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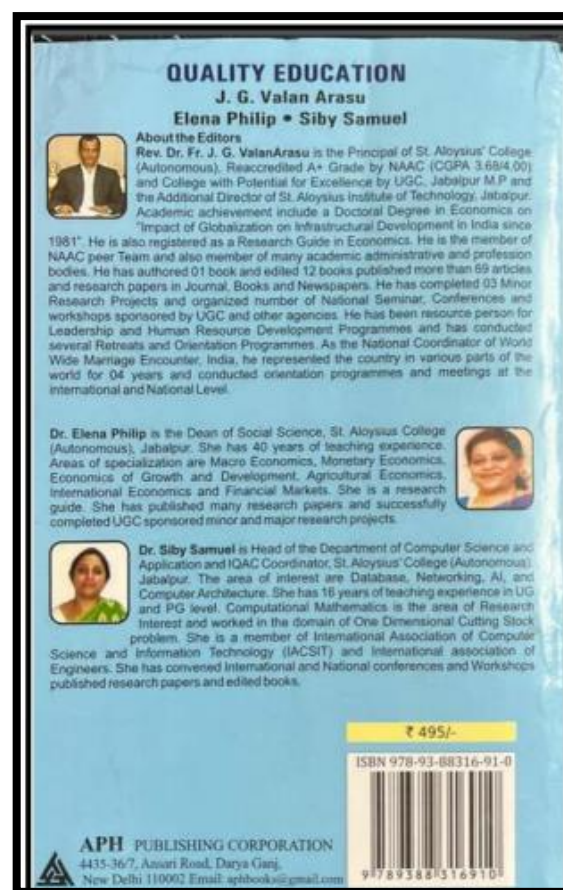
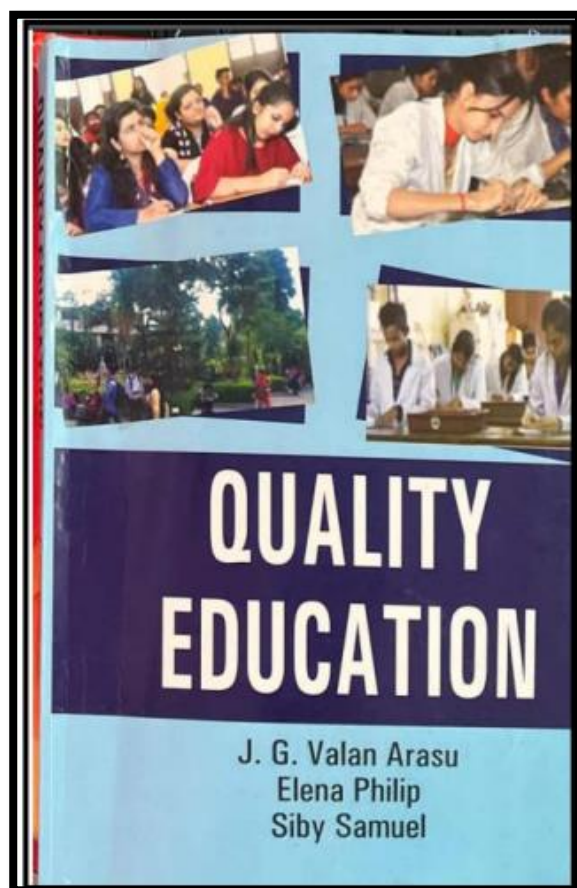
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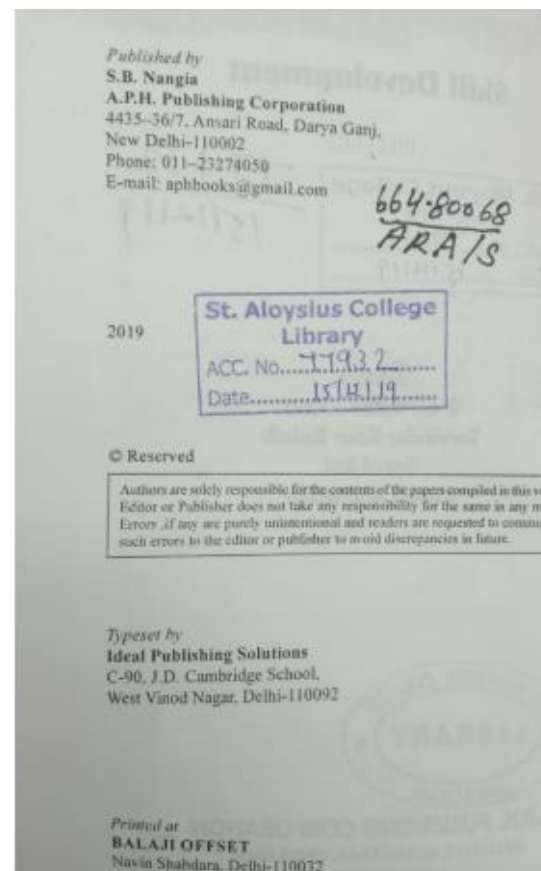
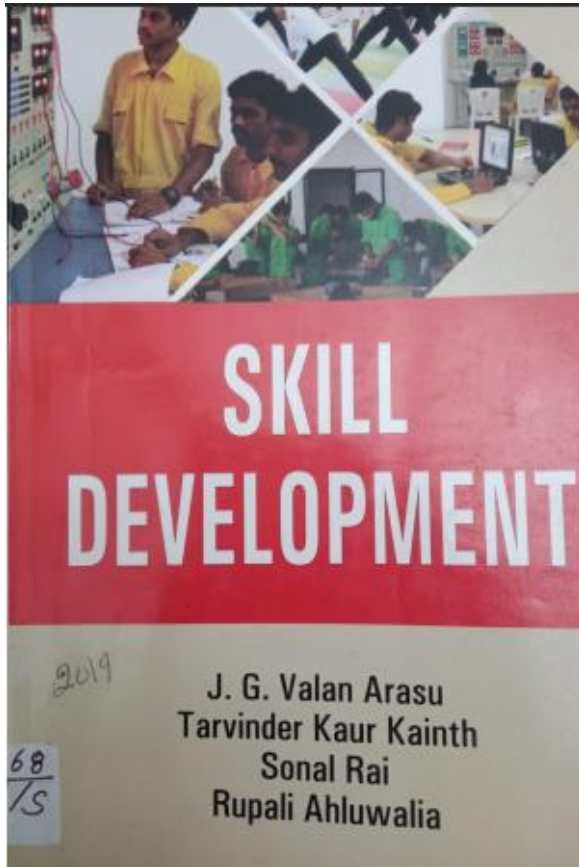
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The Ethnobotany of medicinal plants is known as 'Ethnomedicine'. The importance, scope and implication of ethno medicine have been expanding throughout the world at a very fast rate. The Ethnomedicine studies have shown their relevance in search for new herbal drug for human health. The medicinal properties of plant species have made an outstanding contribution in the origin and evolution of many traditional herbal therapies. Over the past few years, however, the medicinal plants have regained a wide recognition due to an escalating faith in herbal medicine in view of its lesser side effects compared to allopathic medicine. Our major objectives therefore were to explore the potential in medicinal plant resources, to understand the challenges and opportunities with the medicinal plant sector, and also to suggest recommendation based upon the present state of knowledge for the establishment and smooth functioning of the medicinal plants sector along with improving the living standard of the underprivileged communities.

Ethnomedicine



Zareen Baksh



Dr. Zareen Baksh is an Asst. Professor in Department of Education, St. Aloysius college, Jabalpur Madhya Pradesh. She has more than 14 years Teaching Experience. She has published 12 research paper and article in National and International Journals. She has also participated in numerous National and International Seminars, Conferences, workshop.



978-620-0-10282-9

Baksh

Ethnomedicinal Plants

Ethnomedicinal plants used for Respiratory Diseases





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Make in India: Dawn of a New Growth Era



**J. G. Valan Arasu
Ashu Jain
Sonal Rai
Rupali Ahluwalia**

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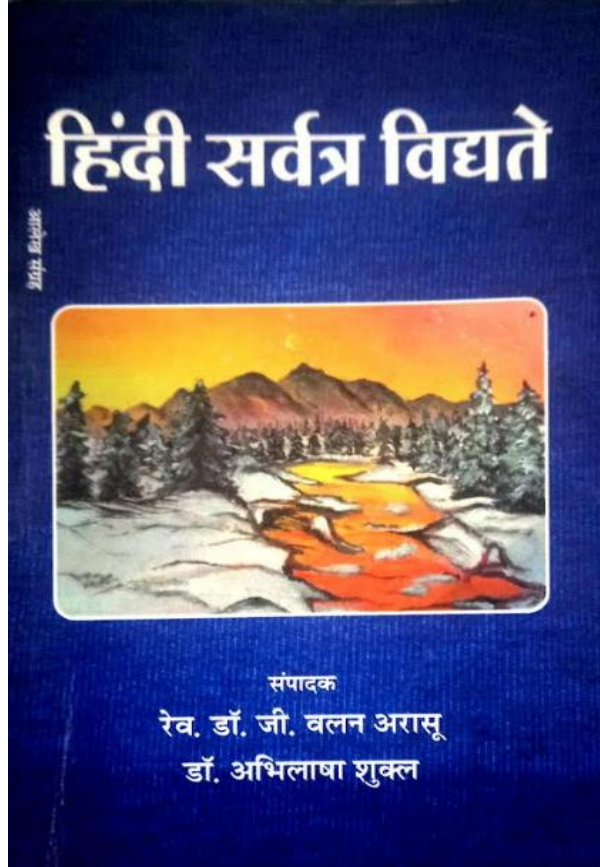
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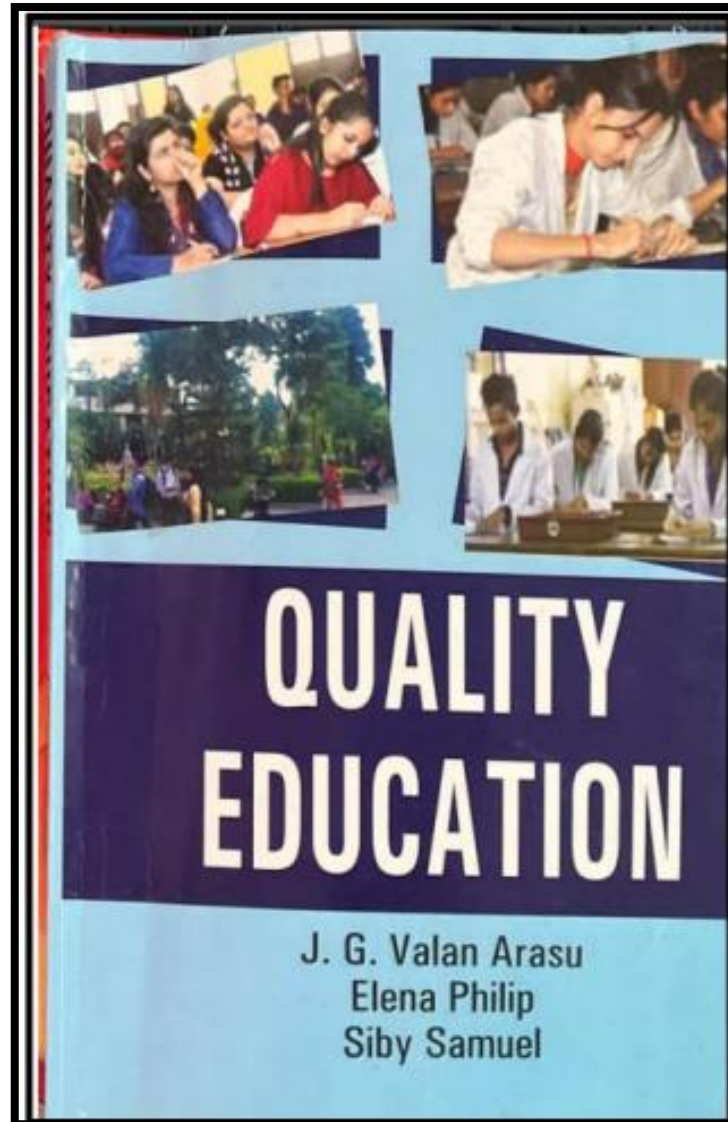
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Role of IQAC in Ensuring Quality Enhancement in Higher Education

Dr. Vishwas Patel and Dr. Tuhina Johri***

"When performance is measured, performance improves. When performance is measured and reported, the rate of improvement accelerates."

Thomas S. Monson

INDIAN HIGHER EDUCATION IN PRESENT CONTEXT

India has the distinction of being the second largest education system in the world next to china. The phenomenal growth in the number of educational institutions as well as students which occurred during the last three decades resulted in deterioration of quality of higher education. Higher education system in India has been expanded remarkably after independence. There are 20 universities and 500 colleges at the time of independence, at present there are 519 universities and 25951 colleges in India apart from the general education there is steep rise in professional educational institutes in the form of Engineering colleges, polytechnics, etc. all these higher educational institutions contribute considerably to rapid accumulation of specialized human capital. The unplanned growth of higher education coupled with lack of resources affects the quality of education. The quantitative growth of higher education in India is significantly improving, but the quality of higher education has always been questioned. So, to bring quality in higher education, there is a need to change the structure of existing higher education

*Deputy Examination Controller, St. Aloysius College, Jabalpur.

**Head Department of Political Science, St. Aloysius College, Jabalpur.



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Revised Accreditation Framework (RAF): A Paradigm Shift Towards Quantitative Excellence

Dr. Anjali D'souza and Dr. Tuhina Johri***

ABSTRACT

Education plays a vital role in the growth and progress of any society. The Indian higher education system faces a lot of challenges i.e. gap between the supply and demand, lack of quality research work outdated and irrelevant curriculum, inadequate infrastructure and basic facilities, shortage of faculty etc. The overall scenario of higher education in India is not globally relevant and competitive. Due to extensive expansion of the higher educational institutions the quality is challenged. There is need for improvement and serious reforms to be implemented in Indian Higher Education system. In order to enhance the quality in Indian educational system new policies are to be formulated. Quality assurance refers to the policies, attitudes, actions and procedures necessary to ensure that quality is being maintained and enhanced. Quality is a condition that leads to the achievement of transparency, which ensures the quality of academic curriculum, teaching, building structure and equipment, provision of courses and a review of their quality. Most of the Indian colleges and universities lack in high-end research facilities.

*Examination Controller, St. Aloysius College, Jabalpur.

**Head, Dept. of Political Science, St. Aloysius College, Jabalpur

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छात्रसंघ की उपादेयता (आंतरिक गुणवत्ता वर्द्धन के संदर्भ में)

डॉ. रामेन्द्र प्रसाद ओझा*

किसी शैक्षणिक संस्थान के कई घटक होते हैं और इसमें से किसी की भी महत्ता को अलग करके नहीं आंका जा सकता है। अध्यापक की अपनी महिमा है तो प्रशासनिक व्यवस्था और उससे जुड़े लोगों का अलग महत्त्व है। परंतु इन सब से भी महत्वपूर्ण अवयव है विद्यार्थी। शिक्षण संस्थान की सारी सरंचनाएँ योजनाएँ एवं नीतियाँ विद्यार्थी को ही केन्द्र में रखकर रची जाती है। स्पष्टतः कहा जा सकता है कि केन्द्र बिन्दु विद्यार्थी है शेष सभी उपक्रम मात्र हैं। उसी का उन्नयन सभी उपक्रमों का लक्ष्य होता है। दूसरे शब्दों में कहें तो विद्यार्थी ही शिक्षण संस्थान की धुरी है। किन्तु बहुधा यह तथ्य उभर कर सामने आता रहा है कि संस्थानों की योजनाओं, नीतियों और उसके कार्यान्वयनों में इसी महत्वपूर्ण घटक की आवश्यकताओं और समस्याओं के निराकरण के प्रति उनके ही दृष्टिकोण एवं सहमति के पक्ष की अपेक्षा जाने-अनजाने हो ही जाती है। अनुशासन मय और प्रतारणा का माध्यम बन जाता है तथा लोकतांत्रिक अभिव्यक्ति की अपेक्षाएँ दमित तथा असाहाय बनकर रह जाती हैं।

छात्रों में स्थिति प्रज्ञता, निर्णय क्षमता, दायित्व चेतना एवं संस्था के प्रति संवेदना परक दृष्टिकोण विकसित करने के लिए व्यवस्था के विभिन्न चरणों में उनकी सक्रिय सहभागिता अनिवार्य है। इससे लोकतांत्रिक चेतना की उदीप्ति तो होती ही है साथ ही अधिकारों और कर्तव्यों के प्रति

*विभागाध्यक्ष, हिन्दी विभाग, संत अलॉयसियस महाविद्यालय जबलपुर (म.प्र.)

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संस्कृति और कला महाविद्यालयीन सोसायटी के संदर्भ में

डॉ. कैतोजिन तेलंग

किसी भी देश की संस्कृति उनकी अपनी आत्मा होती है। जो उसकी सम्पूर्ण मानसिक निधि को सूचित करती है। और देश और काल के चौखटे में संस्कृति का स्वरूप मानवीय प्रत्यनों के द्वारा नित्य ढलता रहता है।

इस प्रकार व्यापक दृष्टि से देखा जाये तो धर्म, दर्शन, साहित्य, साधना और राष्ट्र और समाज व्यवस्था, व्यक्तित्व जीवन के नियम और आस्था कला शिल्प, स्थापत्य, संगीत नृत्य और सौन्दर्य रचना के अनेक विधान तथा उपकरण आदि मानव संस्कृति के अन्तर्गत आते हैं।

धर्म, संस्कार रीति रिवाज, प्रथायें, प्रतिमान, नैतिकता आदि मनुष्य की संस्कृति का हिस्सा होती है वह उनके प्रयोग से व्यक्तिगत और समाजिक विकास करता है। मनुष्यों के द्वारा संस्कृति का एक पीढ़ी से दूसरी पीढ़ी में हस्तांतरण किया जाता है। विश्व इतिहास में भारतीय संस्कृति का वही स्थान है एवं महत्व है जो असंख्य दीपों के सम्मुख सूर्य का है।

एक ओर जीवन की सीधी सरल और पारदर्शी अभिव्यक्ति होती है संस्कृति का अपना अनुशासन भी है। इन दो कागारों के बीच स्थिति संस्कृतियों पनपी और फैली जिनका अलग अलग चेहरा है अपने रंग विधान है अपनी सोच है फिर भी इस के बीच एक ऐसा चारित्रिक साम्य है जिनसे भारतीय की पहचान बनता है। समाज का चेहरा और संस्कृति का अपने अपने ढंग से कलाकृतियों में परिवर्तन होता है। ऐसा तभी होता

*सहायक आध्यापक, हिन्दी विभाग, संत अलाशियस कॉलेज, जबलपुर।

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Strategy for Improvement: Transforming Weakness into Strength for Institutional Progress

Dr. Elena Philip and Mrs. S.K Walia*

ABSTRACT

In the recent past the concern for quality of higher education in India has been on the increase. In his writings on Indian education, Philip G. Altbach, a noted educationist states, "a world class country without world class higher education is India's 21st century dilemma." Quality is a multi factored phenomena. In an increasingly competitive global context, the factors contributing to this deepening of focus on quality education is gaining pre eminence. Quest for excellence is the first step in ensuring quality in higher education. The search for excellence is bound to generate positive responses to all the problems and activities of the institution. If the quest is transformed from an individual concern to a collective spirit of the institution, nothing can stop the institutions of higher education in their onward march to excellence. Here it may not be out of context to recall Article 51A of the Indian Constitution, 'to strive towards excellence in all spheres of individual and collective activity' as one of the fundamental duties of every Indian citizen. Institutions are essentially about

*Dean, Faculty of Social Sciences, St. Aloysius College (Autonomous), Jabalpur.

**Assistant Professor, Department of Computer Science and Application, St. Aloysius College (Autonomous), Jabalpur.

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Strategies to Assess SWOC of Higher Education Institutions in the New Context of Assessments in India

Dr. Hephzibah Beula John and Dr. Ashu Jain***

ABSTRACT

In the current years, due to globalization and modernization, there has been a development of new era in the higher education and technical system in India. Globalisation has opened the market for new products and services for various sectors, which has also affected the education sector. The new technologies and strategies implemented in the global market, requires highly methodical academic knowledge and training, which can result in strategically competing for the success of organisations. The Higher Education Institutions and Technical Institutions are heading towards skill based teaching and learning, to make the students capable of the demand and challenges of the industry they head towards. The present assessment of the Higher Education Institutions focus on the management aspects to understand and evaluate the different mediums through which the teaching-learning activities have been made more effective and industry ready. This paper focusses on analyzing the Strengths, Weaknesses, Opportunities and Threats which the Higher Education Institutions have been facing to meet the standards of the developing education system in India.

Keywords: Higher Education Institutions, Strengths, Weaknesses, Opportunities, Challenges.

*Assistant Professor, Department of Commerce in St. Aloysius College, Jabalpur.
**Assistant Professor, Department of Commerce in St. Aloysius College, Jabalpur

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Role of IQAC in Maintaining Quality Standards in Teaching, Learning and Evaluation

*Dr. (Mrs.) Kiran Mishra**

ABSTRACT

IQAC in any institution is a significant administration body that is responsible for all quality matters. It is the prime responsibility of IQAC to initiate, plan and supervise various activities that are necessary to increase the quality of education imparted in an institution. The establishment of internal quality assurance cell by accredited institutions is major step in pushing long term quality standards. In a new perspective of education outcome based learning is required. For a better outcome curriculum should base on well define objectives. By giving suggestions at the time of curriculum construction IQAC play vital role in maintaining the quality standards in teaching, learning and evaluation.

Keywords: IQAC, Bloom Taxonomy.

INTRODUCTION

Quality education has become a very important need as well as a matter of concern in a last one decade. The uneasiness prevails among the various stakeholders of education parents employer, teacher, students. Acquisition and enhancement of quality is the great challenge

*HOD, Department of Education, St. Aloysius College (Autonomous) Jabalpur.
E-mail: kiran100m@gmail.com.

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Curriculum Development and Enrichment: Bridging the Achievement Gap

*Mrs. Komal Rawat**

ABSTRACT

Curriculum development and enrichment is a strong commitment to provide an optimum learning environment to the students. Suitable curriculum and consistently updation is necessary to maintain the quality of education and enhancing employability to excel in today's competitive environment. This should undergo as a continuous process of modification. The enrichment of curriculum gives a greater value, by putting life into the overall higher education process. Lack of appropriate revision impacts the overall academic excellence and performance. The present study highlights the achievement gap in higher education institutions. The objective of study is to unearth the achievement gap, understand the relationship between curriculum development and learning gap and to be familiar with appropriate strategies to incorporate recent trends in curriculum.

Keywords: Curriculum Development and Enrichment, Achievement Gap and Higher Education

INTRODUCTION

In current arena higher education institutions all over the world are looking for more effective, less expensive and creative ways to meeting the learning needs and inculcating a spirit of dignity of labour

* Asst. Prof., Department of Commerce, St. Aloysius' College, Jabalpur.
E-mail: komal.rawat024@gmail.com.

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Benchmarking in Higher Education with Reference to Curriculum Standards

Dr. (Mrs.) Mita Darbari and Prof. I.S. Rao***

INTRODUCTION

Institutions of higher education are struggling with growing competition and requirements for accountability. Large amount of available information are changing the methods of how these institutions operate now-a-days. To bring significant and sustainable changes in efficacy and output, a paradigm must be incorporated into institutional structures that foster efficiency and need for continual learning. Tools are also being developed that measure or benchmark progress and success of these efforts. The various improvement strategies and technique are Continuous Quality Improvement, Total Quality Management, Continuous Quality Improvement, Business Process Reengineering and benchmarking. Among these benchmarking has emerged as a useful, easily understood and effective tool for staying competitive.

HISTORY

The formal definition of benchmarking used by Rank Xerox is: "a continuous systematic process of evaluating companies recognised as industry leaders, to determine business and work processes that represent best practices and establish rational performance goals". In operational terms this is frequently condensed to "the search for

* Dean, Physical Sciences, St. Aloysius' College (Autonomous), Jabalpur.
** People's Institute of Management and Research, Bhopal.



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A Roadmap to NAAC Assessment & Accreditation: Emphasis on Criterion V

Dr. Mandira Kar and Dr. Daya Shankar Gautam***

ABSTRACT

Higher education plays a vital role in human resource development and capacity building of individuals that cater to needs of the economy, society and the country as a whole. Assessment and Accreditation (A&A) is an eye opener. It helps the institution to carry a SWOC analysis and improve there-upon. The purpose of A&A in Higher Educational Institutions (HEIs) is enhancement of overall quality of education and public accountability.

Delving deep into the 'Quest for Quality Assurance' the accreditation process of National Assessment and Accreditation Council (NAAC), based on five core values has developed seven criterions which serve as basis for assessment of HEIs. NAAC Accreditation gives institutions a new sense of direction and identity.

In continuation to its focus on quality culture and concern for ensuring that its processes are in tune with local, regional and global changes in higher education, NAAC has revised its process of assessment and accreditation recently.

The aim was to make the A&A process more technology enabled, robust, objective, transparent and scalable. The revised process examines the role of HEIs in preparing students to achieve core competencies to face global challenges and nurturing a relationship between competent-learning and skilled work thus generating industry ready youth.

* Head, Department of Mathematics, St. Aloysius (Autonomous) College Jabalpur (M.P.).

** Assistant Professor, Department of Zoology, St. Aloysius College, Jabalpur.

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Accreditation and Ranking of Higher Education Institutions in India

Dr. Manju Maria Soloma

"Education is an ornament in prosperity and a refuge in adversity."

ARISTOTLE

Higher education nationally and internationally is becoming more competitive day by day. The Indian higher education system in the post-independent times continued the colonial practice and so got isolated itself in the world higher education ranking system and not having indigenous ranking system meant we are practically working in the closed compartments. With an expansion of higher education, quality has always been a main concern. Towards this end higher education institutions in India are required to adhere to norms and standards laid down by multiple bodies.

It is Pandit Jawahar Lal Nehru, who rightly described the role of Higher Educational Institutions (HECI) stating "A University stands for humanism, for tolerance, for reason, for progress, for adventure of ideas and for the search of truth. It stands for the onward march of the human race towards even higher objectives". India has seen tremendous growth in the area of higher education in the last few decades but when it comes to excellence/quality we lag behind on international stage. Post-independence the focus was on providing education to masses and large number of Colleges/universities, etc. Were opened across the country. This rapid growth in terms of numbers somewhere led us to a

* Head Department of History, St. Aloysius College (Autonomous) Jabalpur (M.P)

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Phenomenographical Analysis of Value Added Skill Development Courses as a Better Approach to Advanced Learning Outcomes: A case study of Department of Zoology of St. Aloysius' college (Autonomous), Jabalpur

*Dr. Parnashree Mukherjee**

ABSTRACT

In the context of contemporary education system in India, Autonomous Higher education institutions have gradually structured their curricula supplemented with various Value added Skill development courses focusing more on the students' contentment, acuity and requirements. This phenomenographic analysis of the past five years Value added Skill development courses conducted in the Department of Zoology of St. Aloysius' college (Autonomous), Jabalpur reflects that dissemination of additional knowledge through various skill oriented hands on training as per the student Learning perspective proves to be better approach to advanced learning outcomes. The article further investigates the effect of prominence of teaching quality and learning environment on students' insight for better proficiency, precision and acquaintance.

Keywords: Contemporary education system, Autonomous Higher education institutions, Value Added Skill development courses, student Learning perspective, learning outcomes

*Dept. of Zoology, St. Aloysius College (Autonomous), Jabalpur.
E-mail: parnashree_muk@yahoo.com.

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Holistic Development of Students in Higher Educational Institutions Through Infrastructure and Learning Resources

Dr. (Mrs.) Mita Darbari and Dr. (Mrs) Verlaxmi Indrakanti***

INTRODUCTION

NAAC accreditation is obligatory for all the higher educational institutes, mainly state universities. UGC grants, RUSA grants, financial aid etc. are not given to universities and colleges which are not NAAC accredited. Quality of institutes in terms of education, infrastructure, research, teaching & learning etc. is determined by NAAC accreditation. Institutes with top NAAC grades such as 'A++', 'A+' and 'A' are in demand. These institutes impart high-quality education. As per the list of 26 September 2018, there are only 205 universities and 1,639 colleges with A or higher grades. Much is, therefore, required in terms of quality enhancement in HEI in India.

Quality is the combined outcome of both physical and human resources in a higher educational institution. The holistic development of the student depends on intellectual capital to a great extent but the effective functioning of such capital requires, among other things, an enabling infrastructure that can allow it to be beneficial. The infrastructure does not comprise of simply space and premises although they are indispensable. It is in totality the union of the utility of space, structure, infrastructural aids, learning resources, equipment, information stock and

*Dean-Physical Sciences, St. Aloysius' College (Autonomous), Jabalpur.

**Anand Vihar College for Women, Bhopal.



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Emerging Technologies for Sustained Student Services and Assessment for Holistic Development

*Siby Samuel**

ABSTRACT

Innovative Learning Environments has produced rich array of new visions for education around the globe. Various learning environments have adopted technology to redesign teaching, learning, assessing and providing all time available services to the students for their overall development. While technology integration has long been a key area of concern in education, the intersection of technology with our rapidly transforming educational landscape is framing the nature of technology in education in profound new ways. New and emerging technologies are provoking a re-conceptualisation of teaching and learning, while also serving as catalysts for transformation, innovation and whole person education. This paper focuses on the ways to improve and sustain the student services and assessment by blending technology with education. These include changing the perception of education in campus and off-campus configurations by integrating techniques, technologies and exploring technological collaborations into curriculum.

Keywords: holistic education, EduSAC, student assessment, student support service, one-stop service solution

*Asst. Prof., Dept. of Computer Science St. Aloysius College (Autonomous)
Jabalpur.

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Role of NAAC in Improving the Standards of Higher Education

Dr. Kudshiya Raza and Prof. S. K. Pahwa***

INTRODUCTION

The national assessment and accreditation council is a flagship quality assurance in India. The university grants commission established the NAAC in 1994 head quartered at Bangalore with a mandate to assess and accredit Higher Education institution in India and also with an objective of maintenance and improvement of quality in higher education.

NAAC has been actively engaged in the performance evaluation and implementation of quality sustenance procedures in universities and colleges. NAAC vision and mission statements clearly specify its functioning highlighting quality assurance mechanism in higher education institutions with the combination of self and external quality evaluation, promotion and sustenance activities and initiatives. The major agenda of NAAC is to assess and accredit institutions of higher learning with an objective of helping them to work continuously to improve the quality of education. Assessment is a performance evaluation of an institution and / or its units and it's accomplished through a process based on self- study and peer review using defined criteria. Accreditation refers to the certification given by NAAC which is valid for a period of five years. The process of Assessment followed by NAAC is in accordance with internationally accepted practice but, with certain modifications to suit the Indian context.

*Asst. Professor St. Aloysius College (Autonomous), Jabalpur (M.P).

**Professor in G.S College, Jabalpur (M.P) 482001.

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An Analytical Study of the NAAC Grading System and Suggestions for Improvement

Dr. Preeti Jain and Ms. Surabhi Choudhary***

ABSTRACT

Everything has a scope of improvement. No matter how carefully something is designed, it is subject to loopholes and obsolete. Although, The NAAC's (The existing system that governs the grading of colleges across India) accreditation process follows a holistic, systematic, and objective approach for institutional improvement is efficient, yet there are still live examples of both students as well as institutions that are not up to the mark and not graded accordingly. Hence, the procedures followed by the NAAC for grading institutions was observed in this paper. Certain parameters were taken into account and critically examined. And it was found that there exists inherent deficiencies in the grading system because there are many things that are overlooked by the NAAC which weakens the reliability of the grade assigned by them. This paper discusses these loopholes present in the system and accordingly suggest methods for improvement.

Keywords: Accreditation, Assessment, Grading System, Higher Education, NAAC

*Asst. Prof., Department of Commerce, St. Aloysius College, Jabalpur.

** M.Com III Semester, St. Aloysius College, Jabalpur.



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Skill Based/Vocational Courses: As a Tool for Quality Enhancement in Higher Education

Dr. Rupali Ahluwalia and Dr. Tarvinder Kaur Kainth***

ABSTRACT

Higher Education system is the future of our country. Quality is essential for surviving the global competition in education. It is obvious that we should go ahead with preparing our education system qualitative not quantitative. For quality enhancement and to provide holistic education a balanced curriculum is required. Curriculum should provide opportunity not only for personal development but also for social development in an individual. Quality contents should be introduced in the curricula but this process is subject to limitations. It is necessary to bridge the gap between our curriculum and employability skill sets. Hence Skill based learning is the perfect solution for enhancing the quality of higher education because Skill components always increases the quality of any curriculum. Before understanding the Skill based learning we should know about the traditional education system. Traditional education system provides students with necessary knowledge but fails to fulfil skills and performance expectations. Another aspect in traditional system is that, this

*Assistant Professor, Department of Commerce St. Aloysius' College (Autonomous), Jabalpur.

**Assistant Professor, Department of Commerce, St. Aloysius' College (Autonomous), Jabalpur.

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Wakeup Call for Higher Education in India

*Dr. Pearly Jacob**

ABSTRACT

India aiming at 5 trillion economy needs to give impetus to its engine of growth which is the higher education. The budgetary allocation for higher education is just Rs. 37,461.01 crore, which is barely 1.1 percent of the total budgetary expenditure for 2019. None of the Indian universities could make it to the top 100 university list. This is the wakeup call for all the stakeholders of education. Although in India IITs, IIMs and some of the central universities are seen as the quality centres for excellence because of their research prowess and reputation for excellence. To keep up the standard of excellence and quality the accrediting bodies have been placed as the custodians of the quality standards of the higher education in India. They have been exclusively given the charge to brainstorm, innovate, institutionalize and internalize the quality standards and benchmarks as per the global higher education norms. But to the dismay and apathy none of the institutions of higher education or university are at par with the global standards. It's time to introspect the reasons, at a time when we have flung open the doors to foreign university to enter our land. This paper will introspect the reasons for the apathy.

Keywords: Higher Education, Quality, Benchmark, Accreditation

*Head, Department of Management St. Aloysius College (Autonomous), Jabalpur

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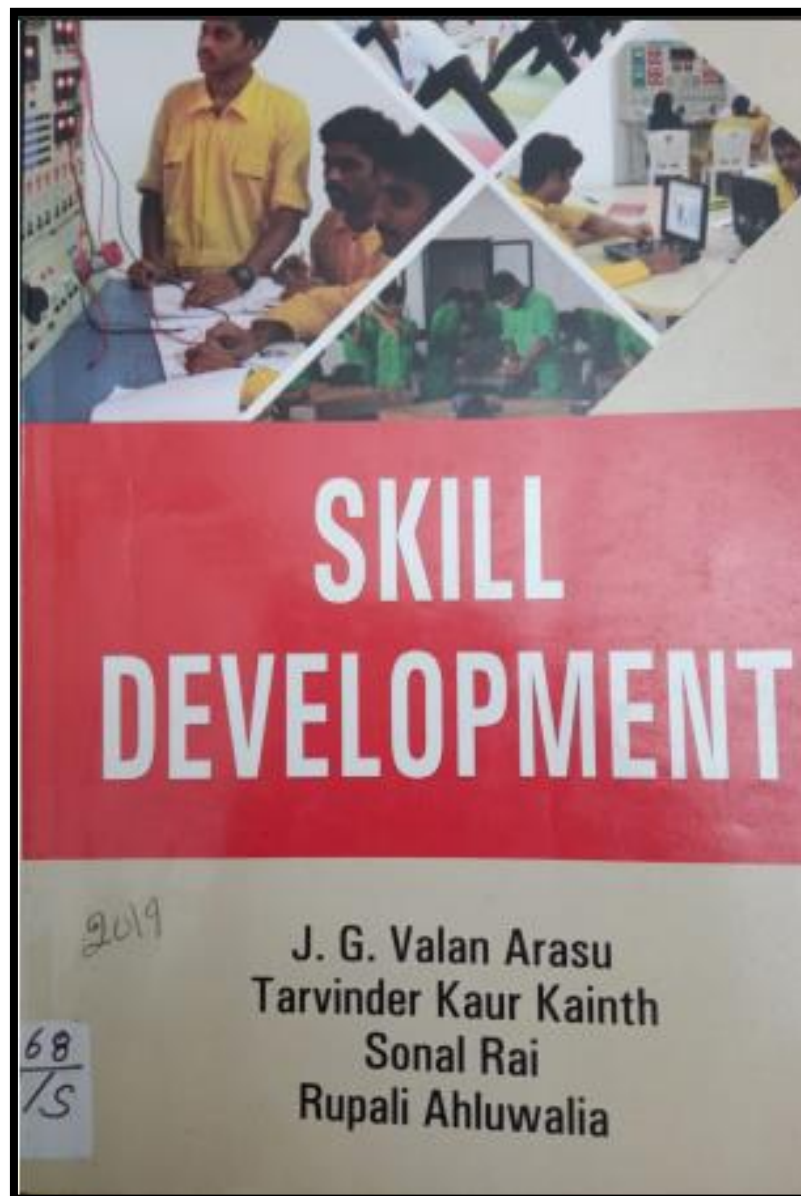
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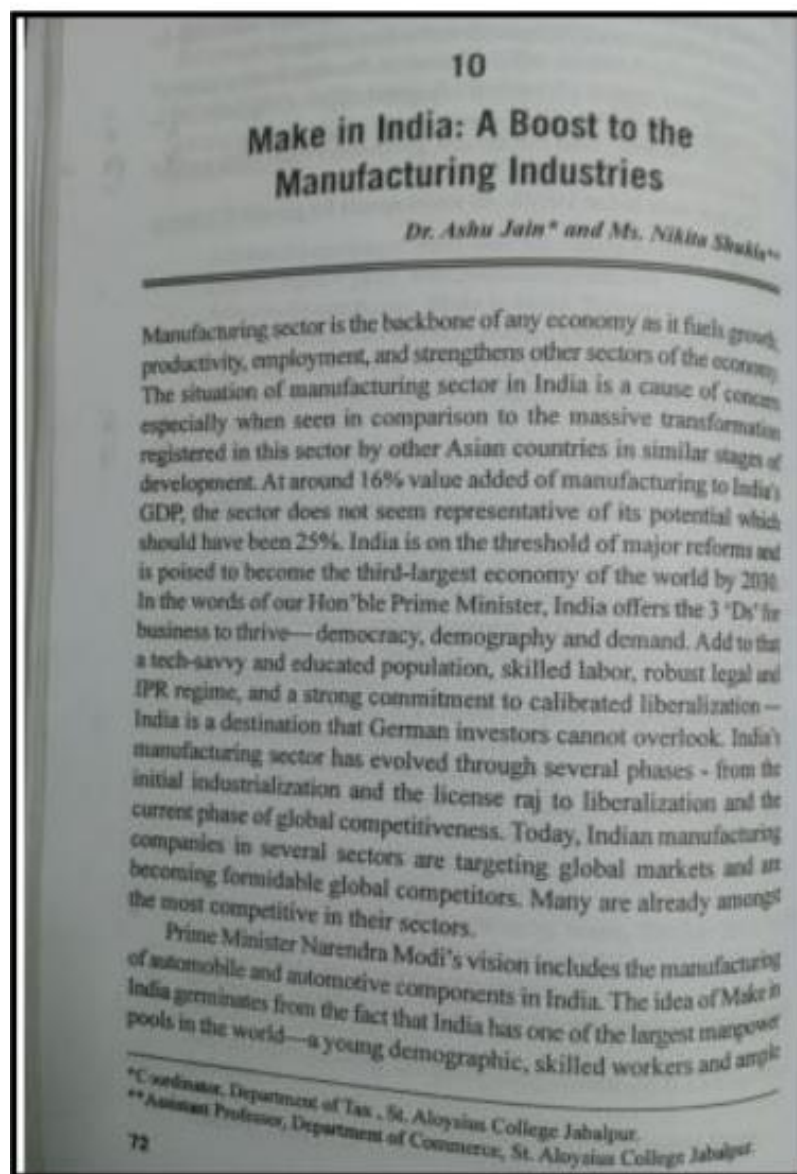
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SKILL INDIA MISSION: CHALLENGES AND OPPORTUNITY

Dr. Mrs. Ashu Jain and Jayshree Jha***

INTRODUCTION

India is passing through the phase of demographic transition which could be the biggest opportunity or the biggest concern of the country depending upon the utilization of its huge work force. India adds 12 million people to its workforce annually, but very few have any formal skill training. Today, less than four per cent of the Indian workforce is skilled. Skills and knowledge are the driving forces of economic growth and social development for any country. With respect to all the problems faced by people of India, mission for skilling India has been launched.

Skill India is a multi skill programme launched by Honorable Prime Minister Mr. Narendra Modi on 15th July, 2015. It is a dream project of our honorable prime minister Mr. Modi to create opportunities & scope for the development of talents of Indian youth. This programme has very clear objectives to provide training and skill development to more than 40 crore people in India in different skills by 2022.

OBJECTIVES OF THE STUDY

- To study the present status of skill development in India.
- To study the challenges faced by Skill Development system in India.

*Coordinator, Dept. of Tax Procedure and Practice St. Aloysius College, Jabalpur (M.P), E-mail: jainashu676@gmail.com

**M.Com (Finance) I Semester St. Aloysius College, Jabalpur (M.P)

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भारतीय श्रमबल में कौशल विकास: चुनौतियाँ और अवसर

डॉ. दिलीप कोण्डा और डॉ. सुनील कुमार तिवारी

प्रस्तावना

भारतीय अर्थव्यवस्था लगभग 7.5% की उन्नत दर से बढ़ रही है। जो विश्व की सबसे तेज गति से बढ़ने वाली अर्थव्यवस्थाओं में से एक है। भारत देश की जनसंख्यिकीय स्थिति देश के आर्थिक विकास के लिये लक्ष्य बनाने में मदद कर रही है। भारत श्रम आबादी के रूप में विश्व में प्रथम पायदान पर स्थित है, लगभग 65% आबादी आज देश की श्रम आबादी के रूप में दर्ज है। इस कारण श्रम बाजार भारी वृद्धि की उम्मीद कर रहा है।

विश्व की अधिकांश अर्थव्यवस्थाएँ तेजी से बूढ़ी हो रही हैं, फलस्वरूप वैश्विक कार्यबल में उनका योगदान काफी हद तक कम हो रहा है। इसके विपरीत भारत आने वाले वर्षों में वैश्विक कार्यबल में एक प्रमुख योगदान दे सकता है, क्योंकि भारत दुनियाँ में कुशल श्रमिकों का सबसे बड़ा प्रदाता बनते जा रहा है। एक अध्ययन के अनुसार वर्ष 2020 तक दुनियाँ में 50 मिलियन कुशल श्रमिकों की कमी महसूस की जा सकती है। वहीं दूसरी ओर भारत में 2020 तक 56 मिलियन काम करने वाले लोगों का अधिशेष होगा। यदि भारत अपने कार्यबल को उचित कौशल से परिपूर्ण विकसित करने में सक्षम हुआ तो भारत अपनी बड़ी हुई कार्यशील आबादी का लाभ

*सहायक प्राध्यापक, संत अलॉयसियस महाविद्यालय (स्वशासी) जबलपुर।

**सहायक प्राध्यापक, संत अलॉयसियस महाविद्यालय (स्वशासी) जबलपुर।



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KEY SKILLS YOU NEED TO BECOME A GOOD ACCOUNTANT

Harbaksh Moolchandani and Dr. Yogesh Asha***

INTRODUCTION

Accounting educators around the world from developed countries and developing countries are pressured by the industries and the profession to generate graduates with accountancy skills that cater for the changing needs. There are many studies that question the effectiveness of accounting education (e.g. Bedford, Committee, 1986; Siegel, Sorenson, 1994; Albrecht & Sack, 2000; Mara Ridhuan, et al 2003; Bui & Porter 2010). The study investigates using a survey method on technical and functional skills, interpersonal and communication skills, and organisational and business management skills. The paper is structured as follows. First, it discusses the literature on accounting education. The accounting skills that accounting graduates need which are knowledge, professional values, ethics and attitudes to perform accounting and other tasks are discussed next. Third, the research method used in this study is briefly discussed. Fourth, it discusses the findings of the study, and a conclusion completes this paper.

The Higher Education Academy (1998) defined intellectual skills as the ability to analyse, think critically, evaluate and synthesise information. Accountants need intellectual skills to make decisions.

*Asst. Prof. Commerce St. Aloysius Colleg, Jabalpur.
E-mail: hrshmoolchandani4@gmail.com

**Asst. Prof. Commerce St. Aloysius Colleg, Jabalpur.
E-mail: ashayogesh@yahoo.com



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EDUCATION AND SKILL DEVELOPMENT TO PROMOTE EMPLOYMENT IN INDIA

*Ms. Anushree Jain**, *Dr. Hephzibah Beula John***
and *Mr. Deepak Vishwakarma****

INTRODUCTION

Higher education and employment are indisputably tightly connected. Changes in the education sector, in policy, funding and structure, directly impact the employment sector. At present the unemployment rate in India is increasing day by day. One of the various roots of the high unemployment rate lies in the higher education system and the lack of encouragement toward skill development. Even though there is a trend towards professional courses in India, the concept has yet to grow in popularity. Effective education for employment, the connection between the demands of employers and the output of our current education system, the implications of a rapidly globalizing world, and what needs to happen to deliver fit-for-purpose education in the 21st century is the topic of concern. Thus, to take advantage of its "demographic dividend," the country has recently announced policy reforms to accelerate skills development.

Current State of Education, Skill Development and Employment in India

At the most basic level, the linkages between education and the labour market can be defined as a three-tiered relationship that is the

*B.Com III year, St. Aloysius' College (Auto), Jbp.
**Assistant Professor, St. Aloysius' College (Auto), Jbp.
***B.Com III year, St. Aloysius' College (Auto), Jbp.



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SKILL INDIA: OPPORTUNITIES AND CHALLENGES

Dr. Sonali Jain and Dr. Sarita Goel***

INTRODUCTION

Skills development is the process of firstly to identify your skill gaps, and secondly developing and honing these skills. It is important because your skills determine your ability to execute your plans with success. Imagine a carpenter trying to build a house. He has the raw materials but lacks good wood working tools. He has however, a firmy hammer and a small screwdriver. Without the right tools like a hand saw, he can't turn these raw materials into house. It is the same with achieving a goal. In goal achievement, your skills are your tools and making a house is your goal. Just as you need the right tools to build a house, you need the right skills to achieve your goal. **Without the right skills, you will only frustrate yourself, waste your time, and spend a lot of time dealing with rudimentary issues caused by the lack of knowledge or lack of skills, rather than progressing towards your goal.** While difficulty and struggle is part of any goal pursuit, without the right skills, you find yourself struggling a lot. This struggle would not be constructive and will not help you move forward.

OBJECTIVES

- To find out the importance of skill development program.

*Asst. professor in Commerce St. Aloysius College, Jabalpur.

**Asst. professor in Commerce St. Aloysius College, Jabalpur.

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A STUDY OF TRAINING PROGRAM AND ITS EFFECT ON EMPLOYEES PERFORMANCE

Dr. L.S. Bansal and Komal Rawat***

INTRODUCTION

Training is a program that helps employees to learn specific knowledge or skill to improve performance in their current roles. It refers to the training activities carried out for its primary purpose of helping employees of an organization to acquire and apply the knowledge, skills, abilities and attitudes for a particular task and for the organization. The success of an organization is closely bound to the work performance of its employee's success at work place that translated further as the success of an organization. It is relatively important for an organization to hire the most suitable as well as skilled employee that can be proved as an asset to its organization in future; but sometimes HR department unwillingly select some lesser skilled employees that may cost a lot to the organization and remedy for this error is to provide them proper environment and training so they can make up with the organizational needs. It is one of the most important steps of top management to improve the skill development among employees to achieve the goal of the organization.

*Asst. Professor & Head Dept. of Commerce Govt. Degree College Kaetra
Dist. Shivpuri (MP) E-mail: drlsbansal@gmail.com.

**Asst. Professor, Dept. of Commerce St. Aloysius' College (Autonomous)
Jabalpur (MP)

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SKILL DEVELOPMENT MISSION AND RATE OF PRODUCTIVITY OF LABOUR WORKFORCE IN INDIA: CHALLENGES AND ISSUES

Dr. Kudshiya Raza and Anshara Siddiqui***

INTRODUCTION

Narendra Modi, the honourable Prime Minister of India launched Skill India Campaign, which aims at training over 40 crore Indian in different skills by the year 2022, on 15 July 2015. Skill India campaign was launched with the objective Skill India comes under the Ministry of Skill Development and Entrepreneurship and offers courses across 40 sectors in the country which are at par with the standards required to work in the industry. The tag-line of Skill India Mission is 'Kaushal Bharat, Kushal Bharat' (Skilled India, Successful India).

The Ministry of Skill Development and Entrepreneurship aims to skill youth to make them more employable and more productive.

Budget Expenditure: Ministry of Skill Development & Entrepreneurship, 2015-16 to 2018-19



*Asst. Prof. St. Aloysius College.
**Student, St. Aloysius College.

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AVENUES OF SKILL DEVELOPMENT IN THE AGE OF DIGITALIZATION AND DYNAMIC ECONOMY

Dr. (Capt.) Sonal Rai and Sainjali Nayak***

INTRODUCTION

The Indian economic system grew at a whopping rate of 7.6 per cent in 12 months in the quarter January – March 2016, thereby making it a quickest economic system to grow. India's demographic profile is helping the United States to goal for an accelerated economic growth. India is waiting for a large increase in the labour market by manufacturing having 64.8 percentage of the population as the working population. This gives a lot of benefit to the country in the labour market. Most of the economies in the world are getting older fast, their contributions as labour to the world workforce will be reduced to a splendid extent. India will be an exception to it, with a fundamental dominance in the world workforce in the years to come. India will be playing dominant role in the world body of workers by means of being the biggest provider of skilled labour to the world. It referred to that by means of 2025, the world can also count on a scarcity of forty seven million people. India on the other hand will have a surplus of 56 million working population. India will be capable to obtain advantage of the improved working population if they are in a position to equip its body of workers with the fantastic skills. In this respect, skills development in the school education segment in the early life of children emerges as one of the most critical aspect of India's financial policies.

*Dean Faculty of Commerce St. Aloysius' (Auto.) College, Jbp. (M.P.)
**St. Aloysius College, (Auto) Jbp. M.P.



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SKILL DEVELOPMENT: AN OVERVIEW ON POLICY INITIATIVES AND FUTURE SCOPE

Dr. Sanjay Rajak and Khushi Shrivastava***

INTRODUCTION

Skills are considered as an important aspect in a person's life, especially when it comes to getting employment. It has been seen since decades that the education system in India is not competent to provide a skill based learning in schools and colleges. People, especially of the age group of 18 to 35 years long for better degrees, ignoring the part of skills they possess. The Indian education system does not consider the component of skill in its curriculum. The component of vocational education is limited to certain limits, which do not cater to the larger target audience. Different systems/curriculum is followed in India but there is a need to further develop and empower the human capital and to ensure the nation's global competence. As far as the economic progress of our country is concerned, India is still lagging behind as there is lack of awareness observed in its workforce. Youth of the country play a crucial role in achieving economic prosperity. In the present scenario, it is found that most of the youth being educated are facing severe unemployment problem due to lack of skills and technical knowledge. Most of them are unaware of the developments taking place in the modern world.

The first National Skill Development Policy was framed in 2009 and subsequently a National Skill Development Mission was launched in

*Asst. Professor, Department of Commerce St. Aloysius College, Jabalpur (M.P.)
**St. Aloysius College, Jabalpur



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SKILL INDIA MISSION: CHALLENGES AND OPPORTUNITIES

Dr. Rupali Ahluwalia and Devanshi Pathak***

INTRODUCTION

National Skill Development Initiative will empower all individuals through improved skills, knowledge, nationally and internationally recognized qualifications to gain access to employment and ensure India's competitiveness in the global market. In the new era of globalized economy, with the rise in competition, the workers are required to possess certain skills and knowledge which enable them to complete their task efficiently and effectively to meet the required quality standards. With the constantly rising influence of globalization, India has immense opportunities to establish its distinctive position in the world due to its young work force. Due to rapid changes in technological environment and rising complexities of economic activity, jobs are increasingly becoming skill-intensive leading to skill shortage and thus, unemployment. Such challenges are more for developing countries like India, which need skilled workforce to attract the Foreign Direct Investment, expand foreign trade, and thereby stimulate industrial and economic development in the country.

Skill development is a way to empower the workforce with the necessary skills and knowledge through vocational and technical training to meet the industry requirements. Skills may broadly be classified as hard skills and Soft skills. Hard skills are the technical abilities related to an

*H.G.D. Commerce St. Aloysius College (Auto.), Jabalpur.

**B.Com III year, App. Economics St. Aloysius College (Auto.), Jabalpur.



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SKILL DEVELOPMENT – THE NEED TO BRIDGE SKILL GAP IN INDIA

Dr. Preeti Jain, Ms. Arshiya Fatima**
and Ms. Sejal Kapoor****

INTRODUCTION

In today's digital era, with the rapid advancement in technologies and rise in competition, workers are required to possess greater amount of skills so as to complete their jobs and tasks in a fruitful manner. The technological development gives rise to complexity of economic activities and the demand of skill intensive jobs create skill shortages which lead to unemployment. So, the need of the hour is to transform the education system in such a way that it upgrades the skill of the workers and help them in adapting with the changes in technologies. The primary sources which help an individual in developing their skills are the learning in schools, higher education, and industrial/technical training including vocational training. Skill development acts as a tool as it empowers an individual to perform any job effectively and efficiently.

OBJECTIVES

The main purpose of this research paper is to understand the structure of skill development in India, to explore the challenges faced by India in skill development and give its vibrant solutions.

*Asst. Prof., Department of Commerce, St. Aloysius College (Auto.), Jabalpur

**B.Com (Hons) II year St. Aloysius College (Auto.), Jabalpur.

***B.Com (Hons) II year St. Aloysius College (Auto.), Jabalpur.



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SKILL INDIA MISSION- SKILLING DISABLED YOUTH FOR EMPLOYABILITY IN INDIA-A SCENARIO

*Dr. Nidhi Khurana**

'The more we give importance to skill development, the more competent will be our youth'.

-PM. Narendra Modi

INTRODUCTION

The Government of India took an initiative of "Skill India" which aims to train abled and disabled individuals who seek to enhance their knowledge and skill to ensure quality education and promote lifelong learning opportunities to empower the youth of the country thereby making them more employable in their work environment. It has been undertaken by the Ministry of Skill Development

& Entrepreneurship and is aided by the National Skill Development Agency (NSDA), National Skill Development Corporation (NSDC), National Skill Development Fund (NSDF) and 33 Sector Skill Councils (SSCs) as well as 187 training partners registered with NSDC.

DISABILITY IN INDIA

Persons with Disabilities are one of the most marginalized segments in the society. In India, Section 2(i) of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995, defines disability as blindness, low vision,

*Asst. Professor, St. Aloysius College (Auto), Jabalpur (M.P.)



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AN ANALYTICAL STUDY ON SKILL DEVELOPMENT AND EMPLOYMENT FOR RURAL YOUTH IN INDIA

Mrs. Meenakshi Swamy and Ms Navista Anjad***

The concept of youth has been derived by researchers as the period in an individual life that begins from the end of childhood and enters into adulthood. The individual has reached the age of maturity, but yet to acquire the complete rights and duties of adult life, like marriage and earning of livelihood both for self and for one's family. In the case of rural development and particularly agricultural development, youth constitute the compelling force; the mind-set of the youth is cultivated in such a manner that they prove to be productive, especially when they have developed this objective to bring about rural development. Youth associations have got involved in number of activities such as planting of crops, community farming, construction of village squares, contribution in enhancement and application of science and technical methods, energy conservation, construction, biotechnology and employment generation for the rural masses. The standard of living of the rural people depends upon factors such as food and nutrition level, health, education, housing, recreation and security. Agriculture is of extreme importance and is considered to be particularly important for the rural people.

*Asst Professor, St Aloysius Colleges Jabalpur (M.P.)
**St Aloysius Colleges Jabalpur.



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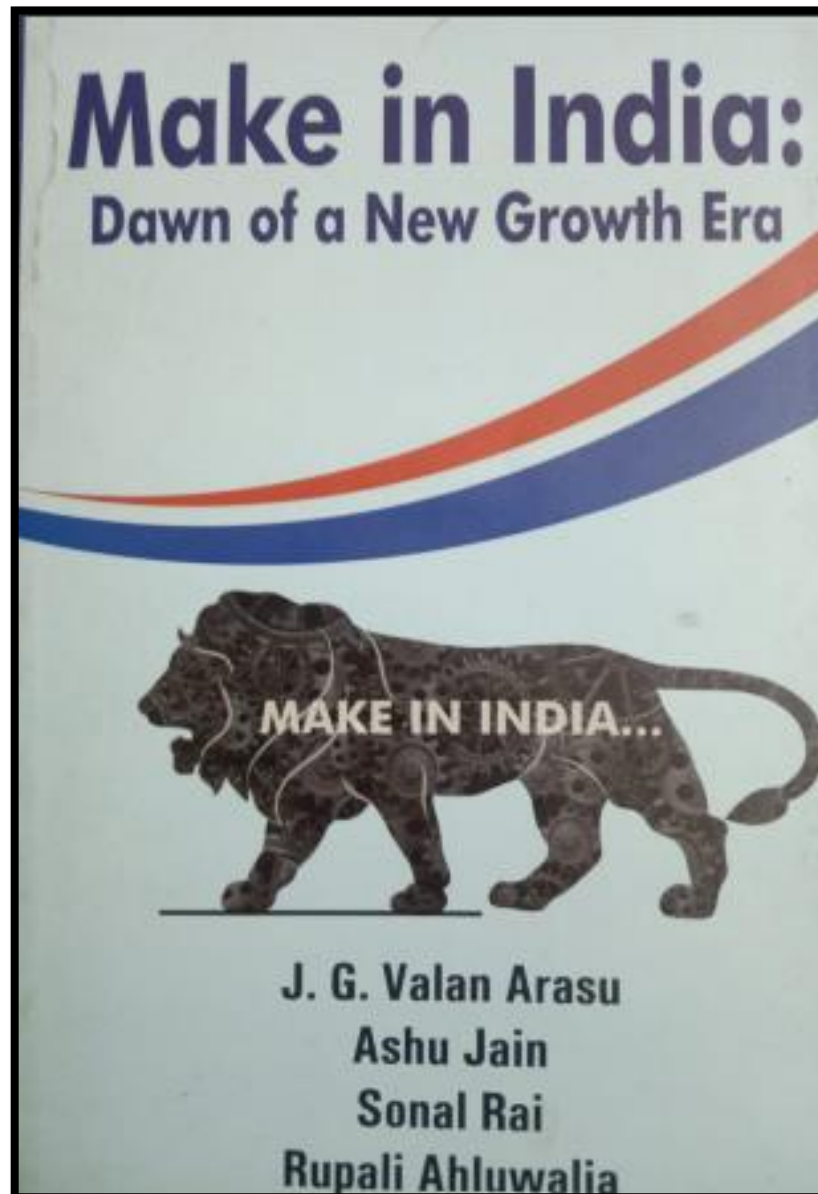
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Impact of Make in India on Employment Generation

*Mrs. Komal Rawar**

INTRODUCTION

With increasing globalization and rapidly changing dynamic trends, India too needs to develop its infrastructure in order to militate its presence in the global picture and to match the rising demands and the living standard of its citizens. The most easy and important way to keep pace with the environment for a country is to develop its manufacturing sector. When more global and local players will invest in a country, it will boost the trade and economic growth, develop its infrastructure, and generate more employment opportunities for its citizens.

Mukesh Ambani – Chairman & Managing Director, Reliance Industries said on Make in India launch day-

This is a historic day for the Indian manufacturing industry. 'Make in India' is about the present and future, not about the past. Reliance will create 1.25 lakh jobs in next 12-15 months.

KM Birla – Chairman, Aditya Birla Group said

It is high time India becomes a preferred manufacturing hub. We need millions of jobs to prop up our economy. India has all that is needed to make it a key manufacturing destination – skills, raw material, and entrepreneurship.

Chanda Kochchar – MD & CEO, ICICI Bank said

Make in India is the next growth driver for India. Manufacturing sector can add 9 crore jobs in the coming decade. Quality, cost, and

*Assistant Professor, Dept. Of Commerce, St. Aloysius College, Jabalpur (M.P.), India, E-mail: komal.rawar024@gmail.com



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Make in India: A Boost to the Manufacturing Industries

Dr. Ashu Jain and Ms. Nikita Shukla***

Manufacturing sector is the backbone of any economy as it fuels growth, productivity, employment, and strengthens other sectors of the economy. The situation of manufacturing sector in India is a cause of concern especially when seen in comparison to the massive transformation registered in this sector by other Asian countries in similar stages of development. At around 16% value added of manufacturing to India's GDP, the sector does not seem representative of its potential which should have been 25%. India is on the threshold of major reforms and is poised to become the third-largest economy of the world by 2030. In the words of our Hon'ble Prime Minister, India offers the 3 'Ds' for business to thrive— democracy, demography and demand. Add to that a tech-savvy and educated population, skilled labor, robust legal and IPR regime, and a strong commitment to calibrated liberalization— India is a destination that German investors cannot overlook. India's manufacturing sector has evolved through several phases - from the initial industrialization and the license raj to liberalization and the current phase of global competitiveness. Today, Indian manufacturing companies in several sectors are targeting global markets and are becoming formidable global competitors. Many are already amongst the most competitive in their sectors.

Prime Minister Narendra Modi's vision includes the manufacturing of automobile and automotive components in India. The idea of Make in India germinates from the fact that India has one of the largest manpower pools in the world—a young demographic, skilled workers and ample

*Coordinator, Department of Tax, St. Aloysius College Jabalpur.

**Assistant Professor, Department of Commerce, St. Aloysius College Jabalpur.



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Make in India: Campaign for Revolutionizing India

Dr. Tarvinder Kaur and Ms. Rajnil Sharma***

INTRODUCTION

Seeking to make the country a global manufacturing hub, Prime Minister Narendra Modi launched the ambitious 'Make in India' campaign. The 'Make in India' campaign is aimed at making India a manufacturing hub. The thrust is to increase share of manufacturing from the current level of 16 per cent of Gross Domestic Product (GDP) to 25 per cent and create additional employment opportunity of ten million per year.

The major objective behind the initiative is to focus on job creation and skill enhancement in 25 sectors of the economy. The initiative also aims at high quality standards and minimising the impact on the environment. The initiative hopes to attract capital and technological investment in India. The campaign has been concentrated to fulfill the purpose of Job Creation, Enforcement to Secondary and Tertiary sector, Boosting national economy, Converting the India to a self-reliant country and to give the Indian economy global recognition. The logo for the Make In India campaign is an elegant lion, inspired by the Ashoka Chakra and designed to represent India's success in all spheres. The campaign was dedicated by the Prime Minister to the eminent patriot, philosopher and political personality, Pandit Deen Dayal Upadhyaya who had been born on the same date in 1916.

*Coordinator, B.Com. Honors St. Aloysius College Jabalpur.

**Assistant Professor, Department Of Commerce, St. Aloysius College, Jabalpur (M.P.), India

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Make in India - A Global Manufacturing Hub in India

*Mrs. Meenukshi Swamy**

INTRODUCTION

Make in India is aimed at making India a manufacturing hub and economic transformation while eliminating the unnecessary laws and regulations, making bureaucratic processes easier, make government more transparent, responsive and accountable and to take manufacturing growth to 10% on a sustainable basis. The Indian economy has been witnessing positive sentiments during the past few months. The macroeconomic indicators have also displayed an encouraging trend in the recent times. However, the situation of the manufacturing sector in India is a cause of concern. At 16% value added to GDP, the sector does not seem representative of its potential which should have been 25%. However, the industrial growth scenario is improving and is estimated at 1.9% in the period April-October 2014-15. The recent measures undertaken by the new government in terms of facilitation to industrial sector, creation of conducive environment for the manufacturing activities, focus on improving industrial policies and procedures and reforming labor Laws have facilitated recovery in industrial sector. The Government recently launched the Make in India initiative which is expected to make India a manufacturing hub while eliminating the unnecessary laws and regulations, making bureaucratic processes easier, make government more transparent, responsive and accountable and to take manufacturing growth to 10% on a sustainable basis. Apart from initiatives such as development of smart cities, skill development.

*Asst professor, St Aloysius College, Jabalpur (M.P), India, Pin- 482001.
E-mail: meenukshi_always007@gmail.com

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Nanoelements: An Agricultural Paradigm for Targeted Plant Nutrition Therapeutic Approach

Chapter | First Online: 08 December 2019

pp 73–83 | [Cite this chapter](#)

[Divakar Sharma](#), [Yogesh K. Dhuriya](#), [Juhi Sharma](#) & [Monika Gupta](#)

 962 Accesses  1 Citations

Abstract

The nutrients required for good health, longevity, and well-being come from the different complex food system. The constant growth of the world population increased the demand for better technologies to enhance the agricultural yields, production of healthier food, and combat with pathogens to reduce the damage. In medical fields, nanotechnology shows promising therapeutic effects as it overcomes the biological barriers and improves the targeting of the diseased tissues, while application of nanotechnology in agricultural fields has received little attention in contrast to the human health system. Phyto-nanotechnology has tremendous potential to alter the plant production by allowing the target-specific delivery of nutrients and biomolecules, and it also allows the controlled release of fertilizers, herbicides, and pesticides to reduce environmental damage. A better understanding of the relationship between plants response and nanoparticles may improve the uptake of agricultural elements which is essential to increase the agricultural yields and disease resistance of plants while reducing the biotic stress. Maintaining the optimum requirement of nutrition to sustain plant production is the major research area of agronomy field, and nano-nutrition is a remarkable area for sustainable plant production by using nano-elements. Using this technology, we can maintain the need for micro and macronutrients in the plants. Confront studies have reported that nanomaterial and nanoparticles are better suited for plant nutrition in contrast to nano-fertilizers.



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Nanotechnology: A Novel Strategy Against Plant Pathogens

Chapter | First Online: 08 December 2019

pp 153–170 | [Cite this chapter](#)

[Divakar Sharma](#), [Juhi Sharma](#) & [Yogesh K. Dhuriya](#)

 1020 [Accesses](#)  2 [Citations](#)

Abstract

To augment the nutritional values and yields for which agricultural sector come across various problem, solution to this can be provided by narrative and enhanced strategies unrehearsed by nanotechnology. To recover the safety of agricultural products as well as diminish the pollution, new Nano technological techniques with controlled delivery of pesticides, herbicides and fertilizers could be functional. Important aspects in novel agriculture include development of nanodevices such as smart delivery systems to target specific sites and also nanocarriers for chemical controlled release. Agricultural production can be revolutionized using nanotechnology involving on-farm applications to deliver drugs or pesticides to livestock or crops and smart-sensing devices for agriculture-environment interactions. This study emphasizes upon bionanotechnology awareness in agriculture which is an emergent field having enormous prospective.



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Agnihotra for Welfare of Human Society & Environment-Scientific Evidences: A Review

Mamta Gokhale^{1*}, Radhika Patel¹ and Aman Bharti¹

DOI: 10.9734/bpi/tamb/v2

ABSTRACT

The rich Indian culture and heritage has provided lasting solutions to many difficulties and even to the problems of the modern world. The custom of *yadnya*, Agnihotra *yadnya*, is one such part of the Indian customs. The procedure of the *yadnya* and the benefits by performing it has been investigated and are still the part of unfathomable science. The following review is a yield of the recent research works that have been dealing with agnihotra *yadnya* and its benefits. Along with the benefits of Agnihotra *yadnya*, the present review also discusses the effects of agnihotra ash on growth of plants and on pathogenic micro-organisms. The use of agnihotra ash as remedial medicine for various diseases is also an aspect of the discussion.

Keywords: Agnihotra ash, *Yadnya*, plant growth, micro-organisms, medicines

1. INTRODUCTION

Indian Culture and customs are treasures of knowledge innovated and worked out by ancient scholars, i.e., *Rishis, Munis*. All of the customs teach us to honor Mother Nature and its conservation for benefit to human society. *Yadnya* is an ancient technique of *ahuti* with rituals, need many ingredients, and can perform by specific type of peoples to achieve some specific object.

Yadnya of regular practice which to do daily and has been recommended for all types of human beings are Agnihotra. It is a vedic *yadnya* procedure, was practiced in the ancient times in India, a process which is known to purify the atmosphere through specially prepared fire. Agnihotra *yadnya* is performed daily at sunrise and sunset. Agnihotra was performed using known amount of materials. About 100 gm of dried cow dung known as *kandas* was arranged in an inverted pyramidal copper pot of dimensions 14.5 x 14.5 cm at the top 5.25 x 5.25 cm at the bottom and 6.5 cm in height. Fire was lit using 18 ml purified cow ghee and offerings of 2 gm whole rice grains mixed with 2 ml of purified cow ghee was given by chanting following mantras, different mantras are chanted for sunrise and sunset time.

At Sunrise -

Sooryaya swāhā, Sooryāye idam na mama]
Prajāpataye swāhā, Prajāpataye idam na mama]

At Sunset -

Agnaye swāhā, Agnaye idam na mama]
Prajāpataye swāhā, Prajāpataye idam na mama]

In this practice pieces of dried cow dung cakes are piled up in an inverted copper pyramid with specific width and specific dimension and lighted. Whole Rice grains mixed with cow ghee is given to fire called *Ahuti* with chanting specific mantras. Effect of Agnihotra fumes on air contains pollutants

¹St. Aloysius College (Autonomous), Jabalpur, M.P., India
^{*}Corresponding author. E-mail: mamtashirang@gmail.com



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New and Future Developments in Microbial Biotechnology and Bioengineering

From Cellulose to Cellulase: Strategies to Improve Biofuel Production

2019, Pages 209-225



Chapter 13 - Genetic Engineering Applications to Improve Cellulase Production and Efficiency: Part I

Enosh Phillips

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Abstract

Cellulose, a product of photosynthesis in plants, is a vital raw material for various industrial processes such as in the paper industry, textile industry, food industry, and others. Cellulose is also used in the production of biofuel. To be utilized at an industrial level, cellulose is degraded into a simple sugar because it is a polymer. Cellulase is the enzyme that catalyzes the breakdown of cellulose into useful forms by glycosidic activity. It is a group of enzymes termed cellulosome that contains cellobiohydrolases, endoglucanases, and β -glucosidase, which work in a synchronous manner to convert cellulose into cellobiose and glucose. Conventional industrial synthesis of cellulase calls for optimizing the production process that increases the cost of cellulase. However, with the advancement of genetic engineering, the cost of production is lowered. This chapter is a brief discussion of how genetic engineering is used not only for increasing the production of cellulase but also for enhancing its activity by modulating various genetic factors like the promoter, transcription factors, repressors, and also the use of accessory proteins. Epigenetics, which is an emerging area that alters the expression rate of a gene, has been found to be useful in increasing the production of cellulase. Apart from manipulating the sequence of a cellulase gene/protein to produce its variant in fungi like that in *Trichoderma reesei*, it has been shown by many that cellulase can be expressed in



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Recent Research in Agriculture for doubling of farmer's Income



Shampi Jain
Neeraj Verma

Recent Research in Agriculture for doubling of farmer's Income

AUTHENTICATION OF ITS2 REGION AS A DNA BARCODE CANDIDATE FOR MEDICINALLY IMPORTANT PLANT APARAJITA (*CLITORIA TERNATEA*)

Fiza Tarannum, Yasmin Banu and Laxmi Kant Pandey*

Department of Biotechnology, St. Aloysius College, Jabalpur, 482001 MP, India

*lkpandey16@gmail.com.

ABSTRACT

The DNA barcoding technique proposed by Paul DN Herbert in 2003 is a rapid and accurate method to identify and characterize unknown organisms using short conserved and unique patterns of DNA sequences, known as "DNA barcodes". The internal transcribed spacer 2 (ITS2) region of nuclear ribosomal DNA is regarded as one of the candidate DNA barcodes because it possesses a number of valuable characteristics, such as the availability of conserved regions for designing universal primers, the ease of its amplification, and sufficient variability to distinguish even closely related species. In the present study we amplified the ITS2 region of the medicinally important plant *Clitoria ternatea*, commonly known as Aparajita and that DNA was sequenced in both forward and reverse direction for authenticity of the sequence. The isolated plant DNA was both qualitatively and quantitatively characterized. The PCR fragment of 418 bp including 5.8s RNA, ITS2 and 26s RNA was amplified by using 50 ng of plant DNA template. Amplified PCR product was purified by using silica based column and then characterized both qualitatively and quantitatively. Amplified DNA fragment was sequenced by capillary based sanger's method. The ITS2 region was annotated by using ITS2 annotation tool. The annotated sequence of ITS2 was used as template for BLAST. In BLAST result the template DNA showed 100 percentage similarities to already published *Clitoria ternatea* sequences. We also submit our sequence in nucleotide database with accession number (MG561852).

Keywords: DNA Barcodes, ITS2 region, *Clitoria ternatea*, PCR, BLAST.

1. INTRODUCTION

The World Health Organization estimates that 80 per cent of the world's population utilizes traditional medicines for healing and curing diseases (<http://www.worldwildlife.org/what/globalmarkets/wildlifetrade/faqs-medicinalplant.html>). There is an increasing international market for medicinal plants, which are used both for herbal medicine and for pharmaceutical products. Medicinal plants cover a wide range of plant taxa and closely related species. Accurate and rapid authentication of these plants and their adulterants is difficult to achieve at the scale of international trade in medicinal plants. The term "DNA barcode" for global species identification was first coined by Hebert in 2003 (Hebert et al., 2003a; Hebert et al., 2003b) and has gained worldwide attention in the scientific community. DNA barcoding used in various biological applications includes the discovery of cryptic species (Crawford et al., 2013) for the detection of invasive species (Steinke et al., 2012) for reconstructing food webs (Garcia-Robledo et al., 2013) and medicinal plants identification in mixtures (Kool et al., 2012; Newmaster et al., 2013). Compared with whole ITS region, ITS2 was more suitable for species identification because of its short length, and high efficiency for PCR amplification (Chen et al., 2010; Gao et al., 2010a).

Clitoria ternatea commonly known as 'Butterfly pea', a traditional ayurvedic medicine, has been used for centuries as a memory enhancer, nootropic, antistress, anxiolytic, antidepressant, anticonvulsant, tranquilizing and sedative agent. A wide range of secondary metabolites including triterpenoids, flavonol glycosides, anthocyanins and steroids has been isolated from *clitoriaternatealinn*. Its extracts possess a wide range of pharmacological activities including antimicrobial, antipyretic, anti-inflammatory, analgesic, diuretic, local anesthetic, antidiabetic, insecticidal, blood platelet aggregation-inhibiting and for use as a vascular smooth muscle relaxing properties. This plant has a long use in traditional ayurvedic medicine for several diseases and the scientific studies have reconfirmed those with modern relevance. In this study, we try to authenticate ITS2 region as DNA barcode for medicinally important plant aparajita (*Clitoria ternatea*)

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Recent Research in Agriculture for doubling of farmer's Income



Shampi Jain
Neeraj Verma

Recent Research in Agriculture for doubling of farmer's Income

SCREENING OF SECONDARY METABOLITES FROM PLANT GROWTH PROMOTING RHIZOBACTERIA UNDER SALINITY STRESS

Yasmin Banu*, Jigyasa Patel, Shraddha Patel, Nikita Soni and L.K. Pandey
Department of Biotechnology, St. Aloysius College (Autonomous), Jabalpur (M. P.)

*yasminbanu13@gmail.com

ABSTRACT

The review summarizes the accumulation of secondary metabolites under abiotic stress, drought, salinity, temperature or any other environmental condition. The role of such abiotic stress regulate the production of secondary metabolites. The importance of such secondary metabolites are much known as they are found to show antimicrobial, antioxidant or source of bioactive compound which are commercially important. The screening of such compounds help the understanding of their functions under stress conditions following inoculation of such isolates onto seed and that enhance plant growth. The aim of this review to study the rhizobacteria (PGPR) isolated from soil which induces the plant growth by root colonization under salt stress followed by the mechanism siderophore by chelating iron, atmospheric nitrogen fixation, synthesis of phytohormonesolubilisation and accumulation of minerals which can aid sustainability of agricultural environment and enriches the rate of crop productivity under different abiotic stress. *Bacillus* and *Pseudomonas* species are known PGPRs have specific mechanisms of action by modulating plant stress responses.

Keywords: PGPR, Secondary Metabolite, Abiotic Stress, Siderophore

INTRODUCTION

Plant growth-promoting rhizobacteria (PGPR), free living soil bacteria thriving in the plant rhizosphere, have been studied as plant growth promoters for increasing agricultural productivity (Lucy *et al.*, 2004). Different mechanisms have been reported for their performance such as production of antibiotics, siderophore cyanide hydrogen, competition for nutrition and space, induce resistance, inactivation of pathogen's enzymes and enhancement of root and plant development (Karimi *et al.*, 2012). Studies on salt-tolerant PGPR indicate that under saline conditions, these microbes accumulate various metabolites to protect themselves and even their mutualistic partners (Bharti *et al.*, 2016). Salt resistance analysis showed that the relative electronic conductivity of the transformed plants plasma membrane was significantly lower than that of the control under salt stress. The synthesis of secondary metabolites is generally increasing when plants suffer with biotic and abiotic stresses. Accumulation of phenylpropanoids and phenolic compounds were found higher during stress condition in plants (Dixon and Paiva, 1995; Chalker and Fnechigami, 1989). This review gives an overview on the effects of salinity stress shows various aspects of the biochemical and physiological changing event through the mechanism of rhizobacteria.

CHARACTERIZATION OF PGPRS

Microbial colonization of the rhizoplane and/or root tissues is known as root colonization, whereas the colonization of the adjacent volume of soil under the influence of the root is known as rhizosphere colonization (Barea *et al.*, 2005; Klopper *et al.*, 1991; Klopper, 1994). The plant growth promoting rhizobacteria (PGPR), are characterized by the following inherent distinctiveness's: (i) they must be proficient to colonize the root surface (ii) they must survive, multiply and compete with other microbiota, at least for the time needed to express their plant growth promotion/protection activities, and (iii) they must promote plant growth (Klopper, 1994) Gram-negative rods with a lower proportion being Gram-positive rods, cocci or pleomorphic (Bhattacharyya and Jha, 2012). Among them, PGPR can directly enhance micronutrient uptake and affect phytohormones homeostasis, or indirectly stimulate the plant immune system against phytopathogens (Balloi *et al.*, 2010). Once the microscopic organisms colonize the root, they can live on the surface of the roots (epiphytic) or can enter into the root and spread into the ethereal parts of the plant and vascular tissue cortex (endophytic) (Reinhold-Hurek and Hurek James, 2000).

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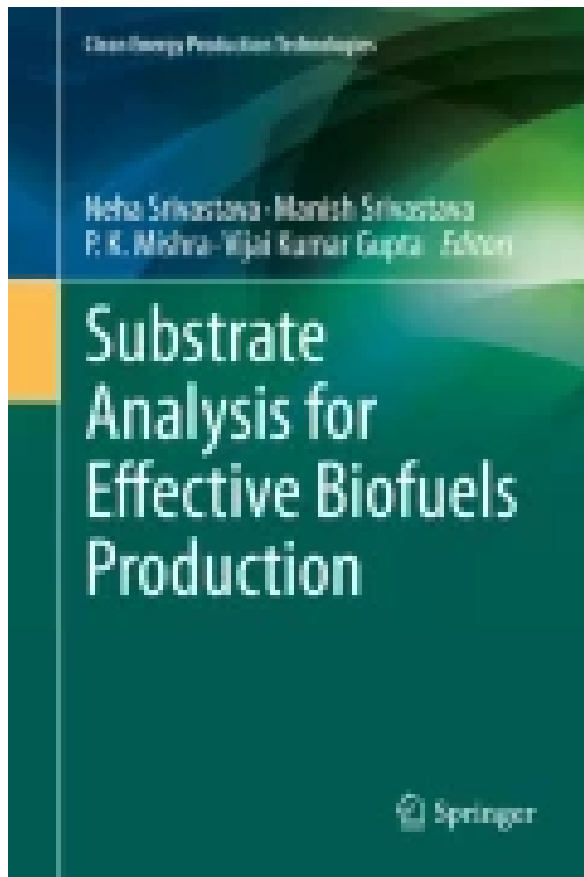
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Algal Butanol Production

Chapter | First Online: 01 February 2020

pp 33–50 | [Cite this chapter](#)

[Enosh Phillips](#)

 Part of the book series: [Clean Energy Production Technologies \(\(CEPT\)\)](#)

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Abstract

The energy of the sun converted to chemical energy by photosynthetic plants drives the life on earth. Energy has become an important aspect of the development of human civilization. Presently 80% of the energy demand is fulfilled by the fossil fuels which are non-renewable and has a reserve up to a few years. Moreover, the combustion of fossil fuels has increased the concentration of greenhouse gases effecting the climate and ecosystem. Renewable sources of energy like biofuels are promising alternatives to reduce the dependence on fossil fuels. Butanol is one such biofuel which has shown to blend in with the present fuel like petroleum, fulfilling the energy demands of transportation and industries. Butanol was initially being produced by the crop plants hence threatening the food security. Microalgae, an easily grown photosynthetic organism, has shown its capacity to enhance and increase the production of butanol without affecting the crop fields as well as the ecology. It can be grown in large quantities in a small cost-efficient



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The Contribution of Microbial Biotechnology for Achieving Sustainable Development

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pp 1–18 | [Cite this chapter](#)

[Juhi Sharma](#), [Divakar Sharma](#), [Anjana Sharma](#), [Vaishali Vishwakarma](#), [Anshul Dubey](#) & [Himesh Namdeo](#)

 Part of the book series: [Environmental and Microbial Biotechnology \(EMB\)](#)

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Abstract

Microbes are requisite constituent of biotic diversity that maintain sustainable ecosystem. They are chief customs of life which have progressed into environmentally, metabolically and genetically diverse species. In ecosystem, microbial diversity strives to comprehend innumerable metabolic courses to maintain resolute integrity for sustainable ecology. Utility of microbial communities has better indulgent of the bio-network. Until now, only 0.1–10% of microbial species are recognized and, the rest being uncultured, inhabit noteworthy niches in biomes and are accountable for several loom based on molecular genetics, systems and synthetic biology, genomics, proteomics and metagenomics.