent nature, lopsided policies, and greed for profit worked for benefit of England and in turn impoverished India.

3.3: ORIGIN AND MEANING OF DRAIN OF WEALTH THEORY

In the 17th and early 18th centuries, the English East India Company used to import millions of gold and silver and funds from England for purchasing goods in India. These goods were then exported to Europe for sale. After the Battles of Plessey of 1757 and Buxar of 1764 and the Treaty of Allahabad of 1765 was signed, which entitled the Company to collect land revenue from the rich provinces of Bengal, Bihar and Odisha, the Company began generating surplus revenues. The Company used these revenues to purchase goods in India which were then exported for sale in Europe and elsewhere. It eventually eliminated the need for the Company to import gold and silver and funds from England to finance its operations in India. It resulted in a situation where Indian revenues were used to purchase Indian goods which were then exported out of India, without India getting anything in return. This was the beginning of the drain of India's wealth. India was a major player in the world export market for textiles and handicrafts. In the early 18th century, but by the middle of the 19th century it had lost all of its export market and much of its domestic market. Other local industries also suffered a decline which resulted in the de-industrialization of India. While India produced about 25% of world industrial output in 1750, this figure fell to only 2% by 1900.

During the last quarter of the 19th century, a great controversy arose over the question of 'The Drain' between the nationalist leaders of India and the Protagonists of Britain. Indian nationalist thinkers developed the theory of Drain mainly for analyzing the cause of poverty in India. The main agreement that was advanced in this respect was that "a significant portion of India's national wealth was transferred to England without any quid pro quo." The experts described such 'Drain' on India's resources as



UNIT-4: GROWTH OF MODERN INDUSTRY

STRUCTURE

- 4.1: Learning Objectives
- 4.2: Introduction
- 4.3: Evolution of Traditional Industries in India
- 4.4: The decline of Indian Industries under the British Rule
- 4.5: India's Contribution towards Industrial Revolution in Britain
- 4.6: Modern Industry In India
 - 4.6.1: Plantation Industry
 - 4.6.1.1: Indigo Plantation
 - 4.6.1.2: Tea and Coffee Plantation
 - 4.6.1.3: Jute Plantation
 - 4.6.2: The Emergence of Local Industries
- 4.7: Capital Investment
- 4.8: Industries and Swadeshi Movement
- 4.9: World War-I and Development of Industry
- 4.10: Impact of World War-II
- 4.11: Exercises.
- 4.12: Further reading

4.1: LEARNING OBJECTIVE:

After studying this topic you should be able to

- Understand the historical growth of traditional industries in India
- Explain how India was economically an advanced country before the arrival of the British,
- Examine the role of industries in the economic development of our country.
- Classify the reasons how the colonial policies led to the collapse of Indian industries
- Understand the role of India towards the success of the Industrial Revolution in Britain.
- The emergence of modern industries in India due to two World Wars

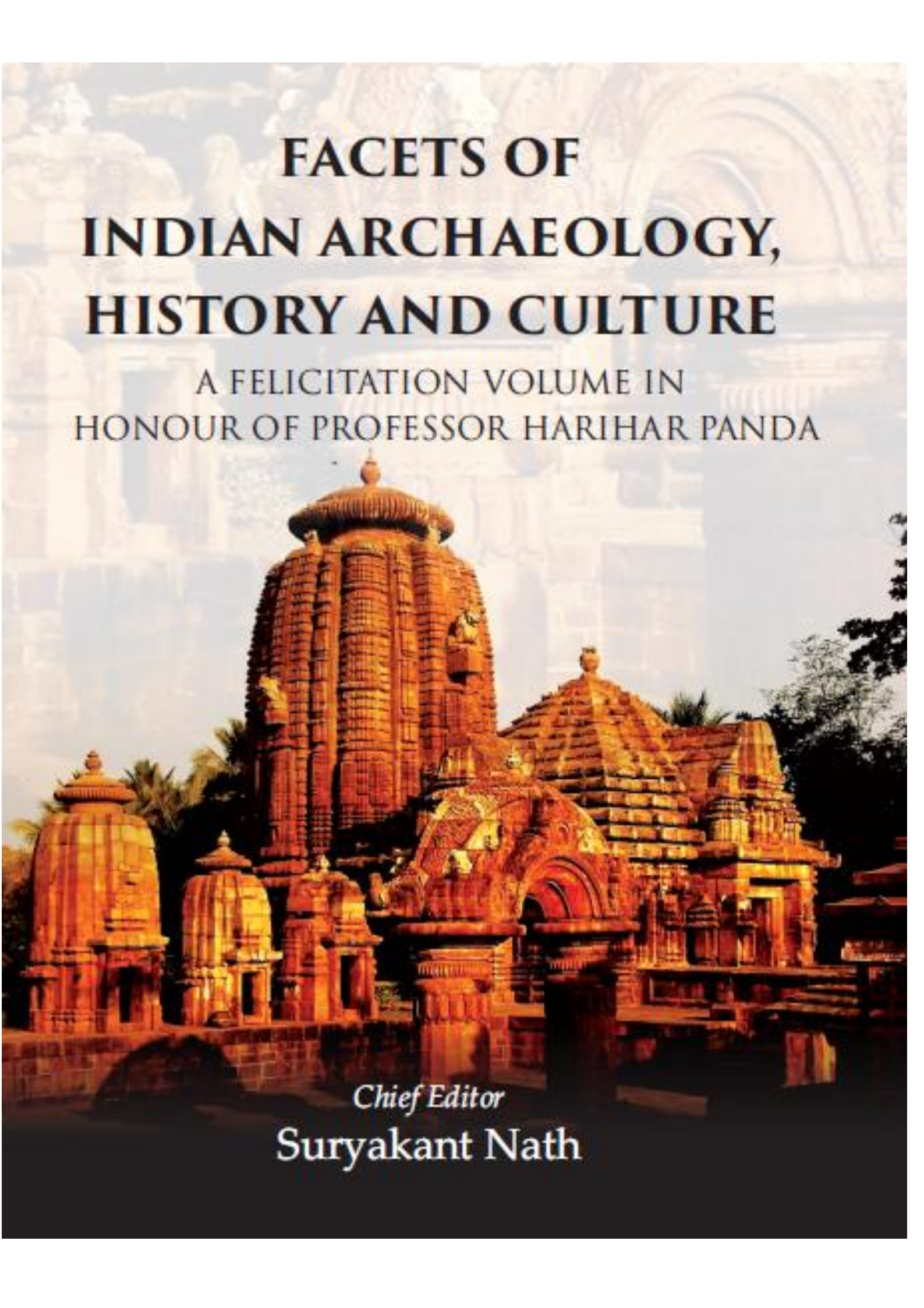


4.2: INTRODUCTION:

Industrial development is today considered a prerequisite for modern economic development. That is why all countries of the world, whether big or small, rich or poor, and developed or developing, are channelizing their resources to promote rapid industrialization. India, since ancient times, has been famous in the world for its cottage and household industries. Before the beginning of modern industrial development, Indian pottery, muslin and silk goods were much in demand. The traditional handicrafts industry, however, suffered after the advent of the British in India. The British policy of exporting raw material from India to Britain and importing finished goods into India severely hampered the growth of industries. This critical scenario improved somewhat after the mid-nineteenth century but the growth of industries was a slow process. Before the rise of the modern industrial system, India had a flourishing state of the cottage and household industries and Indian manufacturers had a worldwide market. Indian muslin, cotton and silk fabrics, calicoes, artistic wares etc. were in great demand the world over. The impact of the British connection and industrial revolution led to the decay of traditional handicrafts. Not only did the Indian handicrafts fail to match the machine-made goods in quantity and quality but the British policy of encouraging the import of manufactures and export of raw materials from India shook the very foundation of the traditional industries.

4.3: EVOLUTION OF INDUSTRIES IN INDIA:

Industrial development is important for the socio-economic and human development of a country. Industrial growth in India corresponds with the ups and downs in the Indian polity. The emergence of a strong polity either under the Mauryas or the Greater Mughals also brought about accelerated growth; but the disintegration and political instability after the fall of the Mauryas or the Greater Mughals, industries 'also suffered a setback. The industrial structure before the British imperial rule was, however, not destroyed. On the contrary, the British Imperial Government of India deliberately destroyed that infrastructure for the benefit of their metropolitan industry and from the 1880s onward it was necessary to evolve modern industrial infrastructure rather than complement the growth, of their metropolitan industry by creating, on the one hand, demand for the machinery, and on the other hand, to fill up the gap in the volume of foreign trade which occurred due to disappearance of manufactures from the export from India. Therefore the Indian industry from immemorial times continued to grow despite the stagnation in times of political instability. We know from the Greek writers who admired that "India has many huge mountains which abound in fruit trees of every kind and many vast plains of great fertility" more or less beautiful, but all alike intersected by



**FACETS OF
INDIAN ARCHAEOLOGY,
HISTORY AND CULTURE**

A FELICITATION VOLUME IN
HONOUR OF PROFESSOR HARIHAR PANDA

Chief Editor

Suryakant Nath

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(A Felicitation Volume in Honour of Professor Harihar Panda)

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Pacific Books International

Facets of Indian Archaeology, History and Culture

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1/7/22

Letter No.OSOU/2022/ 27

Date: 6/1/2022

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Sub-Preparation of Self Learning Material

Dear Sir,

You are hereby requested to write the following units for the given course title

BAHI-XIV: HISTORY OF MODERN EUROPE II (c. 1880 - 1939)

Block-4: Intellectual Developments since circa 1850: Major Intellectual Trends

Unit-1. Mass Education and Extension of Literacy.
3. Darwin and Freud.

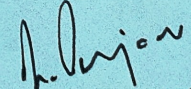
Please note that, each unit shall consist of about five thousand (5000) words. The manuscripts should comply with the 'UGC (promotion of Academic integrity and prevention of Plagiarism in Higher Educational Institutions) Regulation, 2018. A sample format and unit structure is enclosed herewith for your reference. You are requested to complete each assignment within 21 days.

You will be paid a token of honorarium as may be fixed by the University from time to time for writing the course material.

Enclosures:

1. Detailed Syllabus of BAHI
2. Sample copy of Self –Learning Material
3. Remuneration Bill

Yours sincerely


Registrar 06/01/22



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BACHELOR OF ARTS IN HISTORY (BAHI)

BAHI-14

HISTORY OF MODERN EUROPE-II (C.1880-1939)

Block-IV:

**Intellectual Developments since circa
1850: Major Intellectual Trends**

**UNIT-13: MASS EDUCATION AND OF EXTENSION OF
LIETERACY**

**UNIT-14: INSTITUTIONALISATION OF DECIPLINE:
HISTORY, SOCIOLOGY AND ANTHROPOLOGY**

UNIT-15: DARWIN

UNIT-16: FREUD



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BLOCK-IV: INTELLECTUAL DEVELOPMENTS SINCE
CIRCA 1850: MAJOR INTELLECTUAL TRENDS

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UNIT- 13: MASS EDUCATION AND EXTENSION OF LITERACY



Structure

- 13.1 Learning Objective
- 13.2 Introduction
- 13.3 Concept of Mass Education
- 13.4 Background of Mass Education
- 13.5 Mass Education And 17th/18th Century Europe
- 13.6 Mass Education And 19th Century Europe
- 13.7 Growth of Education & Literacy In Germany
- 13.8 Growth of Education & Literacy In France
- 13.9 Growth of Education & Literacy In France During Napoleonic Era
- 13.10 Growth of Education & Literacy In England and Its Colony
- 13.11 Growth of Education & Literacy In England and United States of America
- 13.12 Growth of Education & Literacy In Russia
- 13.13 Growth of Technical and Professional Education & Literacy In Western Europe
- 13.14 Extension of Literacy In Europe
- 13.15 Mass Education and Other Agencies
- 13.16 Let's Sum Up
- 13.17 Check your progress: Exercises
- 13.18 Further reading

13.1 LEARNING OBJECTIVE:

Following lessons this subject matter you ought to be capable to

- To identify with the perception of the Mass Education and Extension of Literacy.
- Explain the meaning and nature of Mass Education and Extension of Literacy in Europe.
- To understand the then consequences of the Mass Education and Extension of Literacy.

13.2 INTRODUCTION

Generally in the 19th century mass education was become a worldwide institution, both as a normative principle and as an organizational reality. One of the central transformations of the modern era has concerned the organization of the ways in which knowledge is transmitted through the education and it reflects in the literacy rate in every society as per the ratio of total population. The ways in which people's capacities to receive this knowledge have been shaped through the systematic discipline and the medium of education. In this way we can assume the ideas of education spread in the nook and corner of states to give a ratio of literacy of the state. In the case of Europe and mostly late part of the 18th and early part of the 19th century education spread in the various way of as a medium of school, secondary, higher studies, establishment of the university and some other research institute give us better idea how the education to be spread all over the land. For this a study of the development of modern systems of education is essential for an understanding of the mass education and extension of literacy in European states, due to the enlightenment.

The Enlightenment dominated European progressive thought from the 1650s until the 1780s. It was sparked by a slew of new ideas, including challenges to the Catholic Church's orthodoxy and authority, as well as a growing interest in scientific concepts and methods. It brought into question traditional philosophical ways of thinking. The thinkers of the Enlightenment envisioned a more modernised educational system that played a larger role in the dissemination of ideas and values. The development of European educational systems continued during the Enlightenment and into the French Revolution. Improvements in educational systems resulted in a larger reading public, resulting in more demand for printed books from readers across a broader social spectrum and interests. When the Enlightenment gave way to Romanticism after 1800, there was less focus on reason and defiance of authority, and more support for increased nationalism and compulsory schooling.

One of the fundamental modifications of the modern era has been the structure of how knowledge is given through education, which is represented in every country's literacy rate as a percentage of the total population. People's capabilities to absorb this information have been developed by systematic discipline and educational medium. This leads us to believe that educational principles have spread throughout the state, resulting in a state-wide literacy ratio.





Structure:

- 16.1 Learning Objectives
- 16.2 Introduction
- 16.3 Sigmund Freud's Life
- 16.4 Topography Of Mind
- 16.5 Psychosexual Developmental Stages
- 16.6 The Personality Structural Model (Id, Ego And Superego)
- 16.7 The Oedipus Tragedy
- 16.8 His Psychoanalytic Theory
- 16.9 His Philosophy
- 16.10 His Major Contributions
- 16.11 Let Us Sum Up
- 16.12 Key Words
- 16.13 Further Readings

16.1 LEARNING OBJECTIVES

The study of human behaviour and personality has been strongly influenced by the views of Sigmund Freud. His studies on the causes and treatments of mental illness contributed to the development of contemporary psychiatry. As a result, this course contains useful information regarding Sigmund Freud's life and work. It covers topics like as psychosexual development, human personality structure, the Oedipus crisis, the unconscious, his psychoanalytical method, and a brief overview of him as a philosopher.

16.2 INTRODUCTION

The study of human behaviour was closely related to advances in biology and physiology. Gregor Mendel and later on, Francis Galton investigated the place of heredity in mental developments of human beings. Wilhelm Wundt showed interdependence of mind and body. During 1890s there was a general consensus that human behaviour could be deduced from experiments on animals. Known as behaviourism, Pavlovism (derived from Russian Ivan Pavlov), the understanding was that human behaviour works more like mechanical laws of the natural world. Change the external conditions, the behaviour will change. In this view of behaviourism, human behaviour and mind are determined by external environment

which is called stimuli. Against this view arose a school founded by Sigmund Freud, which emphasised that human mind is much more complex and therefore a physiological explanation of human behaviour is insufficient. Freud emphasises on the unconscious urges and repression within human mind as major determinant of human behaviour. This was paradigmatic shift in the understanding of diseases and human behaviour. From physiology, there was a shift to study of unconscious aspects of mind as an explanation of human behaviour, including deviant behaviour. Moreover, Freud brought about another fundamental shift: From observation and verification as in the scientific methods, he emphasised on interpretation and introspection as methods of analysis of human behaviour. Such interpretation needs to delve into the structure of mind whose large chunk is dominated by unconscious. Darwinism and Copernicus challenged deeply held hitherto views. The biblical belief that human beings were special creation was dented by Darwin's view about evolution. Homo sapien were merely an evolutionary product sharing DNA with chimpanzee and other ancestors. Freud dented another deeply held view: human ego is not what defines human mind. There is a large substratum and that substratum, which he names as unconscious is largely dominated by repressed urges, desires, determines human behaviour and personality. The critique of Freud dismisses him as a storyteller whose stories have no relation to the truth of our psychological experience and is negation of what science stands for. On the other hand *The Times Magazine* considers him to be the second most influential thinkers of 20th century after Albert Einstein. Jacques Bouveresse in *Wittgenstein Reads Freud: The Myth of the Unconscious* (1996) writes: "What is not so clear is how [Wittgenstein] might determine whether a scientific treatment of the phenomena concerned is possible and under what conditions, or whether, as some would have it, psychoanalysis may not be scientific, but nonetheless constitutes the most scientific, or at any rate the most convincing thing we have, given the nature of the phenomena in question."



About Freud and His Psycho analysis

Physiologist, medical doctor, and creator of psychoanalysis Sigmund Freud is widely regarded as one of the twentieth century's most important and authoritative philosophers. He changed people's minds about how the mind works by establishing the premise that unconscious motives drive much of human conduct. Psychiatry and psychology were where Freud had the most impact. Thousands of

UNIT-15: INTELLECTUAL DEVELOPMENTS SINCE CIRCA 1850: MAJOR INTELLECTUAL TRENDS: CHARLES DARWIN



Structures

- 15.1. Learning Objective
- 15.2. Introduction
- 15.3. Darwin's Life
- 15.4. Contribution Of Charles Darwin On The Theory Evolution
- 15.5. Contribution Of Charles Darwin On The Age Of The Earth
- 15.6. Criticism Of Darwinism
- 15.7. Neo-Darwinism
- 15.8. Difference Between Darwinism And Neo-Darwinism
- 15.9. Let Us Sum Up
- 15.10. Key Words
- 15.11. Further Readings And References

15.1 LEARNING OBJECTIVE

Darwin was an English naturalist best known for his book "Origin of Species." He demonstrated that all living species descended from a common ancestor over time, and he developed the scientific notion that this branching pattern of evolution was the result of a process he termed natural selection. In his 1859 book On the Origin of Species, he published his theory with convincing evidence for evolution, overcoming scientific rejection of earlier conceptions of species transmutation. By the 1870s, the scientific community and a large portion of the general public had accepted evolution as a fact.

15.2 INTRODUCTION

The Darwinian theory of evolution through natural selection, which argues that organisms grow increasingly suited to their environments as favourable mutations accumulate, is now well-established. In the biological sciences, this notion serves as a great unifying concept. The method of heredity and the type of heritable variants were unknown when Darwin established his theory in the middle of the nineteenth century, which prevented him from being overconfident in the function of positive natural selection. Darwin eventually came to accept the Lamarckian idea that acquired qualities are passed down through the generations. Darwin's emerging concept in aquatic insects led him to forego medical studies at the University of Edinburgh in order to work on marine invertebrate research. As a

result of his studies at the University of Cambridge, he developed an interest in natural science. Darwin's five-year voyage on the HMS Beagle established him as a leading geologist, with observations and conclusions that supported Charles Lyell's Uniformitarian beliefs and the publication of his voyage journal cemented his reputation as a writer.

After being perplexed by the regional distribution of wild life and fossils he collected on the expedition, Darwin conducted extensive research and developed his theory of natural selection in 1838. Although Darwin discussed his ideas with a number of naturalists, he needed time to conduct thorough research, and his geological work took precedence. In 1858, Darwin was nearing the end of his hypothesis when Alfred Russel Wallace wrote him an essay presenting the same concept, prompting their theories to be published together immediately. Darwin's theory of evolution with modification became the most widely accepted scientific explanation for natural diversity. He examined human evolution and sexual selection in The Descent of Man, and Selection in Relation to Sex, published in 1871, and The Expression of the Emotions in Man and Animals, published in 1872. His plant research was published in a series of volumes, the most recent of which focused on earthworms and their impact on soil. In recognition of his scientific pre-eminence, he was buried alongside John Herschel and Isaac Newton in Westminster Abbey. Darwin is widely regarded as one of history's most influential figures.

15.3 DARWIN'S LIFE

On February 12, 1809, Charles Darwin was born and died on April 18, 1882. It was a period of radical change in British culture, and his family background placed him right in the middle of it. His grandfathers, physician/poet/philosopher Erasmus Darwin and pottery manufacturer Josiah Wedgwood were both members of an informal group of free thinkers who met in Birmingham on a regular basis to discuss everything from the latest philosophical and scientific ideas to technological and industrial advances. Members of the self-styled Lunar Society, which included James Watt and Joseph Priestly, had a "non-conforming" religious bent. Charles Darwin's father, Robert Darwin, followed in his father's footsteps and became a doctor, marrying Susannah, Josiah Wedgwood's favourite offspring. Charles was the youngest of five children she bore, but she died when he was only eight years old, and much of his upbringing he owed to his three sisters and brother, Erasmus, with whom he shared an early passion for chemistry and with whom, at the age of 16, he went off to Edinburgh for the best medical education Great Britain had to offer.

Privately, Charles decided early on that he could not practise medicine. But his already strong interest in science was bolstered by some excellent scientific lectures in chemistry, geology, and anatomy, as well as the mentoring of Dr Robert



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MASTER OF ARTS
PUBLIC
ADMINISTRATION
(MAPA)

MPA-202: PUBLIC PERSONNEL
ADMINISTRATION

Credit: 4

Block-1, 2, 3 & 4

SEMESTER – 2
COURSE CODE – MPA – 202

TITLE: PUBLIC PERSONNEL ADMINISTRATION

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		2	The Concept of career Civil Service, Evolution of the Concept in UK, USA, France and Chin
		3	System of Classification
		4	Privileges of Civil Service in different Countries, Major Problems in Public Personnel Administration
Block No.	Block Name	Unit No.	Unit
2	Public Personnel Administration in India	5	Civil Services in India, Constitutional Provisions with regard to Civil Services in India
		6	Recruitment of Civil Service Personnel
		7	Recruitment Agencies at Union and State level
		8	Code of Conduct for Civil Services in India and other Countries, Pay and Service Conditions

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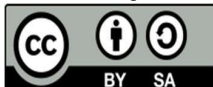
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UNIT-5: CIVIL SERVICES IN INDIA: CONSTITUTIONAL PROVISION WITH REGARD TO CIVIL SERVICES IN INDIA

Structure:

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- 5.1 Introduction
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- 5.4 Doctrine of Pleasure
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- 5.6 Union Public Service Commission
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- 5.8 Functions of Civil Services
- 5.9 Constitutional Remedies and Protection Ensured to Civil Servants in India
- 5.10 Exceptions of Article 311 of the Indian Constitution
- 5.11 Conclusion
- 5.12 Reference and further reading

5.0 LEARNING OUTCOMES

After reading this Unit, you should be able to:

- Know the meaning and growth of civil service;
- Explain the various features of civil services in India;
- Highlight the expanding functions of civil service.

5.1 INTRODUCTION

The term 'civil services' covers the large number of permanent officials required to run the machinery of government. The core parliamentary government, which we have adopted in India, is that the ultimate responsibility for running the administration rests with the elected representatives of the people called ministers. These ministers are accountable to the legislature which are also elected by the people on the basis of universal adult franchise. Thus, we can say that the Ministers are indirectly responsible to the people themselves. But the handful of Ministers, however wise and efficient they may be, cannot be expected to deal personally with the manifold problems of modern administration. Ministers lay down the policy. It is for the civil servants to carry out this policy. The Civil Services holds the most prominent place in the progress of the country. A Country's efficiency, democratic value and development widely is adjudged and determined by the Administrative Team and Civil Machinery of that Nation. We always in the Constitution, with various Statutes and Acts learn about the Independence of Judiciary and Doctrine of Separation of Power, which ultimately aims at reducing or eliminating the political

NEP - 2020: ITS VISION ABOUT 21ST CENTURY TEACHER EDUCATION

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ROLE OF VIRTUAL CLASSES IN INTERNET GAMING DISORDER

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INTRODUCTION

The "National Education Strategy (NPE)" is a strategy of the Indian government aiming at enhancing educational opportunities for Indian people. In both rural and urban India, from elementary school to university, the policy is in place and applicable. "Prime Minister Indira Gandhi issued India's first NPE in 1968, followed by Prime Minister Rajiv Gandhi in 1986 and Prime Minister Narendra Modi in 2020".

On July 29, 2020, the "Indian Union Cabinet approved the National Education Policy 2020 (NEP 2020)", which outlines the country's long-term educational goals. Currently, the present policy replaces the previous one, adopted in 1986. Education and vocational training are provided in both rural and urban areas of India as part of the program's comprehensive structure. The initiative aims to transform India's educational landscape by 2021. According to the National Endowment for Peace's language policy, governments, institutions, and schools are free to implement it in whatever way they see fit. The "NEP 2020 enacts several changes to Indian education policy. It aims to increase public education expenditure from around 4% to 6% of GDP as soon as possible".

Consultation for the New Education Policy started in January of this year, chaired by "former Cabinet Secretary T. S. R. Subramanian". Krishnaswamy Kasturirangan, the former "head of the Indian Space Research Organization (ISRO)", convened a team that issued a draught NEP in 2019. After then, "the Ministry of Human Resource Development unveiled the 2019 Draft New Education Policy (DNEP)", which was the subject of a number of public debates and hearings. The first draught of the NEP clocked in at 484 pages. More than two million suggestions came from 2.5 million gramme "panchayats, 6,600 blocks, 6,000 Urban Local Bodies (ULBs), and 676 districts, according to the Ministry of Rural Development".

In order to help our country become a more equal and prosperous knowledge society, the "National Education Policy 2020 envisions an India-centric education system that provides high-quality education to all citizens".

Qualitative higher education is required to foster the intellectual, social, and creative development of extraordinary individuals. An individual must have the opportunity to study one or more specialized areas of interest in depth as well as to develop a wide range of 21st-century skills in a variety of fields, including science, social sciences, arts and humanities;

CHALLENGES FOR LADY TEACHERS HAVING POSTPARTUM DEPRESSION AND NEW EDUCATION POLICY-2020

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INTRODUCTION

Postpartum depression is a form of major depression which begins within 4 weeks after delivery. The diagnosis of postpartum depression is not only based on the period of onset but also on the severity of the depression. Endocrinological instability, social and emotional changes just after giving birth to a child create a risk of postpartum depression. Symptoms of postpartum depression include hopelessness, sadness, irritability, anxiety, mood swing etc.

There are 3 types of postpartum depression

- (1) Baby blues
- (2) Postpartum depression
- (3) Postpartum psychosis

- (1) **Baby blues;** Affects 50-75% of mother after their delivery. The symptoms of baby blues begin 3-5 days after delivery and lasts up to 2 weeks.
- (2) **Postpartum depression;** If the symptoms of baby blues continue after 2 weeks, it is known to be POSTPARTUM DEPRESSION.
- (3) **Postpartum psychosis;** It usually happens within 1st 3 months after parturition. Here a woman may lose touch with reality, having delusions and auditory hallucinations.

The psychiatric disorder rate is higher in women with 15 to 45 years old and the disorder occurs within the first two months of delivery. Symptoms of postpartum depression are depression, lack of concentration, inadequate sleep, loss of appetite, irritability, feelings of guilt and inadequacy of child care. The exact cause of this disorder is not known yet; however, biological factors like decrease in estrogens and progesterone level after delivery, emotional changes, not getting enough sleep and proper rest due to the new responsibilities are the main causes in postpartum depression. Ages of the mother, unwanted pregnancy, financial status and employment status, marital conflict and lack of spouse support, and crisis one year before birth are the risk factors of this disorder. Maternal depression after delivery may lead weakens the bond between mother and baby, and can lead to subsequent behavioural problems in childhood that can affect child's natural evolution process. Dolatianet *al.* conducted a study in Tehran on 285 women and the result had showed that the prevalence of postpartum

MORALITY IN EDUCATION: IN THE LIGHT OF NEP 2020

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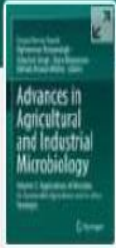
INTRODUCTION:

At the micro-level, it is the individual. At the macro-level, it is the country, It is the society. An individual without ethical grounding leads to a society, a country, without moral moorings. A corrupt nation regresses its citizens into corruption in every nook and corner of life. It is a cyclical process. Life without morality is life without justice, life without fairness. Humans make (im)moral decisions in almost every step of life. They believe in the concept of right and wrong. Morality is the core of almost every decision made in day-to-day human life. It is the guiding principle based on which people act and live their lives. Humans are the only species in this world whose brains are evolved in such a way that they are capable of moral judgment and moral reasoning. The root of morality thus lies in the process of evolution.

This paper is an attempt to discuss the importance and necessity of the presence of morality in quality education in the light of NEP2020. To understand the necessity of the presence of moral values in education and promote an ethical base in students and teachers, understanding human morality is essential. To improve moral values it is needed to have conceptual clarity about the origins of morality, and to have theoretical understanding of different aspects of morality as well.

Origins of Morality: The term morality has come from the Latin *Moralitus* which means manner or character or proper behaviour. Some of the most popular notions regarding the origins of morality are morality comes from religion, morality is a genetically predisposing factor, morality has its origin in socio-cultural setup, and/or our rational choices make us moral. However, morality. Instead, she stresses the socio-neurological basis of morality. The different perspectives about the roots of morality are:

1. **Biological:** Ayala (1987) opines that human beings show ethical behaviour not because of sociological factors but because of their biological construction. According to the author, the biology of the human brain determines the presence of the three necessary, and jointly sufficient, conditions for moral behaviour: the ability to anticipate the consequences of one's actions; the ability to make moral judgments; and the ability to choose among various alternative courses of action. Ayala argued that moral behaviour has arisen and developed in evolution not because it is adaptive in itself, but as an inevitable consequence of man's intellectual abilities.



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Application of Bioinformatics in the Plant Pathology Research

[Raghunath Satpathy](#)

Chapter | [First Online: 26 August 2022](#)

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Abstract

Bioinformatics is the study of molecular biological data using techniques of computer sciences and statistical analysis to solve the biological problem. The main task of bioinformatics is to store, process and analyse the huge biological data obtained from the experimental research. Similarly, plant pathology involves the study of the basis of plant disease resistance, identification of the pathogens, disease aetiology, disease cycles, genetics of pathology and management of plant diseases. Therefore, to understand the molecular mechanism of pathogenesis of plant pathogens is a major aspect of plant biology. So various bioinformatics-based methods and tools have been developed for comparative genomic analysis, evolutionary analysis, genome-wide association study (GWAS), molecular modelling methods,

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Chapter 18

Phytochemicals From Mangroves and Their Anti-Viral Applications

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ABSTRACT

Phytochemicals are recently gaining major attention for their therapeutic uses against several pathogenic viruses. Hence, searching for novel anti-viral molecules from plant sources is desirable as it is having fewer side effects. The mangrove plants are considered as an excellent source of phytomedicine due to production of several classes of phytochemicals. However, fewer studies have been conducted regarding the extraction of the potential anti-viral compounds from mangrove sources. In this chapter, an overview of isolation, extraction, and qualitative estimation of phytochemicals from the mangrove plants have been described. The major representative mangrove plant and its extracts that have shown potential anti-viral activity have been documented. Moreover, this chapter highlights the research-based analysis of potential anti-viral compounds from the plants in the mangrove ecosystem.

INTRODUCTION

Plant-derived compounds are being used as an important natural source of drug molecules and have gained importance in the medicinal chemistry. The parent molecules of most of the currently used medications have been derived from the plant. Also, due to their less toxic, and minimum side effects properties, the phytochemical is being preferred in therapeutic applications in comparison to synthetic drug molecules (Heywood, 2002; Sofowora *et al.*, 2013; Inoue *et al.*, 2019; Ghildiyal *et al.*, 2020). So, the researchers are currently emphasizing deriving new knowledge based on natural plant-based

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Application of Bioinformatics Techniques to Screen and Characterize the Plant-Based Anti-Cancer Compounds

Raghunath Satpathy

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Abstract

Plant-based natural products provide a strong background to evaluate, predict the novel class of compounds having anti-cancer properties, as well as to explore their potential mechanism mechanisms of action. Due to the huge cost and time utilization in the traditional drug development approaches, bioinformatics plays a major role to facilitate drug discovery with less cost and time strategies. Several bioinformatics-based approaches being used recently to screen as well as to characterize the potential plant-based compounds can be used to treat several types of cancer. Some of the computational approaches are target identification, screening of compounds molecular docking, molecular dynamics simulations, QSAR analysis, pharmacophore modeling, and ADMET (absorption, distribution, metabolism, excretion, and toxicity). This chapter describes specific computational methods being used currently to screen and characterize different plant-based anti-cancer molecules by taking examples from the recent literature and discussing their advantages and limitations.

Chapter Preview

Top

Introduction

Cancer is a major group of diseases that originates due to the uncontrolled mode of cell proliferation in the body. It can also be observed in almost all parts of the body and having the capability to spread to other parts, the phenomenon is known as metastasis (Ames et al., 1995; Wang et al., 2018). Cancer is considered a prominent disease in terms of global death rate, which accounts for an estimated 9.6 million deaths in 2018 as per a report given by the world health organization (WHO) (<https://www.who.int/health-topics/cancer> (<https://www.who.int/health-topics/cancer>)). Several types of cancer exist as per their origin in the part of the body, among them lung, prostate, stomach, breast, thyroid, and liver cancer are the most common types of cancer in humans (Siegel et al., 2016). The continuous increase in cancer throughout the globe exerts tremendous physical, emotional, and financial stress on individuals also creates an alarming challenge for the healthcare systems. One of the important strategies for cancer treatment is early detection followed by the use of drugs. Also, other several therapeutic approaches, such as surgery, chemotherapy, radiotherapy, and immunotherapy may be used. Other modern treatment methods such as hormonal and gene therapy were also proposed by many researchers for better cancer therapy (Henderson et al., 1991; Jin et al., 2020; Pucci et al., 2019). However, many types of side effects are associated with the conventional types of therapeutic measures such as lung fibrosis, bone necrosis, nausea, vomiting, renal damage, and so on. Therefore, the anti-cancer compounds from nature have been preferred as it is safe, low cost and less toxic. However, it is essential to understand the proper signalling pathways through which enhance proliferation occurs during tumour formation so that this can be used as the target for the anti-cancer compounds (Hassanpour & Dehghani, 2017; Jiang et al., 1994; Zugazagoitia et al., 2016). The higher plants are known to produce several types of compounds that can be utilized as anti-cancer compounds. Due to the large structural diversity of the plant



Nutraceuticals: An Alternative of Medicine **12**

Rahul Kumar, Sourav Das, Santosh Kumar Sethi,
Pankaj Kumar Parhi, and Birendra Kumar Bindhani

Abstract

In recent years, the increase in demand for enhancing health by nutritive supplements and adequate living standards has been greatly considered in order to decrease medical costs and increase human efficiency and quality of life. Creation of well-being nourishments with bioactive compounds (useful in nourishments) announced as one of the top patterns of the food business as a choice to tranquilize treatment for development of human well-being. The functional food market is large and growing in most of the countries in the world. Functional food production would be cost-effective due to the possibility of launching numerous new functional food products within the existing markets without the large amount of investment. In this emerging market, there is a more interest for scientists and manufacturers to achieve more information about the nutrition and adequate lifestyles. Basically, the impacts and importance of nutraceuticals and functional foods on human health are presented in this chapter. We have summed up the basic related terms to nutraceuticals like functional foods, dietary supplements, designer foods, medical foods, pharmafoods, phytochemicals, and so forth. There are different types of diseases such as

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Chapter 6

Application of Molecular Modeling Techniques to Investigate Phytochemicals as Prospective Anti-Malarial Agents

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ABSTRACT

*Malaria is a vector-transmitted disease and contributes significantly to mortality rates worldwide. However, utilizing the available synthetic antimalarial compounds is challenging due to their association with drug resistance and their potential to cause side effects on human health. Based on these limitations, natural products (phytochemicals) from medicinal plants are used as alternative therapies. Due to the greater diversity in medicinal plants and phytochemicals, screening for suitable anti-malarial agents is a difficult task. As a result, computer-aided molecular modeling methods are being used widely as an integral part of the anti-malarial compound discovery process. This chapter highlights the range of phytochemicals and plant sources that have been studied as anti-malarial agents to combat infection of *Plasmodium falciparum*. In addition, the overview of the important molecular modeling methods, software tools, and databases has been illustrated. Also, the application of these molecular modeling methods to expedite the plant-based anti-malarial drug discovery process area has been reviewed.*

INTRODUCTION

Malaria caused by *Plasmodium falciparum* infections can be life-threatening when it is left untreated. According to the World Health Organization (WHO), malaria caused an estimated 608,000 deaths worldwide in 2022, with the majority of these deaths caused by

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Santosh Kumar Sethi*

8 Role of microbial endophytes and their oxidases on effective biocontrol activity against different pathogens of cereal crops in India

Abstract: Modern agriculture focuses on the growth of crop plants through potential plant–microbial interactions. Microbial bioinoculants for biofertilizers and biocontrol provide growth and protection to crop plants against different phytopathogens. Use of microbial bioinoculants, based on the selection of potential strains with biotic and abiotic stress tolerance, is one of the best practices for modern agriculture. Examining biofertilizer and biocontrol technology rooted in endophytic plant growth-promoting rhizobacteria and mycorrhizal fungi, both of which present unique challenges in their production and application, revealed that the variability in the performance of microorganisms isolated from different climatic conditions was a notable issue. However, a thorough understanding of each microbiological habitat and microbial populations and their different mechanisms of action rely on the product development. This work focuses on innovative ideas to identify and screen the efficient microbial endophytes, especially from cereals and other crops, as best biofertilizers, which lead to their adoption in biocontrol technology practices against different phytopathogens of crops. Recent agrotechnological processes have encountered challenges in the quest to cultivate native microbial bioinoculants, including endophytes, with the aim of harnessing their potential as a biocontrol solution against phytopathogens affecting cereal crops in the coming years.

Keywords: Endophytes, enzymes, competition, host plant interaction, antibiosis, ISR

8.1 Introduction

Achieving food security with the promotion of sustainable agriculture to fulfill the human needs as well as to maintain the ecosystem by 2030 is one among the fundamentals of Sustainable Development Goals set by the United Nations. Plant pathogens and pests are the major causal agents that reduce the annual crop production world-

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