

Volume 1
30 May, 2024
Webinar Edition

RNI No. – MPHIN/2013/60638
ISSN 2320-8767, E-ISSN 2394-3793
Scientific Journal Impact Factor (SJIF)- 7.671

Naveen Shodh Sansar

(An International Refereed/ Peer Review Research Journal)



National Webinar

30 May 2024

on

Importance of Vocational Education in Higher Education Institutions for Social Development

Organized By

Dr. Bhimrao Ambedkar Govt. College, Amla, Betul (M.P.)

Sponsored By

Department of Higher Education (DHE), Government of Madhya Pradesh

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अत्यंत प्रसन्नता एवं गौरव का विषय है कि डॉ. भीमराव अम्बेडकर शासकीय महाविद्यालय, आमला, जिला बैतूल (म.प्र.) में राष्ट्रीय वेबिनार 'सामाजिक उत्थान के लिए उच्च शिक्षा संस्थानों में व्यावसायिक शिक्षा का महत्व' विषय पर दिनांक 30.05.2024 को आयोजित किया गया। इस राष्ट्रीय वेबिनार में देश के विभिन्न राज्यों के प्राध्यापक, सहायक प्राध्यापक, अतिथि विद्वान, शोधार्थी एवं विद्यार्थियों ने भाग लिया एवं शोधपत्र प्रस्तुत किये। राष्ट्रीय शिक्षा नीति के अंतर्गत स्कूलों तथा कॉलेजों में दिए जाने वाली शिक्षा में महत्वपूर्ण बदलाव किए गए हैं। मानव संसाधन मंत्रालय अब शिक्षा मंत्रालय के नाम से जाना जाएगा। नई शिक्षा नीति के अंतर्गत 5+3+4+4 का पैटर्न अपनाया जाएगा। राष्ट्रीय शिक्षा नीति 2020 का उद्देश्य भारत में दी जाने वाली शिक्षा को वैश्विक स्तर पर लाना है। पुरानी शिक्षा नीति में बहुत सारे बदलाव किए गए हैं जिससे कि शिक्षा की गुणवत्ता में अत्याधिक सुधार देखा जाएगा। राष्ट्रीय शिक्षा नीति के सिद्धांत कहते हैं कि प्रत्येक विद्यार्थी दूसरे से अलग है उसकी क्षमता को पहचान कर विद्यार्थी का संपूर्ण विकास होना चाहिए। इसके अलावा बच्चों को भारतीय संस्कृति से जोड़ना, सुशासन सिखाना, विभिन्न भाषाओं का ज्ञान देना तथा बच्चों की सोच को रचनात्मक और तार्किक बनाना इस शिक्षा नीति का मुख्य उद्देश्य है। मध्यप्रदेश सरकार द्वारा सत्र 2021-22 से राष्ट्रीय शिक्षा नीति को लागू कर दिया गया है। स्नातक डिग्री के बाद स्नातकोत्तर केवल 1 वर्ष का होगा। नई शिक्षा नीति को रोजगार से सीधा जोड़ा गया है, जिससे विद्यार्थियों को क्षमता के आधार पर रोजगार के अवसर मिलेंगे। 2025 के अंत तक नई शिक्षा नीति के अंतर्गत कम से कम 50 फीसदी छात्रों को वोकेशनल स्टडीज पढ़ाने का लक्ष्य निर्धारित किया गया है। वोकेशनल तथा एकेडमिक स्ट्रीम को अलग नहीं किया जाएगा जिससे कि छात्रों को दोनों क्षमताओं को विकसित करने का मौका मिले। कुल मिलाकर, एनईपी -2020 से भारत में शिक्षा प्रणाली में महत्वपूर्ण बदलाव आने की उम्मीद है, तथा देश पुनः विश्व गुरु के पद पर प्रतिष्ठ होगा।

शुभकामनाओं सहित



डॉ. गुलाबराव डोंगरे

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जिला बैतूल (म.प्र.)

संदेश- सचिव (वेबिनार)



अत्यंत प्रसन्नता का विषय है कि डॉ. भीमराव अम्बेडकर शासकीय महाविद्यालय, आमला, जिला बैतूल (म.प्र.) में राष्ट्रीय वेबिनार 'सामाजिक उत्थान के लिए उच्च शिक्षा संस्थानों में व्यावसायिक शिक्षा का महत्व' विषय पर दिनांक 30.05.2024 को आयोजित किया गया। राष्ट्रीय वेबिनार को स्मरणीय बनाने के लिए शोध पत्रों का प्रकाशन नवीन शोध संसार (An International Refereed/Peer Review Research Journal), नीमच (म.प्र.) में किया जा रहा है। यह शोधार्थी एवं विद्यार्थियों को मार्गदर्शिका के रूप में अत्यंत उपयोगी सिद्ध होंगे। वेबिनार को सफलतापूर्वक संपन्न कराने में समस्त सम्माननीय विद्वानों एवं पत्रिका के सफल प्रकाशन के लिए प्रकाशक महोदय को मेरी ओर से हार्दिक बधाई एवं शुभकामनाएं।



जगदीश उडके

सचिव (वेबिनार)

डॉ. भीमराव अम्बेडकर

शासकीय महाविद्यालय, आमला

जिला बैतूल (म.प्र.)

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व्यावसायिक पाठ्यक्रमों और विद्यार्थियों का संवागीण विकास

गुलाबराव डोंगरे* जगदीश उडके**

* इतिहास विभाग, डॉ. भीमराव अम्बेडकर शासकीय महाविद्यालय, आमला, जिला बैतूल (म.प्र.) भारत
 ** समाजशास्त्र विभाग, डॉ. भीमराव अम्बेडकर शासकीय महाविद्यालय, आमला, जिला बैतूल (म.प्र.) भारत

शोध सारांश – व्यवसायिक शिक्षा विशिष्ट व्यवसायों या व्यावसायों पर सीधे लागू होने वाले व्यावहारिक कौशल और ज्ञान विकसित करने का लक्ष्य रखने वाले व्यक्तियों के लिए एक महत्वपूर्ण मार्ग के रूप में कार्य करती है। पारंपारिक शैक्षणिक शिक्षा के विपरीत, जो सैद्धांतिक शिक्षा पर जोर देती है, व्यावसायिक शिक्षा व्यावहारिक प्रशिक्षण और व्यावहारिक अनुभव पर केन्द्रित है। यह शैक्षिक दृष्टिकोण न केवल छात्रों को तकनीकी विशेषज्ञता से लैस करता है बल्कि उन्हें कार्यबल में तत्काल प्रवेश के लिए भी तैयार करता है। उद्योगों और व्यवसायों के साथ साझेदारी के माध्यम से, व्यावसायिक कार्यक्रम यह सुनिश्चित करते हैं कि पाठ्यक्रम प्रासंगिक बना रहे और वर्तमान नौकरी बाजार की मांगों के अनुरूप हो। पूरा होने पर प्रमाणपत्र और प्रमाण-पत्र प्रदान करके, व्यावसायिक शिक्षा छात्रों की रोजगार क्षमता को बढ़ाती है और कैरियर में उन्नति के लिए एक व्यवहार्य मार्ग प्रदान करती है। संक्षेप में, व्यावसायिक शिक्षा-शिक्षार्थियों और उद्योगों दोनों की व्यावहारिक जरूरतों को पूरा करने, अपने चुने हुए क्षेत्रों में प्रभावी ढंग से योगदान करने के लिए तैयार कुशल पेशेवरों को बढ़ावा देने में महत्वपूर्ण भूमिका निभाती है।

शब्द कुंजी – व्यावसायिक शिक्षा, समाज, नैतिकता, महत्व, ज्ञान, कल्याण।

प्रस्तावना – भारत एक ऐसा देश है जहाँ व्यवसाय को शिक्षा से अलग कभी नहीं देखा गया है। परन्तु, औपनिवेशिक प्रभाव के कारण, पारंपरिक भारतीय प्रणाली में शिक्षा के व्यावसायीकरण को हतोत्साहित किया गया और एक नई प्रणाली उभरी जो मुख्य रूप से औपनिवेशिक प्रशासन की आवश्यकताओं को पूरा करने के लिए थी। यह धारणा कई शैक्षिक विचारकों और शिक्षाविदों द्वारा औपनिवेशिक काल के दौरान तथा उसके बाद भी पहचानी गई तथा उसकी कल्पना की गई थी। गांधी की वर्धा योजना, शिक्षा और व्यावसायिक कौशल को एक साथ लाने का प्रयास थी।

माध्यमिक शिक्षा आयोग (1951-52) ने सभी अवस्थाओं में तकनीकी कौशल तथा कार्य कुशलता के समावेश और उन्नयन की सलाह की। इसी तरह, कोठारी आयोग (1964-66) ने भी शिक्षा को कार्य से सम्बन्धित करने का सुझाव दिया और अनुशांसा की कि व्यावसायिक शिक्षा दोनों स्तरों पर होनी चाहिए अर्थात् निम्न और उच्चतर माध्यमिक स्तर पर। राष्ट्रीय शिक्षा नीति (2020) ने व्यावसायिक कौशल विकास पर अधिक एकाग्रता के साथ विद्यालयी शिक्षा का फिर से पुनर्निर्माण करने का प्रस्ताव रखा। इस संदर्भ में, यह इकाई भारत में माध्यमिक स्तर पर व्यावसायिक शिक्षा का अर्थ तथा महत्व, विभिन्न व्यावसायिक शिक्षा प्रदान करने वाले विभिन्न संस्थाओं की संरचना, केन्द्र और राज्य स्तर पर विभिन्न योजनाओं और विद्यालयी बच्चों के बीच व्यावसायिक कौशल को बनाने का एक प्रयास है।

व्यावसायिक शिक्षा का परिचय– व्यावसायिक पाठ्यक्रमों को व्यावसायिक शिक्षा के अंतर्गत एक शिक्षा कार्यक्रम के रूप में जाना जाता है। यह पाठ्यक्रम व्यावसायिक क्षेत्रों में शिक्षा प्रदान करने के लिए डिज़ाइन किया जाता है। जिसमें छात्रों को व्यावसायिक कौशल, ज्ञान और अनुभव प्राप्त करने का मौका मिलता है। ये पाठ्यक्रम विभिन्न स्तरों पर उपलब्ध होते

हैं जैसे कि स्नातक, स्नातकोत्तर और डिप्लोमा कोर्सेस।

व्यावसायिक पाठ्यक्रम विभिन्न क्षेत्रों में हो सकते हैं जैसे कि वित्तीय सेवाएं, मार्केटिंग, मानव संसाधन, प्रबंधन, औद्योगिक इंजीनियरिंग, और अन्य व्यावसायिक क्षेत्र। ये पाठ्यक्रम दुनिया में सफलता प्राप्त करने के लिए तैयार करते हैं और उन्हें व्यावसायिक क्षेत्र में उच्च स्तरीय काम करने के लिए तैयार करते हैं। इन पाठ्यक्रमों का मुख्य उद्देश्य छात्रों को व्यावसायिक जगत में उनके कौशल और ज्ञान को विकसित करने में मदद करना है। ताकि वे अपने कैरियर को मजबूत बना सकें।

सरल शब्दों में, हम इसे इस रूप में परिभाषित कर सकते हैं कि **'व्यावसायिक शिक्षा औपचारिक या गैर-औपचारिक कार्यक्रमों के माध्यम से शिक्षार्थियों में शिक्षा और कौशल के बारे में बात करती है।'** इसे ज्ञान, कौशल और दक्षताओं को प्रसारित करने के संगठित और असंगठित दोनों विधियों के रूप में समझाया जा सकता है। व्यावसायिक शिक्षा को शैक्षिक प्रशिक्षण के रूप में परिभाषित किया जा सकता है जिसमें ज्ञान, कौशल, संरचनात्मक गतिविधियों, योग्यताओं, क्षमता किसी संरचनात्मक अनुभवों को सम्मिलित किया जाता है जिसे औपचारिक माध्यम से प्राप्त किया जाता है। नौकरी या नौकरी के बाद का प्रशिक्षण जो प्राप्तकर्ता को अर्थव्यवस्था के विभिन्न क्षेत्रों में नौकरी को सुरक्षित करने का अवसर बनाती है

एक अधिक उपयोगितावादी दृष्टिकोण से, व्यावसायिक शिक्षा या प्रशिक्षण का अर्थ किसी विशेष रोजगार के लिए किसी भी व्यक्ति को शिक्षित या प्रशिक्षित करने के लिए उपयोग किए जाने वाले समकालिक और नियंत्रित शिक्षण अनुभव की एक व्यवस्था है। व्यावसायिक शिक्षा कर्मचारियों के लिए शिक्षा या प्रशिक्षण है जो मनुष्य के जीवन में एक शक्तिशाली उपकरण बन गया है। यह व्यक्ति के भाग्य और बाद में मानव जाति के भविष्य को

निर्धारित करने में महत्वपूर्ण भूमिका निभाता है। यह व्यक्तियों को प्रेरित करता है तथा उनके भविष्य की नींव स्थापित करता है।

व्यावसायिक शिक्षा की विशेषता:-

1. यह छात्रों को समाज से जोड़ने और सामाजिक कार्यों में योगदान देने हेतु तैयार करती है।
2. यह छात्रों को जीविकोपार्जन बनाने हेतु उसमें व्यावसायिक कौशल की प्रवृत्ति का विकास करती है।
3. इसके द्वारा छात्रों को शिक्षण संस्थानों में क्रियाशील रखा जाता है और इससे शारीरिक विकास तीव्र गति से होता है।
4. व्यावसायिक शिक्षा से छात्र अपने सामाजिक एवं पारिवारिक उत्तरदायित्वों से परिचित हो जाते हैं।
5. व्यावसायिक शिक्षा द्वारा शिक्षा के वास्तविक उद्देश्य को मूर्त रूप प्रदान किया जाता है।

उद्देश्य – व्यावसायिक पाठ्यक्रम के उद्देश्य विभिन्न क्षेत्रों और पाठ्यक्रमों के आधार पर भिन्न-भिन्न हो सकते हैं।

1. **व्यावसायिक कौशल विकसित करना**– यह छात्रों को व्यावसायिक क्षेत्र में आवश्यक कौशल और ज्ञान प्रदान करने पर ध्यान केन्द्रित करता है।
2. **व्यावसायिक दक्षता विकसित करना**– छात्रों को व्यावसायिक दक्षता और कौशल और योग्यता का विकास करने के लिए मदद करता है।
3. **नेतृत्व विकसित करना**– विद्यार्थियों के नेतृत्व कौशल और योग्यता का विकास करने में मदद करता है।
4. **संवाद कौशल विकसित करना**– व्यावसायिक संगठनात्मक कौशल और योग्यता का विकास करने में मदद करता है।
5. **समस्याओं का समाधान करना**– यह उद्देश्य छात्रों को व्यावसायिक समस्याओं का समाधान करने के लिए तैयार करने पर ध्यान केन्द्रित करता है।

समाज में व्यावसायिक शिक्षा का महत्व

1. **रोजगार के अवसर**– व्यावसायिक शिक्षा छात्रों को विभिन्न क्षेत्रों में रोजगार के अवसर प्रदान करती है। और उन्हें आर्थिक रूप से स्वतंत्र बनाती है। इससे बेरोजगारी कम होती है। और समाज में आर्थिक स्थिति में सुधार आता है।
2. **कौशल विकास** – व्यावसायिक शिक्षा छात्रों के कौशल और ज्ञान का विकास करती है जो उन्हें व्यावसायिक क्षेत्र में सफलता प्राप्त करने में मदद करता है।
3. **आर्थिक विकास** – व्यावसायिक शिक्षा समाज के आर्थिक विकास में महत्वपूर्ण भूमिका निभाती है क्योंकि यह उद्यमिता और उत्पादकता को बढ़ावा देती है।
4. **समृद्धि का साधन** – व्यावसायिक शिक्षा व्यक्ति की समृद्धि और समाज की समृद्धि में मदद करती है और उसे समाज में सम्मान प्राप्त करने में मदद करती है।
5. **विकास और उत्थान** – व्यावसायिक शिक्षा समाज के विकास और उत्थान में महत्वपूर्ण भूमिका निभाती है। क्योंकि यह उत्पादकता और नवाचार को बढ़ावा देती है।

व्यावसायिक शिक्षा तथा प्रशिक्षण के प्रमुख लक्ष्य :

1. राष्ट्रीय विकास।

2. मानव संसाधन और विकास।
3. कुशल मानवशक्ति के वर्तमान अंतराल को भरना।
4. युवाओं की रोजगार योग्यता को बढ़ाने के लिए व्यावसायिक शिक्षा के अवसरों को उपलब्ध कराना।
5. ज्ञान आधारित अर्थव्यवस्था की माँगों को पूरा करना।
6. निर्धनता को दूर करने के लिए एक उपकरण के रूप में।
7. ग्रामीण क्षेत्रों का विकास करने के लिए एक उपकरण के रूप में।
8. कलाकारों, शिल्पकारों तथा पारंपरिक कारीगरों की कुशलताओं में सुधार लाना।
9. शिक्षित बेरोजगार तथा अल्प बेरोजगार युवाओं के लिए बहुक्षमता विकास की आवश्यकता।

व्यावसायिक शैक्षिक संसाधन – शिक्षा मंत्रालय (पूर्व में मानव संसाधन और विकास मंत्रालय) के अंतर्गत विद्यालयी शिक्षा और साक्षरता विभाग के अंतर्गत व्यावसायिक शिक्षा के लिए नीतियों का प्रारूप तैयार करता है। भारत में वोकेशनल एजुकेशन एवं ट्रेनिंग (वी.ई.टी.) के नीति निर्माण और इसके कार्यान्वयन की योजना बनाने वाली मुख्य एजेंसियाँ सरकारी एजेंसियाँ हैं। इसमें निम्नलिखित निकाय सम्मिलित हैं–

केन्द्र सरकार की एजेंसियों में शिक्षा मंत्रालय, और साक्षरता विभाग श्रम और रोजगार मंत्रालय, रोजगार और प्रशिक्षण महानिदेशालय (व्यावसायिक के लिए) राष्ट्रीय कौशल विकास परिषद, सम्मिलित हैं।

राज्य सरकार तथा अन्य एजेंसियों में तकनीकी निदेशालय शिक्षा, निजी क्षेत्र, तकनीकी शिक्षा के लिए परिषदों, गैर सरकारी संगठन (एन.जी.ओ.) सम्मिलित हैं।

शिक्षा के विभिन्न चरणों में व्यावसायिक शिक्षा के विभिन्न घटक हैं, उदाहरणार्थ कार्य अनुभव (Work Experience) तथा पाठ्यक्रम के साथ एकीकृत उद्देश्य आधारित कार्य। इन कार्यों के परिणामस्वरूप उत्पाद प्राप्त होते हैं जो कार्य आधारित तथा समुदाय के लिए उपयोगी होते हैं। कार्य अनुभव श्रम, सहयोग और आत्मनिर्भरता की गरिमा विकसित करता है।

सम्बन्धित साहित्य का सर्वेक्षण:

पिल्लज एम. एवं रिगेल जे. (2021), ने 'भारत में व्यावसायिक शिक्षा एवं प्रशिक्षण: संभावना एवं चुनौतियाँ' में इस दृष्टिकोण पर प्रकाश डाला है कि भारत के तीव्र आर्थिक विकास एवं दक्ष व कुशल कार्मिकों की कमी ने औपचारिक व्यावसायिक शिक्षा एवं प्रशिक्षण के आधुनिकीकरण पर पर्याप्त ध्यान केन्द्रित किया है। विगत दशक से ही कौशल विकास सरकार का प्रमुख एजेण्डा रहा है। परिणामस्वरूप व्यावसायिक शिक्षा के संख्यात्मक एवं गुणात्मक विकास से सम्बन्धित मुद्दे सरकारी नीतियों एवं योजनाओं में परिलक्षित होते रहे हैं। इस निबन्ध में लेखक ने भारत के औपचारिक व्यावसायिक शिक्षा एवं प्रशिक्षण (VET) प्रणाली के मुख्य स्तम्भों का पुनरावलोकन किया है तथा इसके पुनर्गठन व उन्नयन से संबन्धित नीतियों व पहलों का विवेचन किया है। अन्त में विभिन्न सुव्यवस्थित आयामों के आधार पर इस क्षेत्र के भावी संभावनाएँ एवं विकास को स्पष्ट किया गया है।

कौशिक के. (2014), ने अपने शोधपरक निबन्ध 'भारत में व्यावसायिक शिक्षा' में व्यावसायिक शिक्षा से जुड़ी अनेक समस्याओं पर प्रकाश डाला है। उनके अनुसार भारत में व्यावसायिक शिक्षा की कुछ प्रमुख समस्याएँ निम्नलिखित हैं–

1. माध्यमिक स्तर पर उच्च अवरोधन।

2. कक्षा 11वीं से व्यावसायिक शिक्षा का प्रारम्भ होना।
 3. व्यावसायिक शिक्षा में उद्योगों एवं निजी क्षेत्र की न्यून प्रतिभागिता।
 4. कुशल एवं दक्ष अनुदेशकों की कमी।
 5. व्यावसायिक शिक्षा के अधिकांश कार्यक्रम तथा उसके पाठ्यक्रम आउटडेट हैं तथा बाजार की आवश्यकताओं की संतुष्ट करने में अक्षम सिद्ध हो रहे हैं।
 6. विभिन्न व्यावसायिक शिक्षा के पाठ्यक्रमों में समय, लक्षित समूह, प्रवेश योग्यता, परीक्षण एवं मूल्यांकन तथा प्रमाणन में पर्याप्त विभिन्नता दिखाई पड़ता है जिसके कारण उनके मान्यता के पहचान में कठिनाई आती है। लेखक ने व्यावसायिक शिक्षा में सुधार के लिए कई महत्वपूर्ण सुझाव ज्ञापित किये हैं जिनमें नेशनल वोकेशनल क्वालिफिकेशन फ्रेमवर्क की स्थापना प्रमुख है।
- निष्कर्ष** – राष्ट्रीय ज्ञान आयोग व्यावसायिक शिक्षा और प्रशिक्षण को राष्ट्र में शिक्षा के विचार का एक महत्वपूर्ण घटक मानता है। व्यावसायिक शिक्षा और प्रशिक्षण के लिए गतिशील राष्ट्रीय संदर्भ में अपने हिस्से को कुशलतापूर्वक निष्पादित करने के लिए और भारत के लिए रचनात्मक जनसांख्यिकी लाभों के परिणामों का आनंद लेने के लिए, उन्हें चलायमान, समकालीन, प्रासंगिक, समावेशी और व्यावसायिक बनाने के लिए शिक्षा प्रदान करने के लिए महत्वपूर्ण तत्वों को फिर से परिभाषित करने की तत्काल आवश्यकता है। व्यावसायिक शिक्षा को प्रासंगिक और रचनात्मक बनाने के मार्ग में कई मजबूत मुद्दे और चुनौतियाँ हैं। योग्य शिक्षकों की कमी, बुनियादी सुविधाओं की अनुपस्थिति, नियमों और प्रमाणन में अंतर, अपर्याप्त संपर्क, रोजगार बाजार की असंतुलित माँग, आपूर्ति, असाधारण और सार्वजनिक मानसिकता, सरकारी संस्थाओं तथा विनियमित तंत्र के मध्य समंजन का अभाव, अप्रचलित पाठ्यक्रम स्वायत्तता का अभाव, आदि।
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सामाजिक उत्थान में व्यावसायिक शिक्षा का महत्त्व एवं उच्च शिक्षा का योगदान

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प्रस्तावना - भारत में उच्च शिक्षा संस्थानों की प्रगति स्वतंत्रता प्राप्ति के पश्चात तेजी से हुई है। पुरातन शिक्षा को साथ में लेकर नए नए प्रयोगों ने पूरे विश्व में भारत की शाखाओं बढ़ाया है। एक और जहाँ शेष देशों ने एक ही दिशा में प्रगति पर ध्यान दिया वही दूसरी ओर भारत के छात्र-छात्राओं ने अनेक क्षेत्रों में एक साथ उन्नति का रास्ता दिखाया है।

multipurpose education ने 'भारतीय दिमाग' को और सक्षम बनाया। आधुनिक जीवन का वो कोई भी क्षत्र हो जैसे विज्ञान, खेती, दवाई निर्माण, खाद्य सामग्री निर्माण आदि भारत विश्व के अनेक देशों का प्रतिनिधित्व करता नाजर आता है। विश्व के अनेक देश आज भारत के युवाओं का लोहा मानने लगा है। आध्यात्म का क्षेत्र हो, खेलकूद का क्षेत्र हो अथवा अन्तरिक्ष का क्षेत्र हो, हमारे युवा वैज्ञानिक विदेशों में भारत का नेतृत्व कर रहे हैं। कम साधनों में सर्वोच्च व सटीक अनुसंधान केवल भारत के युवा ही कर पाते हैं। स्वतंत्रता प्राप्ति के बाद लगातार कई उच्च शिक्षा संस्थान खुले। विश्वविद्यालयों ने अनेक जन उपयोगी विषयों का विकल्प दिया, यही कारण है की 'ब्रेन ड्रेन' की समस्या का निवारण हुआ। आज हमारे होनहार नागरिक भारत में ही रहकर उच्च शिक्षा प्राप्त कर रहे हैं और विश्व के एनी देशों के लिए उदाहरण भी प्रस्तुत कर रहे हैं।

प्रस्तुत शोध उच्च शिक्षा संस्थानों में व्यावसायिक शिक्षा के महत्त्व को केंद्र बिंदु बनाकर इसकी सामाजिक संस्थानों में उपयोगिता पर आधारित है। समाज का निर्माण बहुत सरल प्रक्रिया है परंतु इसके नियमों को बनाना उन्हें सर्व कल्याण हेतु लागू करना एक कठिन कार्य होता है इस कार्य में व्यक्ति एक इकाई के रूप में कार्य करता है वही उसका समूह पूरे ढांचे को निरंतर बनाये रखने का प्रयास करता है। कोई भी समाज तब ही उन्नति करता है जब उसका प्रत्येक सदस्य ईमानदारी व लगन से नियमों का पालन करते हुए कार्य करे। देश के उच्च शिक्षा संस्थान यह कार्य बखूबी निभा रहे हैं।

निरंतर नई खोजों ने इस कार्य में मदद की है, स्वास्थ्य के क्षेत्र में नित हो रहे अनुसंधान न केवल जीवन को बचाने में लगे हैं बल्कि आर्थिक दृष्टि से सफल हो रहे हैं अनेक देश भारत की ओर सम्मान की दृष्टि से देखते हैं। नई शिक्षा नीति का योगदान इस क्षेत्र में बहुत है। पूर्व के वर्षों में उच्च शिक्षा संस्थान एक ही दिशा में ज्ञान देने हेतु बंधे हुए थे मात्र कुछ ही संस्थान जिन्हें multipurpose एजुकेशन हेतु मान्यता थी वे ही इस दिशा में कुछ कर पाए जो इस विशाल देश के लिए पर्याप्त नहीं था, परंतु वर्तमान में नई शिक्षा नीति

के लागू होने से अनेक दिशायों में अपना हुनर दिखाने का मौका छात्र छात्राओं को मिला है। अब विज्ञान का विद्यार्थी मानविकी के विषय का भी चयन कर अपनी योग्यता इस विषय में साबित कर सकता है। व्यावसायिक शिक्षा का आधार प्रायोगिक परिपक्वता होता है अब विद्यार्थियों को अनेक संस्थानों में जाकर उस में परिपक्व हो रहे हैं जो रोजगार प्राप्त करने में सहायक होगा एक आत्मनिर्भर समाज के बनाने में प्रत्येक निपुण व्यक्ति की आवश्यकता होती है। व्यावसायिक शिक्षा ने देश को आत्मनिर्भर बनाया है। पूर्व में सीमित आई. आई. एम. संस्थान थे, वर्तमान में इनकी संख्या में बढ़ोतरी से विद्यार्थियों में इन संस्थानों में प्रवेश की इच्छा बलवती हुई है। अनेक देश इन संस्थानों से शिक्षा प्राप्त विद्यार्थियों को अच्छे वेतन पर कार्य करने हेतु आमंत्रित करने लगे हैं जिससे देश से बाहर जाकर नए नए आविष्कार, नीतियों का ज्ञान उन्हें मिलने लगा है। अपने देश में उनको लागू कर वे न केवल देश सेवा कर रहे हैं साथ ही उन विद्यार्थियों की भी मदद कर रहे हैं जो इस सुविधा से वंचित हैं। खेती के पुरातन साधनों से खेती का कार्य करना कठिन था वर्तमान में विदेशों से नई नई जानकारियों का आदान-प्रदान होने से खेती में देश आत्मनिर्भर होने लगा है। किसानों को अब उनके निवास पर ही आधुनिक खेती करने की जानकारी उपलब्ध कराई जा सकती है। अनेक अनुसंधान उच्च शिक्षा के क्षेत्र में निरंतर हो रहे हैं जो सामाजिक उत्थान में उन्नति का कारण बन रहे हैं। सकल आय में वृद्धि हो रही है। देश के नागरिकों की आय में वृद्धि से सुखमय जीवन जीने में मदद हो रही है।

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व्यावसायिक पाठ्यक्रमों का सामाजिक जीवन में महत्व

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शोध सारांश – ऐतिहासिक रूप से उच्च युवा बेरोजगारी के दौर में व्यावसायिक शिक्षा की उपलब्धता और गुणवत्ता विशेष महत्व रखती है। नीति-निर्माताओं और शोधकर्ताओं द्वारा इसे शिक्षा से कार्य की ओर संक्रमण के समर्थन के लिए आवश्यक माना जाता है, लेकिन व्यावसायिक शिक्षा की अवधारणाएं और उद्देश्य अलग-अलग होते हैं। व्यावसायिक कार्यक्रम युवाओं को व्यापक व्यावसायिक क्षेत्रों और नागरिकता या अधिक संकीर्ण रूप से विशिष्ट नौकरियों के लिए तैयार करने के लिए डिज़ाइन किए गए हैं। यह सामाजिक दृष्टिकोण को राष्ट्रीय व्यावसायिक शिक्षा प्रणालियों के बीच अंतर और समानता को सिद्धांतित करने और समझने में मदद करने के एक प्रमुख तरीके के रूप में पहचानता है।

शब्द कुंजी – व्यावसायिक शिक्षा, युवा बेरोजगारी, कौशल, ज्ञान कॅरियर।

प्रस्तावना – शिक्षा एक उद्देश्यपूर्ण गत्यात्मक प्रक्रिया होती है जिसके द्वारा मनुष्य की अन्तर्निहित शक्तियों एवं बीज भूत क्षमता का विकास किया जाता है। राष्ट्र के सामाजिक, सांस्कृतिक, वैज्ञानिक, आर्थिक एवं व्यावसायिक प्रगति तथा विकास के लिए यह आवश्यक ही नहीं अपितु अपरिहार्य है कि इसके सभी नागरिकों को गुणवत्तापूर्ण शिक्षा प्राप्त हो। यह राष्ट्रीय एकता एवं अखण्डता तथा सामाजिक न्याय से सम्बन्धित समस्याओं के समाधान में महत्वपूर्ण योगदान प्रदान करती है। गुणवत्तापूर्ण शिक्षा का आषय है कि यह व्यक्तियों के शारीरिक, मानसिक, बौद्धिक एवं आध्यात्मिक विकास के साथ ही उनमें विशिष्ट प्रौद्योगिकी एवं तकनीकी क्षमता एवं कौशलों का विकास कर सम्मान जनक जीविकोपार्जन के योग्य बना सके। इस उद्देश्य की पूर्ति हेतु सामान्य शिक्षा के साथ-साथ व्यावसायिक शिक्षा की उत्तम व्यवस्था होनी चाहिए। किसी भी व्यक्ति में किसी व्यवसाय विशेष से सम्बन्धित विशिष्ट कौशलों, दक्षता तथा क्षमता से युक्त बनाने के लिए कक्षा-कक्ष शिक्षण तथा हस्त कौशलों के प्रशिक्षण का संयुक्त अनुदेशनात्मक कार्यक्रम को व्यावसायिक शिक्षा कहते हैं। व्यावसायिक शिक्षा के कार्यक्रम सामान्य शिक्षा संस्थानों से इतर व्यावसायिक शिक्षण संस्थानों यथा- औद्योगिक प्रशिक्षण संस्थान, पॉलीटेक्निक कालेज एवं प्रौद्योगिकी एवं प्रबन्धन महाविद्यालयों में चलाये जाते हैं। कुछ मान्य माध्यमिक विद्यालयों में भी विशिष्ट ट्रेड से सम्बन्धित व्यावसायिक शिक्षा के कार्यक्रम संचालित होते हैं।

व्यावसायिक स्कूल और संस्थान उन छात्रों को व्यावसायिक शिक्षा प्रदान करते हैं। जिनमें कौशल सीखने की इच्छा होती है। जो उन्हें विशिष्ट व्यवसायों में कॅरियर बनाने में सक्षम बनाती है। व्यावसायिक शिक्षा ने विद्यार्थियों को कौशल आधारित प्रदान करने का मार्ग प्रशस्त किया है।

व्यावसायिक शिक्षा क्या है? व्यावसायिक शिक्षा और कौशल प्रशिक्षण कार्यक्रम व्यक्तियों को किसी विशिष्ट नौकरी या कॅरियर के लिए तैयार करने के लिए डिज़ाइन किए गये हैं। इस पाठ्यक्रम के माध्यम से छात्र भविष्य में रोजगार के लिए आवश्यक कौशल प्राप्त कर सकते हैं। और साथ ही सीखे

गये सामान्य ज्ञान भी प्राप्त कर सकते हैं। व्यावसायिक शिक्षा और प्रशिक्षण के रूप में संदर्भित किया जा सकता है। छात्रों को जीवन के विभिन्न क्षेत्रों में विशिष्ट नौकरियों, कॅरियर, ट्रेडों के लिए तैयार किया जाता है। इसमें कई व्यावहारिक गतिविधिया भी शामिल है।

व्यावसायिक शिक्षा समाज के लिए महत्वपूर्ण – वर्तमान श्रम बाजार में उपलब्ध नौकरियों और संभावित कर्मचारियों के बीच अंतर है। मांग में रहने वाले कौशल की कमी ने विशेषज्ञों को यह निष्कर्ष निकालने पर मजबूर कर दिया है। कि अधिकांश कर्मचारी इन आवश्यकताओं को पूरा करने में सक्षम नहीं होंगे वैश्विक अर्थव्यवस्था में निरंतर परिवर्तन और विकास हो रहा है। अपने कॅरियर में प्रासंगिक बने रहने के लिए हमें लगातार विभिन्न विषयों के बारे में सीखना होगा। परिणाम स्वरूप व्यावसायिक शिक्षा कार्यक्रमों की बहुत मांग है। ताकि व्यक्तियों को अपने ज्ञान के आधार की निर्माण करने में मद मिल सकें।

व्यावसायिक शिक्षा के लक्ष्य और उद्देश्य:

1. अर्थव्यवस्था की उत्पादक क्षमता को बढ़ावा देना।
2. देश के नागरिकों के आर्थिक स्तर में सुधार करना।
3. जनता को स्वरोजगार के अवसर प्रदान करना बेरोजगारी दूर करना।
4. मानव संसाधनों का अधिकतम उपयोग करना।
5. युवाओं को विशेषज्ञ तकनीशियन के रूप में प्रशिक्षित करना।
6. सामाजिक और आर्थिक न्याय सुनिश्चित करने के लिए आर्थिक प्रगति के लाभों के समान वितरण में योगदान देना।
7. आधुनिक विकास के वैज्ञानिक और तकनीकी पहलुओं को समझने में युवाओं की सहायता करना।
8. महिलाओं, ग्रामीण और आदिवासी छात्रों और समाज के हाशिए के सदस्यों की आवश्यकताओं को समायोजित करने के अवसर प्रदान करना।
9. समाज के कल्याण के लिए वैज्ञानिक व तकनीकी ज्ञान का उपयोग करना।

10. छात्रों अपने काम के प्रति जुनून पैदा करना।

व्यावसायिक शिक्षा से लाभ

व्यावसायिक कौशल:- शिक्षा का व्यावहारिक कौशल और ज्ञान प्रदान करने पर केन्द्रित है। जिसे सीधे उनके पेशेवार कैरियर लागू किया जा सकता है। इससे छात्रों को अपने कैरियर में एक मजबूत नींव विकसित करने और उन्हें कुशल बनाने में मदद मिलती है।

कैरियर की तैयारी:- व्यावसायिक शिक्षा कार्यक्रम छात्रों को विशिष्ट कैरियर या उद्योगों के लिए तैयार करने के लिए डिजाइन किये गये हैं।

रोजगार सृजन:- कई व्यावसायिक शिक्षा कार्यक्रमों में एम.एस.आर्ट और बड़े उद्योगों के साथ भागीदारी होती है। जो अक्सर स्नातकों के लिए रोजगार के अवसरों की ओर ले जाती है। इससे छात्रों को जल्दी रोजगार खोजने और बेरोगारी को कम करने में मदद मिल सकती है।

लागत प्रभावी:- पारंपरिक महाविद्यालयों और विश्वविद्यालयों पाठ्यक्रमों की तुलना में व्यावसायिक शिक्षा अक्सर अधिक लागत प्रभावी होती है।

नए जमानों के कैरियर:- कई व्यावसायिक शिक्षा कार्यक्रम उच्च मांग और नये जमाने के कैरियर जैसे स्वास्थ्य, सेना, प्रौद्योगिकी और कुशल व्यापार पर केन्द्रित करते हैं।

व्यावसायिक शिक्षा का महत्व - आज के समय में व्यवसायिक शिक्षा बहुत महत्वपूर्ण है। क्योंकि इसके कई लाभ हैं। और यह व्यक्तियों उद्योगों और पूरे समाज के लिए योगदान देती है।

कैरियर की तैयारी और व्यावहारिक शिक्षा:- पारंपरिक शैक्षणिक कार्यक्रमों के विपरीत जो मुख्य रूप से सैद्धांतिक ज्ञान पर ध्यान केन्द्रित करते हैं, यह शिक्षा कार्यक्रम व्यावहारिक शिक्षा पर जोर देता है। छात्र व्यावहारिक गतिविधियों इंटरनशिप और सिमुलेशन में शामिल होते हैं, जिससे उन्हें अपने चुने हुए व्यवसायों के लिए सीधे लागू होने वाला मूल्यांकन अनुभव प्राप्त होता है। यह दृष्टिकोण व्यक्तियों को कार्यबल के लिए तैयार करता है। और कैरियर की तत्परता को बढ़ता है।

बढ़ी हुई रोजगार क्षमता और आय की संभावना:- यह शिक्षा कार्यक्रम व्यक्तियों को विशेष कौशल से लैस करके रोजगार क्षमता को बढ़ाता है। जिसकी उच्च मांग है। व्यावसायिक कार्यक्रमों के स्नातकों को नौकरी के बाजार में प्रतिस्पर्धात्मक बढ़त मिलती है। जिससे रोजगार पाने की संभावना बढ़ जाती है।

बदलते कार्य वातावरण के प्रति अनुकूलनशीलता :- आज के तेजी से विकसित हो रहे कार्य वातावरण में अनुकूलनशीलता महत्वपूर्ण है। यह शिक्षा कार्यक्रम व्यक्तियों को बहुमुखी कौशल से लैस करता है जो बदलते उद्योग के रुझानों और तकनीकी प्रगति को नेविगेट करने की अनुमति देता है। व्यवसायिक प्रशिक्षण की व्यावहारिक पद्धति व्यक्तियों को आवश्यकतानुसार नई भूमिकाओं, उद्योगों और प्रौद्योगिकियों के लिए जल्दी से अनुकूल होने में सक्षम बनाती है।

उद्यमिता व नवाचार को बढ़ावा देना:- यह शिक्षा कार्यक्रम नवाचार और स्वरोजगार को प्रोत्साहित करके उद्यमशीलता को भावना को बढ़ावा देता है। व्यावसायिक कौशल वाले व्यक्ति अपनी विशेषज्ञता का लाभ उठाकर अपना खुद का व्यवसाय शुरू कर सकते हैं। जिससे आर्थिक विकास और रोजगार सृजन में योगदान मिलता है। व्यावसायिक शिक्षा रचनात्मकता, समस्या समाधान क्षमताओं और उद्यमशीलता की मानसिकता को बढ़ावा देती है।

शिक्षा जगत और उद्योग जगत के बीच सहयोग:- यह शिक्षा कार्यक्रम शिक्षा जगत और उद्योग जगत के बीच सहयोगात्मक संबंध स्थापित करता है, शैक्षणिक संस्थान प्रासंगिक पाठ्यक्रम और प्रशिक्षण कार्यक्रम विकसित करने के लिए व्यवसायों के साथ मिलकर काम करते हैं। यह सहयोग सुनिश्चित करता है कि व्यावसायिक शिक्षा आधारित रहे और उद्योग की जरूरत के अनुरूप हो जिससे नियोक्ताओं द्वारा मांगे जाने वाले कौशल और ज्ञान वाले स्नातक तैयार हों।

सामाजिक कलंक पर कानू पाना:- ऐतिहासिक रूप से इस प्रकार की शिक्षा को सामाजिक कलंक और गलत धारणाओं का सामना करना पड़ा है। हालाँकि समाज तेजी से इसके महत्व और इसके द्वारा प्रदान किये जाने वाले समान अवसरों को पहचान रहा है। शैक्षणिक पृष्ठभूमि की परवाह किए बिना व्यावसायिक शिक्षा को सफलता के लिए एक मूल्यांकन मार्ग के रूप में उजागर करते हुए धारणाओं को बदलने और समावेशित को बढ़ावा देने के प्रयास किये जा रहे हैं।

व्यावसायिक शिक्षा के साथ चुनौतिया:- भारत में व्यावसायिक शिक्षा के लिए आवश्यक बुनियादी ढाँचे और संसाधनों की भारी कमी है। अधिकांश व्यावसायिक प्रशिक्षण संस्थानों में उचित उपकरण प्रौद्योगिकी और प्रशिक्षित संकाय सदस्यों की कमी है।

1. भारत में पारंपरिक विश्वविद्यालय शैक्षणिक कार्यक्रमों की तुलना में व्यावसायिक शिक्षा को अभी भी निचले स्तर के शिक्षा विकल्प के रूप में देखा जाता है।
2. नकारात्मक धारणा और सामाजिक कलंक के परिणाम स्वरूप व्यावसायिक शिक्षा को आगे बढ़ाने के लिए छात्रों में रुचि और प्रेरणा की कमी हुई है।
3. भारत में व्यावसायिक शिक्षा में एक महत्वपूर्ण लिंग पूर्वाग्रह है, जिसमें कई पाठ्यक्रम लिंग विशिष्ट हैं। और महिलाओं के लिए अवसरों को सीमित करते हैं।
4. व्यावसायिक प्रशिक्षण संस्थानों और उद्योगों के बीच सहयोग की कमी है। जिसके परिणामस्वरूप ऐसे स्नातक हैं जिनके पास व्यावहारिक प्रशिक्षण और अनुभव की कमी है।
5. विशेष रूप से मिडिल तथा माध्यमिक स्तर पर व्यवसायिक पाठ्यक्रम को पढ़ाने के लिए पूरी तरह से कुशल शिक्षकों का अभाव है, अतः इसके लिए पर्याप्त कुशल शिक्षकों की आवश्यकता है।
6. विद्यालय स्तर पर व्यवसायिक शिक्षा का पाठ्यक्रम खण्डित एवं असंबद्ध है। व्यवसायों से सम्बंधित मात्र प्रारम्भिक परिचयात्मक विषयवस्तु उपलब्ध है। सम्यक् एवं विस्तृत पाठ्यक्रम का अभाव है। जिससे विद्यार्थियों को इन पाठ्यक्रमों के अध्ययन में अरुचि होती है। अतः इसका सम्यक समाधान करना आवश्यक है।
7. प्रायः व्यवसायिक शिक्षा ग्रहण करने वाले विद्यार्थियों को मुख्यधारा की शिक्षा प्राप्त कर रहे विद्यार्थियों की तुलना में निम्न कोटि का माना जाता है। ऐसी धारणा में परिवर्तन लाना चुनौतीपूर्ण कार्य है।
8. व्यवसायिक शिक्षा के पाठ्यक्रमों की अप्रासंगिकता के कारण श्रम बाजार की आवश्यकता तथा प्रशिक्षण से प्राप्त कौशल के मध्य रिक्ति व असाम्य हो जाता है जिसको सही करने की आवश्यकता है।
9. व्यवसायिक धारा में न्यून नामांकन एक बहुत बड़ी चुनौती है जिसको जागरूकता, प्रचार-प्रसार, परामर्श एवं विज्ञापन की मदद से बढ़ाना

होगा।

एन०ई०पी० 2020 के नीतिगत प्रावधानों के अनुसार प्रत्येक संस्थान को अपने मुख्यधारा की शिक्षा के साथ व्यवसायिक शिक्षा को एकीकृत करना होगा, यह निश्चित रूप से व्यवसायिक शिक्षा के तीव्र विकास का कारण बन सकता है। इस प्रावधान से वर्तमान तथा आने वाले दशक में बहुत बड़ी संख्या में विद्यालयों, महाविद्यालयों एवं विश्वविद्यालयों द्वारा संभावित प्रशिक्षण प्रदाताओं की मदद से लाखों चिद्यार्थियों को व्यवसायिक शिक्षा उपलब्ध होने की संभावना है।

समाजिक उत्थान के लिए व्यावसायिक शिक्षा का भविष्य:-

उभरती प्रौद्योगिकियों पर फोकस:- भारत सरकार ने उभरती हुई तकनीकों जैसे आर्टिफिशियल इंटेलिजेंस ब्लॉकचैन और रोबोटिक्स के महत्व को पहचाना है। और इन उभरते क्षेत्रों को पूरा करने वाले व्यावसायिक शिक्षा कार्यक्रमों में निवेश कर रही है।

उद्योग अकादमिक सहयोग:- भारत में व्यावसायिक शिक्षा उद्योग और शिक्षा जगत के बीच आर्थिक सहयोग संभावना है, जो यह सुनिश्चित करेगा कि व्यावसायिक शिक्षा कार्यक्रम उद्योग कि आवश्यकताओं के अनुरूप हो और शिक्षार्थियों को व्यावहारिक कौशल और ज्ञान प्रदान करना है।

डिजिटल लर्निंग :- कोविड-19 महामारी ने व्यावसायिक शिक्षा में डिजिटल लर्निंग को अपनाने में तेजी लाई है। और यह प्रवृत्ति भविष्य में भी जारी रहने की संभावना है।

उद्यमिता :- भार में व्यावसायिक शिक्षा द्वारा स्वरोजगार के लिए उद्यमशीलता और कौशल विकास पर अधिक जोर दिए जाने की संभावना है यह विद्यार्थियों को अपना खुद का व्यवसाय शुरू करने और दूसरे के लिए नौकरी के अवसर पैदा करने के लिए प्रोत्साहित करेगा।

गुणवत्ता आवश्यकता:- राष्ट्रीय कौशल विकास निगम (NSDC) और अखिल भारतीय तकनीकी शिक्षा परिषद (AISTE) यह सुनिश्चित करने के लिए गुणवत्ता आवश्यकता तंत्र लागू कर रहे हैं कि व्यावसायिक शिक्षा कार्यक्रम गुणवत्ता और प्रासंगिकता के आवश्यक मानकों को पूरा करते हैं।

भारत में व्यावसायिक शिक्षा प्रणाली सुधार की आवश्यकता है जिसमें पाठ्यक्रम संशोधन बेहतर बुनियादी ढांचा संकाय प्रशिक्षण और उद्योग भागीदारी शामिल है। उद्योग की बदलती जरूरतों को साथ संरेखित करने को लिए व्यावसायिक शिक्षा कार्यक्रमों के पाठ्यक्रम को नियमित रूप से अद्यतन करने की आवश्यकता है। सरकार को व्यावसायिक शिक्षा में और अधिक निवेश करने और इसे छात्रों के लिए अधिक आकर्षक और व्यवहार्य विकल्प बनाने की आवश्यकता है।

निष्कर्ष - उभरती प्रौद्योगिकियों, डिजिटल शिक्षा, उद्योग अकादमिक सहयोग, और उद्यमिता पर अधिक ध्यान देने के साथ भार में व्यावसायिक शिक्षा का भविष्य आशा जनक दिख रहा है। स्किल इण्डिया मिशन जैसे सरकार की पहल निजी क्षेत्र के खिलाड़ियों के प्रयास के साथ, एक मजबूत

और गतिशील व्यावसायिक शिक्षा प्रणाली बनाने की संभावना है। जो शिक्षार्थियों, उद्योग और अर्थव्यवस्था की जरूरतों को पूरा करेगा। मौजूदा व्यावसायिक शिक्षा प्रणाली को चुनौतियों और कमियों को दूर करना भी आवश्यक है।

यह शिक्षा कार्यक्रम आज कि दुनिया में व्यक्तियों का व्यवहारिक कौशल प्रदान करके रोजगार क्षमता को बढ़ाकर और व्यक्तिगत और आर्थिक विकास को बढ़ावा देकर महत्वपूर्ण भूमिका निभाता है। जैसे-जैसे व्यावसायिक शिक्षा को मान्यता और समर्थन मिलता है। वह व्यक्तियों और अधिक सशक्त बनाता है। नवाचार को बढ़ावा देता है। और समाज के समग्र विकास में योगदान देता है।

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इंडियन ऑयल कॉर्पोरेशन लिमिटेड की समीक्षा

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शोध सारांश - किसी फर्म का सबसे महत्वपूर्ण उद्देश्य अपने संचालन में बड़े पैमाने पर हासिल करने और लाभप्रदता में सुधार करने के लिए अपने व्यावसायिक प्रदर्शन में लगातार सुधार करना है। इसके कारण, प्रबंधक हमेशा ऐसी रणनीतियाँ लागू करना चाहते हैं जिसके परिणाम स्वरूप फर्म के प्रदर्शन में सुधार हो सके। इस शोध का मुख्य उद्देश्य इंडियन ऑयल कॉर्पोरेशन (आईओसीएल) के अधिकारियों, चैनल पार्टनर्स (डेल क्रेडेर एजेंट/ कंसाइनमेंट स्टॉकर) और आईओसीएल ग्राहकों की अपने प्रदर्शन में सुधार के लिए आईओसीएल द्वारा अपनाई गई विभिन्न बाजार प्रवेश रणनीतियों के बारे में धारणाओं का अध्ययन करना है और इन रणनीतियों का उपयोग कैसे किया जाता है। राष्ट्रीय राजधानी क्षेत्र (NCR) में पेट्रोकेमिकल बाजार पर अपना नेतृत्व या प्रभुत्व सुरक्षित करने के लिए। कंपनी के प्रदर्शन को बेहतर बनाने में इन रणनीतियों की प्रभावशीलता के बारे में धारणाओं का अध्ययन एक नमूना टी-परीक्षण का उपयोग करके किया जाता है। अध्ययन में एनोवा का उपयोग करके इन रणनीतियों के उपयोग और प्रभावशीलता के संबंध में आईओसीएल अधिकारियों, आईओसीएल के चैनल पार्टनर्स और आईओसीएल ग्राहकों की राय में अंतर की भी जांच की गई है। यह पाया गया है कि आईओसीएल द्वारा बाजार में प्रवेश करने के लिए मोटे तौर पर पंद्रह रणनीतियों का उपयोग किया जाता है। इस अध्ययन के नतीजों से यह निष्कर्ष निकलता है कि उत्तरदाताओं के अनुसार ये सभी रणनीतियाँ बाजार में पैठ बनाने में प्रभावी हैं। हालाँकि, कुछ रणनीतियों के उपयोग और प्रभावशीलता के संबंध में IOCL अधिकारियों, चैनल पार्टनर्स और IOCL ग्राहकों के विचारों में मतभेद हैं।

शब्द कुंजी - बाजार में प्रवेश, रणनीतियाँ, पेट्रोकेमिकल व्यवसाय।

प्रस्तावना - भारत जैसे अल्पविकसित देशों की आर्थिक प्रगति के लिए औद्योगिकीकरण एक महत्वपूर्ण स्थान रखता है। उद्योगों के विकास द्वारा आय, उत्पादन तथा रोजगार की मात्रा को बढ़ाकर भारतीय अर्थव्यवस्था की विकास दर में वृद्धि की जा सकती है। स्वतंत्रता से पहले भारत में उद्योगों का बहुत ही कम विकास हुआ था, परंतु आजादी के बाद सरकार ने देश के औद्योगिक विकास को बहुत अधिक महत्व दिया। इसके फलस्वरूप देश में कई उद्योग स्थापित किए गए तथा पुराने उद्योगों की उत्पादन क्षमता तथा कुशलता में भी वृद्धि की गई। भारतीय पंचवर्षीय योजनाओं में भी उद्योगों के विकास को काफी महत्व दिया गया है।

वर्तमान समय में जिस उद्योग ने सबसे अधिक प्रगति की है, उसमें ऑयल उद्योग का स्थान सर्वश्रेष्ठ है। इन उद्योगों में इण्डियन ऑयल कॉर्पोरेशन लिमिटेड अपना महत्वपूर्ण स्थान रखती है। यह कम्पनी भारत की नौ रत्न कम्पनियों में से एक है। भारत में इसका पेट्रोलियम उत्पादों के विपणन में कुल हिस्सा 47 प्रतिशत और तेल शोधन में 40 प्रतिशत है। भारत की कुल 19 तेल परिशोधिकाओं में से 10 इण्डियन ऑयल के स्वामित्व के अधीन है। इंडियन ऑयल भारत की अग्रणी राष्ट्रीय तेल कंपनी है और इसके व्यापारिक हित समस्त हाईड्रोकार्बन मूल्य श्रृंखला में व्याप्त हैं - जिसमें तेल शोधन, पाइपलाइन, परिवहन और पेट्रोलियम उत्पादों के विपणन से लेकर कच्चे तेल और गैस की खोज तथा उत्पादन प्राकृतिक गैस और पेट्रो रसायनों का विवरण शामिल हैं। फार्च्यून ग्लोबल 500 सूची में यह अग्रणी भारतीय निगमित कंपनी है जिसे वर्ष 2010 में 125वां स्थान दिया गया

था।

पेट्रोलियम को नकारा नहीं जा सकता इण्डियन ऑयल कॉर्पोरेशन लिमिटेड का भारतीय समाज एवं जनमानस में विशिष्ट स्थान है। इसका कारण एक लम्बे समय तक इसका एक उपक्रम इण्डियन ऑयल कॉर्पोरेशन लिमिटेड के रूप में सेवा प्रदान कर रहा है। इण्डियन ऑयल कॉर्पोरेशन लिमिटेड 30 जून, 1959 को गठित एक सरकारी स्वामित्व वाले उद्यम के रूप में स्थापित किया गया था।

इण्डियन ऑयल कॉर्पोरेशन लिमिटेड ने अपना अधिकांश राजस्व पेट्रोलियम उत्पादों की बिक्री से अर्जित किया, जो वित्तीय वर्ष 2020-21 के लिए 4,93,127 करोड़ रुपये था। इसकी बाजार हिस्सेदारी सबसे अधिक है जो इसके सूचीबद्ध प्रतिस्पर्धियों के बीच उच्चतम राजस्व की व्याख्या कर सकता है उसी वर्ष पेट्रोकेमिकल्स की बिक्री से आईपीसीएल को 19,169 करोड़ रुपये का अतिरिक्त राजस्व प्राप्त हुआ इण्डियन ऑयल कॉर्पोरेशन लिमिटेड के आकार और पैमाने को देखते हुए, यह अपने दो समकक्षों की तुलना में अधिक राजस्व, आय और चञ्च का दावा करता है। जहाँ आईओसीएल ने वित्तीय वर्ष 2020-21 में 21,762 करोड़ रुपये कमाये।

इंडियन ऑयल कॉर्पोरेशन लिमिटेड (IOCL) एक भारतीय राज्य - नियंत्रित तेल और गैस कंपनी है जिसका मुख्यालय मुंबई, महाराष्ट्र में है। इंडियन ऑयल कॉर्पोरेशन लिमिटेड का गठन 1964 में इंडियन रिफाइनरीज लिमिटेड (स्थापना 1958) के विलय के साथ किया गया था। इंडियन ऑयल कॉर्पोरेशन लिमिटेड (इंडियन ऑयल) राजस्व के मामले में भारत का सबसे

बड़ा सार्वजनिक निगम है और भारत की महारत्न दर्जा प्राप्त कंपनियों में से एक है। एक सरकार, भारत के उद्यम पेट्रोलियम उत्पादों के शोधन और विपणन में शामिल हैं। IOCL के पास कच्चे तेल और पेट्रोलियम उत्पादों के लिए 80.49 MMTPC और गैस के लिए 9.5 MMSCMD की क्षमता वाली अपनी रिफाइनरी है। रिफाइनरियों तक कच्चे तेल और उच्च मांग वाले केंद्रों तक तैयार उत्पादों के परिवहन के लिए निगम का क्रॉस-कंट्री पाइपलाइन नेटवर्क 11,220 किमी तक फैला हुआ है। तेल विपणन कंपनियों ने भविष्य में घरेलू स्तर पर पेट्रोलियम उत्पाद की मांग बढ़ने से इसकी मांग बढ़ने का अनुमान जताया है

भारतीय तेल निगम के पास थोक उपभोक्ता व्यवसाय में 65% हिस्सेदारी है, और रक्षा सेवाओं, रेलवे और राज्य परिवहन उपक्रमों जैसे बड़ी मात्रा वाले उपभोक्ताओं की सुविधा के लिए लगभग 6,400 समर्पित पंप परिचालन में हैं, जो उनके दरवाजे पर उत्पादों और इन्वेंट्री को सुनिश्चित करते हैं। उन्हें 136 थोक भंडारण टर्मिनलों और डिपो, 100 विमानन ईंधन स्टेशनों और 91 एलपीजी बॉटलिंग संयंत्रों द्वारा आपूर्ति का समर्थन प्राप्त है। इंडियन ऑयल की गुजरात रिफाइनरी का विस्तार 13.7 से 18.0 एमएमटीपीए तक और 01.04.2020 तक ईंधन गुणवत्ता को बीएस IV से बीएस VI ब्रेड में अपग्रेड करने से मौजूदा पाइपलाइन द्वारा गुजरात रिफाइनरी से रतलाम टर्मिनल तक पेट्रोलियम उत्पादों की निकासी बढ़ गई। उच्च गुणवत्ता वाले पेट्रोलियम उत्पादों के उपयोग से प्रदूषण कम होता है और पर्यावरण में सुधार होता है। इसके अलावा, इससे रेलवे मोड के माध्यम से पाइपलाइन मोड के माध्यम से वड़ोदरा से रतलाम तक पीओएल उत्पादों के परिवहन की लॉजिस्टिक लागत और प्रदूषण में कमी आएगी।

कंपनी तेजी से खुद को भारत की प्रमुख राष्ट्रीय तेल कंपनी से भारत की अग्रणी समग्र ऊर्जा समाधान प्रदाता बनने में बदल रही है। वर्ष के दौरान, कंपनी ने भारतीय ऊर्जा बास्केट में अपनी हिस्सेदारी मौजूदा 1/11 से बढ़ाकर 2040 तक 1/8 करने का लक्ष्य रखा। इस प्रकार, कंपनी के संचालन, पहुंच और प्रसार में बड़े पैमाने पर बढ़ोतरी की परिकल्पना की गई है। भारत की ऊर्जा बनने के अपने दृष्टिकोण के साथ! कंपनी भारत में तेजी से बढ़ते वैकल्पिक ऊर्जा और प्राकृतिक गैस क्षेत्रों में अपनी हिस्सेदारी बढ़ाने और एक मजबूत पकड़ बनाने के साथ-साथ डाउनस्ट्रीम तेल में अपनी अग्रणी स्थिति बनाए रखने की परिकल्पना करती है।

देश की COP26 प्रतिबद्धता के साथ खुद को उन्मुख करने के लिए, कंपनी भविष्य के लिए टिकाऊ और किफायती ऊर्जा समाधानों के लिए अपने व्यापार पोर्टफोलियो का विस्तार करके हरित भविष्य तैयार करने में महत्वपूर्ण प्रगति कर रही है। वर्ष के दौरान, कंपनी ने नेट-जीरो (परिचालन उत्सर्जन) प्राप्त करने की अपनी प्रतिबद्धता को पूरा किया। 2046 तक। कंपनी अपने पारंपरिक उत्पाद की पेशकश को हरित बनाने और अपने कार्बन फुटप्रिंट को कम करने के लिए अथक प्रयास कर रही है, साथ ही वैकल्पिक ऊर्जा समाधानों में बड़े पैमाने पर तेजी से आगे बढ़ रही है।

साहित्य की समीक्षा

भुनिया एट अल (2011) ने बारह वर्षों की अवधि के लिए बीएसई सूचीबद्ध दो कंपनियों- कर्नाटक एंटीबायोटिक्स एंड फार्मास्यूटिकल्स लिमिटेड (केएपीएल) और राजस्थान ड्रग्स एंड फार्मास्यूटिकल्स लिमिटेड (आरडीपीएल) को कवर करते हुए सार्वजनिक क्षेत्र के फार्मास्यूटिकल उद्यमों की वित्तीय ताकत और कमजोरियों की जांच की। 1997-98 से 2008-

09 तक, अध्ययन से दोनों चयनित कंपनियों की मजबूत तरलता स्थिति का पता चला, जिसका अर्थ है कि कंपनियां नियत तारीखों पर अपने अल्पकालिक दायित्वों का भुगतान करने की क्षमता रखती हैं, जबकि सॉल्वेंसी के मामले में, कंपनियां बाहरी फंडों पर अधिक निर्भर करती हैं, जिससे लेनदारों को कम स्तर की सुरक्षा मिलती है। आश्रित चर-निवेश अनुपात पर रिटर्न और स्वतंत्र चर-तरलता अनुपात, ऋण-इक्विटी अनुपात, ब्याज कवरेज अनुपात, इन्वेंट्री टर्नओवर अनुपात और ऋण-निवल मूल्य अनुपात के बीच कई सहसंबंध अत्यधिक सहसंबद्ध थे, जो दर्शाता है कि लाभप्रदता पूरी तरह से इसके स्वतंत्र से प्रभावित थी।

जयवर्धन, ए. (2016) ने क्षैतिज, ऊर्ध्वाधर, प्रवृत्ति और अनुपात विश्लेषण के माध्यम से हर साल 31 दिसंबर को समाप्त होने वाले 2014 और 2013 वित्तीय वर्ष के लिए जर्मन बहुराष्ट्रीय निगम - एडिडास एजी के वित्तीय प्रदर्शन का पता लगाया। अध्ययन से पता चला कि कंपनी के उच्च परिचालन व्यय ने उसके समग्र प्रदर्शन, शुद्ध आय और अंततः ईपीएस या शेयरधारकों के रिटर्न को प्रभावित किया, जबकि दूसरी ओर कम आरओसीई ने कंपनी में नियोजित पूंजी के अकुशल उपयोग का संकेत दिया। अध्ययन में सुझाव दिया गया है कि कंपनी को लागत में कटौती के लक्ष्य स्थापित करने चाहिए, गुणवत्ता आश्वासन प्रथाओं और प्रक्रियाओं को लागू करना चाहिए, कर्मचारियों की कार्य कुशलता को अधिकतम करना चाहिए और आउटसोर्सिंग के बारे में सोचना चाहिए।

इंडियन ऑयल का वैश्विक अर्थव्यवस्था - उथल-पुथल वाले वर्ष में वैश्विक मुद्रास्फीति की दर रिकॉर्ड उंचाई पर पहुंच गई, जिसमें कमोडिटी की कीमतों में वृद्धि, रूस-यूक्रेन युद्ध, आपूर्ति शृंखला की बाधाओं और महामारी के निचले स्तर से मांग में मजबूत नीति-समर्थित पुनरुत्थान सहित कई कारक शामिल थे। वैश्विक मुद्रास्फीति महामारी से पहले (2017-19) के लगभग 3.5% के स्तर से बढ़कर 2022 में 8.8% (वार्षिक औसत) हो गई। बढ़ती मुद्रास्फीति को रोकने के लिए, विश्व स्तर पर केंद्रीय बैंकों ने मौद्रिक नीति को कड़ा कर दिया और पिछले 50 वर्षों में नहीं देखी गई गति से ब्याज दरों में वृद्धि की, जिसके परिणामस्वरूप विश्व स्तर पर उधार लेने की लागत में वृद्धि हुई।

वर्ष के दौरान, वैश्विक आर्थिक वृद्धि 2021 में 6.3% से घटकर 3.4% हो गई। उच्च मुद्रास्फीति के कारण घरेलू क्रय शक्ति में गिरावट, आपूर्ति अनिश्चितता (विशेष रूप से ऊर्जा आपूर्ति के संदर्भ में) के साथ मिलकर कई अर्थव्यवस्थाओं में मांग पर असर पड़ा और इसमें वृद्धि हुई। उच्च उधार लेने की लागत और कई विकासशील अर्थव्यवस्थाओं की मुद्राओं का कमजोर होना। चीन में, कोविड उछाल और जीरो कोविड नीति के साथ-साथ संपत्ति क्षेत्र में चल रहे तनाव ने आर्थिक गतिविधियों को रोक दिया, जिससे विकास पिछले 40 वर्षों में (2020 को छोड़कर) सबसे निचले स्तर पर आ गया।

2023 की पहली तिमाही में, ऊर्जा और कमोडिटी की कीमतों में नरमी और आपूर्ति शृंखला की बाधाओं में कमी के कारण अधिकांश अर्थव्यवस्थाओं में उपभोक्ता मूल्य मुद्रास्फीति अपने चरम से नीचे आ गई थी। केंद्रीय बैंक छोटी बढ़ोतरी की ओर स्थानांतरित हो गए और कई ने दरों में बढ़ोतरी को रोकने का संकेत दिया। 2022 के अंत में चीनी अर्थव्यवस्था को फिर से खोलने से इसे बदलने में मदद मिली और वैश्विक गतिविधि पर सकारात्मक प्रभाव पड़ने की उम्मीद है। दूसरी ओर, वैश्विक बैंकिंग क्षेत्र में हाल की

घटनाओं ने विशेष रूप से छोटे क्षेत्र में तनाव की ओर इशारा किया है

इंडियन ऑयल का भारतीय अर्थव्यवस्था – वर्ष के दौरान, भारत ब्रिटेन को पीछे छोड़कर दुनिया की पांचवीं सबसे बड़ी अर्थव्यवस्था बन गया। भारतीय अर्थव्यवस्था ने 2022-23 में 7.2% की मजबूत वृद्धि दर्ज की, हालांकि 2021-22 में पोस्ट की गई 9.1% की तुलना में धीमी है, फिर भी सऊदी अरब के बाद दूसरी सबसे तेजी से बढ़ती बड़ी अर्थव्यवस्था के रूप में खड़ी है। एक साल में तेल की रिकॉर्ड बढ़ोतरी हुई।

कई विकासशील अर्थव्यवस्था वाले तेल आयातकों के लिए कीमतें और बढ़ी हुई आर्थिक परेशानियां, भारत की मजबूत वृद्धि – दुनिया का तीसरा सबसे बड़ा तेल आयातक, भारतीय अर्थव्यवस्था की जन्मजात शक्तियों के प्रमाण के रूप में खड़ा है।

भारत के बड़े घरेलू बाजार ने घरेलू खपत को बढ़ाया और अर्थव्यवस्था को वैश्विक विपरीत परिस्थितियों से निपटने में मदद की। निजी अंतिम खपत में 7.5% की वृद्धि हुई और अर्थव्यवस्था को गति मिली, भले ही सरकार की अंतिम खपत 0.13% की वृद्धि पर स्थिर रही। वर्तमान आर्थिक स्थिति पर उपभोक्ता का विश्वास, कुछ समय तक अस्थिर रहने के बाद, वर्ष के दौरान बेहतर हुआ। निवेश में भी निरंतर बदलाव देखा गया, वर्ष के दौरान 9.6% की वृद्धि हुई, जो पिछले वर्ष की 18% वृद्धि के शीर्ष पर थी। निवेश में बदलाव को सरकार द्वारा निरंतर मजबूत पूंजीगत व्यय का भी समर्थन मिला है, जिससे निजी निवेश में भी वृद्धि हुई है। आपूर्ति पक्ष पर, कृषि ने विकास को समर्थन देना जारी रखा, लेकिन विकास का मुख्य जोर सेवा क्षेत्र पर था, जहां विकास पिछले वर्ष के 8.8% से बढ़कर 9.5% हो गया। सेवाएँ पारंपरिक रूप से भारतीय अर्थव्यवस्था के विकास का मुख्य चालक रही हैं, लेकिन महामारी और लॉकडाउन से सबसे अधिक प्रभावित हुईं। हालांकि, सामान्यीकरण और होटल, रेस्तरां और पर्यटन जैसी उच्च संपर्क सेवाओं की वापसी के साथ, सेवाओं में वृद्धि में जोरदार उछाल आया।

इंडियन ऑयल का वैश्विक ऊर्जा क्षेत्र – यह वैश्विक ऊर्जा क्षेत्र के लिए एक उथल-पुथल वाला वर्ष रहा है, जिसमें उच्च भू-राजनीतिक अनिश्चितता, ऊर्जा व्यापार मार्गों का पुनर्निर्धारण और उच्च और अस्थिर ऊर्जा कीमतें शामिल हैं। संकट से निपटने के लिए तत्काल आपातकालीन उपायों के अलावा, जिसका अर्थ तलाश करना था।

नए आपूर्तिकर्ताओं और उपभोक्ताओं के लिए ऊंची कीमतों से प्रभावित सब्सिडी के लिए, संकट ने कई मामलों में दीर्घकालिक नीतिगत बदलावों को भी चिह्नित किया। ऊर्जा संक्रमण के साथ-साथ आपूर्ति और घरेलू उत्पादन की विविधता पर जोर देने के साथ, ऊर्जा सुरक्षा स्पष्ट रूप से एक सहवर्ती लक्ष्य के रूप में फिर से फोकस में थी। व्यवस्थित परिवर्तन सुनिश्चित करने के लिए तेल और गैस में निरंतर निवेश की गंभीरता सामने आई। फिर भी, वर्ष की घटनाओं ने ऊर्जा परिवर्तन की दिशा में नीति को आगे बढ़ाया और स्वच्छ ऊर्जा में एक महान औद्योगिक पैमाने की शुरुआत को चिह्नित किया। इस संबंध में, अंतर्राष्ट्रीय ऊर्जा एजेंसी (IEA 2023) ने कहा कि प्रमुख अर्थव्यवस्थाएँ अपनी जलवायु, ऊर्जा सुरक्षा को संयोजित करने के लिए कार्य कर रही हैं। और उनकी अर्थव्यवस्थाओं के लिए व्यापक रणनीतियों में औद्योगिक नीतियां शामिल हैं, जिनमें सबसे उल्लेखनीय प्रतिक्रियाएं अमेरिकी मुद्रास्फीति न्यूनीकरण अधिनियम (आईआरए), आरईपॉवरईयू और हरित ऊर्जा क्षेत्रों में भारत की उत्पादन-लिंक प्रोत्साहन (पीएलआई) योजना हैं।

इंडियन ऑयल तेल बाजार में योगदान – 2022 की पहली छमाही में तेज वृद्धि के बाद, 2022 की दूसरी छमाही में वैश्विक तेल की कीमतों में गिरावट आई और 2023 की पहली तिमाही में भी गिरावट जारी रही। वैश्विक तेल बाजारों की कार्यप्रणाली कई कारकों के कारण जटिल थी, जिसके कारण बाजार में कीमतों में अस्थिरता दर्ज की गई, जो 2008 के वित्तीय संकट के दौरान देखे गए स्तरों के बाद दूसरे स्थान पर थी। आपूर्ति संबंधी चिंताओं ने पहले बाजार को परेशान किया, उसके बाद उच्च ब्याज दरों की आशंकाएँ थीं। मंदी और चीन के कोविड-नियंत्रण उपायों ने बाद में कीमतों को नीचे खींच लिया। इसके साथ ही, आईईए सदस्यों द्वारा सरकारी रणनीतिक तेल भंडार में ऐतिहासिक गिरावट ने भी बढ़ते बाजार को कम करने में मदद की। 2023 में, जबकि चीनी अर्थव्यवस्था को फिर से खोलने ने एक बूस्टर के रूप में काम किया, वैश्विक बैंकिंग क्षेत्र में परेशानियों और आगामी वित्तीय बाजार तनाव ने कीमतों पर असर डाला।

कुल मिलाकर, 2022 में मांग और आपूर्ति दोनों में वृद्धि हुई। हालांकि, मांग पूर्व-महामारी के स्तर तक पहुंचने में विफल रही, 99.8 एमबीपीडी पर पहुंच गई, जो 2019 के 100.7 एमबीपीडी से 1 एमबीपीडी नीचे है। आपूर्ति पक्ष पर, यूरोपीय संघ और उसके द्वारा प्रतिबंध और प्रतिबंध साझेदारों के परिणामस्वरूप तेल व्यापार मार्गों और यूरोपीय संघ के साथ रूस के व्यापार संबंधों में एक बड़ा बदलाव आया। फिर भी, रूस का तेल उत्पादन और निर्यात लचीला बना रहा, क्योंकि रूस ने विभिन्न खरीदारों के बावजूद वैश्विक तेल आपूर्ति में अपना 10% हिस्सा देना जारी रखा। ओपेक ने 2022 में अपना उत्पादन 3 एमबीपीडी बढ़ाया, लेकिन कई ओपेक सदस्य देश अपने लक्षित कोटा से नीचे उत्पादन करना जारी रखते हैं, हालांकि 2023 में कमी की सीमा कम हो गई है। अमेरिका में, निवेशकों के दबाव के बीच ऊंची कीमतों के बावजूद, उत्पादन में 1 एमबीपीडी की मामूली वृद्धि हुई है। पूंजी अनुशासन बनाए रखें।

इंडियन ऑयल का गैस बाजार में योगदान – प्राकृतिक गैस बाजारों में 2022 में अभूतपूर्व उथल-पुथल देखी गई। मुख्य विकल्प के रूप में एलएनजी के माध्यम से अपनी गैस की मांग को पूरा करने के यूरोप के प्रयासों ने वैश्विक एलएनजी बाजार और व्यापार को अस्थिर कर दिया, जिसके परिणामस्वरूप प्रवाह में बदलाव आया, स्पॉट एलएनजी की कीमतें बढ़ गईं और एशियाई आयातकों के बीच एलएनजी की मांग नष्ट हो गई। रूस से पाइप प्राकृतिक गैस के आयात पर यूरोप की अत्यधिक निर्भरता ने वैश्विक गैस बाजारों को संकट में डाल दिया, जिससे वैश्विक गैस की कीमतें रिकॉर्ड उच्च स्तर पर पहुंच गईं। यूरोपीय संघ और रूस के बीच प्रतिबंधों और प्रति-प्रतिबंधों और बाद में यूरोप में गैस के प्रवाह में कटौती के कारण बाजारों में बढ़ती कीमतों के बाद यूरोप को आपूर्ति के लिए संघर्ष करना पड़ा। रूसी आपूर्ति के बारे में निरंतर अनिश्चितता और सर्दियों की मांग को पूरा करने की चिंताओं के कारण अगस्त के अंत में यूरोपीय गैस की कीमतें (इच टीटीएफ) +90/एमएमबीटीयू से अधिक की रिकॉर्ड उंचाई पर पहुंच गईं। यूरोपीय गैस सूची में मजबूत वृद्धि (पिछले 5 साल के औसत से ऊपर), यूरोप में प्राकृतिक गैस की खपत में कमी, हल्की सर्दियाँ और आने वाले एलएनजी प्रवाह के साथ, 2022 के उत्तरार्ध में और 2023 तक सभी बाजारों में प्राकृतिक गैस की कीमतें गिर गईं।

मानव संसाधन – इंडियन ऑयल समग्र और सार्थक कर्मचारी जुड़ाव और अपने मानव संसाधनों के विकास में विश्वास करता है, कंपनी अपने

व्यवसाय के विकास के लिए कर्मचारियों की उच्चतम क्षमता का दोहन करने के लिए उनसे जुड़ती है, यह अपने मूल पर ध्यान केंद्रित करते हुए अपने मानव संसाधनों को विकसित करने को बहुत महत्व देती है। मूल्यों, जिसे देखभाल, नवाचार, जुनून और विश्वास के मौजूदा मूल्यों में 'राष्ट्र प्रथम' के पांचवें मूल्य को जोड़कर पुनर्जीवित किया गया है, इसका मानना है कि कारोबारी माहौल के आसपास की चुनौतियों को एक ऐसे कार्यबल द्वारा कम किया जा सकता है जो प्रेरित है, परिवर्तन के लिए अनुकूल है। सीखने में नवीन और तेज, केंद्रित भर्ती, कैरियर पथ और सीखने और विकास के माध्यम से एकीकृत मानव संसाधन प्रथाओं ने कार्यबल की भविष्य की तैयारी में योगदान दिया है, कंपनी के पास नेतृत्व के लिए प्रतिभा की पहचान और विकास के लिए एक संरचित और मजबूत उत्तराधिकार योजना ढांचा है। पाइपलाइन, कंपनी ने न केवल कई दूरदर्शी नेताओं को तैयार किया है जिन्होंने वर्षों से कंपनी का नेतृत्व किया और बदलाव किया, बल्कि सार्वजनिक और निजी दोनों क्षेत्रों के लिए भी नेताओं को तैयार किया है।

इण्डियन ऑयल कॉर्पोरेशन लिमिटेड की विशेषता - भारतीय सरकार की एक महत्वपूर्ण उद्योगी कंपनी है, जिसे भारतीय पेट्रोलियम, गैस, पेट्रोकेमिकल्स और विभिन्न उत्पादों के उत्पादन, परिवहन और वितरण के क्षेत्र में अग्रणी भूमिका में रहने के लिए जाना जाता है। इसकी कुछ प्रमुख विशेषताएँ निम्न हैं-

1. भारतीय राज्य का प्रमुख उत्पादक- IOCL भारत सरकार का प्रमुख पेट्रोलियम उत्पादक है और देश में उत्पादन, परिवहन और वितरण के लिए व्यापक नेटवर्क का संचालन करता है।
2. विभिन्न उत्पादों का उत्पादन- IOCL पेट्रोलियम उत्पादों, गैस पेट्रोकेमिकल्स, गैसोलीन, डीजल, जेट फ्यूल, एलपीजी, नेचुरल गैस, प्रोपेन, क्रूड ऑयल और विभिन्न अन्य उत्पादों का उत्पादन करता है।
3. सार्वजनिक क्षेत्र में उच्च भागीदारी- IOCL सार्वजनिक क्षेत्र में एक महत्वपूर्ण भागीदारी है और भारतीय बाजार में अपने उत्पादों को प्रस्तुत करने के लिए व्यापक रूप से उपस्थित है।

इन सभी कारकों से इण्डियन ऑयल कॉर्पोरेशन लिमिटेड एक महत्वपूर्ण और प्रभावशाली कंपनी है जिसका योगदान देशी और विदेशी बाजारों में उत्पादन और वितरण में अद्वितीय माना जाता है।

निष्कर्ष - उपरोक्त चर्चा से यह निष्कर्ष निकाला जा सकता है कि IOCL (इंडियन ऑयल कॉर्पोरेशन लिमिटेड) कम ऋण निधि के साथ चल रही है। इसलिए कम लागत वाली पूंजी का लाभ पाने के लिए वे इसे बढ़ा सकते हैं। यह पाया गया है कि इंडियन ऑयल कॉर्पोरेशन लिमिटेड (IOCL) ने अपनी परिसंपत्तियों में बड़े पैमाने पर शेयरधारकों के धन को नियोजित किया है, इसने पहले दो वर्षों में 100% को भी पार कर लिया है। इसके अलावा ईओएल

उच्च स्तर के वित्तीय जोखिम पर है। इसलिए, वे ऋण पूंजी को कम कर सकते हैं और अधिक इक्विटी फंड लगा सकते हैं। किए गए अध्ययन से निम्नलिखित निष्कर्ष सामने आए हैं। इस परियोजना के अनुसार मुझे पता चला कि पूंजी संरचना के विश्लेषण से यह स्पष्ट है कि इंडियन ऑयल कॉर्पोरेशन लिमिटेड संतोषजनक कार्य कर रहा है। लेकिन कंपनियों के पास पूंजी रोजगार जैसे विचार करने के लिए कुछ निश्चित क्षेत्र हैं। इसलिए कंपनी को आंतरिक और बाहरी कारकों का ध्यान रखते हुए आने वाले वर्षों में लाभ प्राप्त करने पर ध्यान केंद्रित करना चाहिए। और संसाधनों के संबंध में, कंपनी उधार ली गई धनराशि का सही जगह उपयोग कर रही है।

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Enhancement of Vocational Education in Higher Education Institutions for Social Development

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Abstract - This paper investigates the integration of vocational education within higher education institutions (HEIs) and its potential to foster social development. Through a comprehensive review of current practices, challenges, and benefits, the paper aims to provide insights into how vocational education can be effectively embedded in higher education systems to promote socioeconomic progress. Additionally, the study includes case analyses from various global contexts to highlight successful strategies and offers policy recommendations to optimize the role of vocational education in social development.

Keywords: Vocational Education, Technical Education, Workforce Development, Skills Training, Career and Technical Education (CTE), Industry Partnerships, Apprenticeship Programs, Job Readiness, Skill Gaps, Employment Outcomes, Hands-on Training, Competency-Based Education, Curriculum Development, Lifelong Learning, Certification Programs, Vocational Training Institutes, Professional Development, Labor Market Trends, Education Policy, Economic Growth, Job Placement Services, STEM Education, Digital Literacy, Soft Skills Training, Vocational Rehabilitation, Inclusive Education, Adult Education, Community Colleges, Continuing Education, Trade Schools, Technical Certifications, Workforce Innovation, Dual Enrolment Programs, Career Counselling, Skill Assessment, Learning Pathways, Employer Engagement, Public-Private Partnerships, Skill Development Initiatives, Education-Industry Alignment.

Introduction - The rapidly changing global economy necessitates a workforce equipped with both theoretical knowledge and practical skills. Traditionally, higher education and vocational training have been viewed as distinct pathways. However, the integration of vocational education within HEIs is increasingly seen as a strategy to enhance employability, drive economic growth, and support social inclusion. This paper explores the significance of vocational education in higher education and its implications for social development. Vocational education has evolved from medieval apprenticeships to formalized technical education during the industrial era. The 20th century saw the establishment of vocational schools and community colleges, with recent decades focusing on the integration of vocational education within higher education to meet the demands of a knowledge-based economy. Human capital theory underscores the importance of investing in education and training to enhance workforce productivity and economic growth. Additionally, social capital theory highlights the role of education in building networks and fostering social cohesion, essential for community development. The study employs a mixed-methods approach, integrating quantitative data from educational statistics and qualitative insights from interviews with stakeholders, including educators, policymakers, and

industry leaders.

Case studies from different countries provide a comparative perspective.

Integration Models

Dual Systems: Combining classroom learning with practical work experience, as seen in Germany's dual education system, which successfully aligns educational outcomes with labor market needs.

Community Colleges: In the United States, community colleges offer flexible vocational programs tailored to local economic conditions, providing accessible education pathways.

Public-Private Partnerships: In countries like India, collaborations between government agencies and private sector organizations have enhanced vocational training and improved employment outcomes.

Benefits

Economic Impact: Vocational education enhances employability, reduces skills gaps, and supports local economies by producing job-ready graduates.

Social Mobility: By offering alternative educational pathways, vocational programs help reduce socio-economic disparities and promote inclusive growth.

Community Engagement: Graduates of vocational programs often contribute to their communities through

small business development and civic participation.

Challenges

Stigma: Vocational education often suffers from a perception of being inferior to traditional academic pathways, affecting student enrolment and support.

Resource Allocation: Adequate funding, infrastructure, and qualified instructors are critical for the success of vocational programs, yet often lacking.

Policy Coordination: Effective integration requires cohesive policies that align educational programs with labor market needs and industry standards.

Germany: The Dual Education Model: Germany's dual education model, known as the "Duales Ausbildungssystem," is a vocational training system that combines theoretical education with practical work experience. It is renowned for effectively integrating apprenticeships in businesses with education in vocational schools. Here is an in-depth look at the key components and benefits of this system:

Structure:

Apprenticeship in Companies: Trainees spend part of their week (usually three to four days) working in a company where they receive hands-on training. Companies provide practical experience and vocational skills specific to the industry.

Vocational Schools (Berufsschule): The remaining part of the week (one to two days) is spent in vocational schools where apprentices receive theoretical education. The curriculum includes vocational-specific subjects as well as general education subjects such as mathematics, language, and social studies.

Duration: The dual education programs typically last between two to three and a half years, depending on the occupation and the apprentice's prior education.

Certification: Upon completion of the program, apprentices undergo a final examination conducted by a chamber of commerce or a similar professional body. Successful candidates receive a nationally recognized certificate that qualifies them for work in their trade.

Industry Involvement: Businesses play a crucial role in shaping the curriculum and standards. They ensure that the training is up-to-date with industry requirements, thus maintaining the relevance of the skills acquired by apprentices.

Employer Commitment: Employers invest in training by providing apprentices with a salary, mentorship, and workplace resources. In return, they benefit from having a well-trained workforce tailored to their specific needs.

Public-Private Partnership: The system is supported by a collaboration between the government, vocational schools, and private industry. The government provides the framework and regulation, while businesses and schools implement the training.

Flexibility and Adaptability: The dual education model is adaptable to various sectors, including manufacturing, IT,

healthcare, and finance. It can quickly respond to changes in technology and labor market demands.

Benefits

High Employment Rates: Graduates of the dual system often enjoy high employment rates due to their practical experience and industry-specific skills. Employers value the dual education system because it reduces the need for on-the-job training for new employees.

Skill Matching: The system helps to ensure that the skills taught align closely with the needs of the labor market, reducing skills mismatches and increasing productivity.

Career Opportunities: Graduates can progress in their careers more quickly. They have the option to pursue further qualifications, such as master craftsman (Meister) status, or to transition into higher education.

Economic Benefits: The dual education model contributes to the country's economic success by creating a skilled and adaptable workforce. It supports Germany's strong industrial base and its position as a global leader in various sectors.

Challenges and Considerations

Access and Inclusivity: Ensuring equal access to the dual education system for all students, regardless of socio-economic background, remains a challenge.

Balancing Academic and Vocational Training: Finding the right balance between theoretical knowledge and practical skills is crucial to maintaining the system's effectiveness.

Adapting to New Technologies: Continuous adaptation to emerging technologies and changing industry standards is necessary to keep the training relevant.

United States: Community College Programs: Community colleges in the United States play a vital role in the higher education landscape by providing accessible, affordable, and flexible educational opportunities. These institutions cater to a diverse student population and offer a wide range of programs designed to meet various educational and career goals. Here's an in-depth look at community college programs in the U.S.

Types of Programs

Associate Degrees: Typically, two-year programs that can be either transfer-oriented (Associate of Arts, AA; Associate of Science, AS) or career-oriented (Associate of Applied Science, AAS).

Certificates and Diplomas: Shorter programs focusing on specific skills or trades, often taking less than a year to complete.

Developmental Education: Courses designed to improve students' basic skills in areas such as math, reading, and writing.

Continuing Education and Workforce Development: Non-credit courses aimed at personal enrichment, professional development, and skill enhancement.

Transfer Pathways: Many community colleges have articulation agreements with four-year institutions, allowing students to transfer credits towards a bachelor's degree.

These agreements ensure that students who complete an associate degree can transfer as juniors.

Career and Technical Education (CTE): Community colleges offer CTE programs that provide practical, hands-on training in fields such as healthcare, information technology, automotive technology, and culinary arts. These programs are designed to meet the immediate needs of the job market.

Accessibility and Affordability: Community colleges are generally more affordable than four-year institutions. They provide an accessible option for students who may not have the financial means to attend a university immediately or who need to balance education with work and family responsibilities.

Flexible Scheduling: To accommodate working adults and non-traditional students, community colleges offer flexible scheduling options, including evening, weekend, and online classes.

Support Services: Comprehensive support services, such as academic advising, tutoring, career counselling, and financial aid assistance, are integral parts of community college programs. These services help students navigate their educational journey and achieve their goals.

Benefits

Pathway to Higher Education: Community colleges serve as a stepping stone for students aiming to earn a bachelor's degree. By completing their general education requirements at a community college, students can transfer to a four-year institution, often saving money on tuition.

Workforce Readiness: Career-oriented programs equip students with the skills needed to enter the workforce directly. This is particularly beneficial for industries experiencing high demand for skilled workers.

Community Engagement: Community colleges often have strong ties to local businesses and industries, providing students with internship opportunities, job placement services, and real-world experience.

Personal and Professional Growth: Through continuing education and lifelong learning opportunities, community colleges support personal and professional development, helping individuals stay competitive in the job market.

Challenges and Considerations

Funding and Resources: Community colleges often face challenges related to funding and resource allocation. Ensuring adequate financial support is crucial for maintaining quality programs and services.

Student Retention and Completion: Retention and completion rates can be lower at community colleges due to the diverse and often non-traditional student body. Implementing strategies to support student success and persistence is essential. Perception and Stigma: Despite their benefits, community colleges sometimes face a stigma compared to four-year institutions. Raising awareness about the value and opportunities provided by community colleges is important.

Australia: TAFE Institutions: TAFE (Technical and Further Education) institutions in Australia are a cornerstone of the vocational education and training (VET) system, providing practical and industry-relevant skills. They cater to a wide range of students, from school leavers to those looking to upskill or change careers. Here's an in-depth **look at TAFE institutions in Australia:**

Types of Programs: Certificate I-IV: These are introductory to advanced courses that provide foundational skills and knowledge in various fields.

Diploma and Advanced Diploma: These programs offer more in-depth study and practical skills, often preparing students for specific careers or further study.

Vocational Graduate Certificates and Diplomas: These are postgraduate-level qualifications that provide specialized skills and knowledge.

Apprenticeships and Traineeships: Combine work and study, allowing students to earn a wage while gaining practical skills and a qualification.

Fields of Study: TAFE institutions offer courses in a wide range of fields, including trades (e.g., plumbing, electrical, carpentry), health and community services, hospitality, business, information technology, creative arts, and more.

Delivery Modes: TAFE courses can be delivered full-time, part-time, online, or through blended learning, providing flexibility to accommodate different student needs.

Industry Alignment: TAFE institutions work closely with industry to ensure that their courses meet current job market demands. This alignment helps students gain relevant and practical skills that are directly applicable in the workplace.

Practical Training: Courses often include hands-on training, work placements, and apprenticeships, which allow students to apply what they learn in real-world settings.

Accessibility and Inclusivity: TAFE institutions are designed to be accessible to a wide range of students, including those from disadvantaged backgrounds, mature-age students, and those looking to re-enter the workforce.

Pathways to Higher Education: Many TAFE courses articulate into university programs, providing a pathway for students to progress from vocational education to higher education.

Benefits

Employment Outcomes: TAFE graduates typically enjoy strong employment outcomes due to the practical and industry-relevant nature of their training. Employers value the hands-on experience that TAFE graduates bring to the workplace.

Skill Development: TAFE programs focus on developing both technical and soft skills, such as teamwork, communication, and problem-solving, which are highly valued by employers.

Economic Contributions: TAFE institutions play a crucial role in supporting local economies by providing a skilled workforce that meets the needs of local industries. Flexibility and Lifelong Learning: The flexibility of TAFE programs

makes them an attractive option for lifelong learning, allowing individuals to upskill or reskill as needed throughout their careers.

Challenges and Considerations

Funding and Resources: TAFE institutions often face challenges related to funding and resources, which can impact the quality and availability of courses. Ensuring sustainable funding is essential for maintaining high-quality education and training.

Perception and Stigma: There can be a perception that vocational education is less prestigious than university education. Promoting the value and opportunities provided by TAFE is important to attract students and support the sector's growth.

Adapting to Technological Change: As industries evolve, TAFE institutions must continuously update their courses and training methods to keep pace with technological advancements and changing job market needs.

Vocational education in higher education institutions in India context: Vocational education in higher education institutions in India is pivotal for social development, addressing the country's diverse and expansive economic needs. By providing skills that are directly applicable to the job market, vocational education helps bridge the gap between education and employment, enhancing the socio-economic status of individuals and communities. Here's an in-depth look at how vocational education in higher education institutions contributes to social development in India:

Types of Programs: Diplomas and Certificates: Short-term courses focused on specific trades or skills, such as hospitality management, automotive repair, healthcare, and IT services.

Bachelor's Degrees in Vocational Studies (B.Voc): These are three-year degree programs that combine theoretical education with practical training in fields like retail management, software development, and tourism.

Apprenticeships and Internships: Programs that integrate work-based learning with academic instruction, providing students with real-world experience.

Institutions Involved: Polytechnic Colleges: Offer a range of diploma courses in technical and engineering fields.

Community Colleges: Provide locally relevant vocational training and are often more accessible to rural populations.

Universities and Colleges: Many traditional universities and colleges have started offering vocational courses, integrating them into their curriculum to meet industry needs.

Industry Collaboration: Partnerships with industries ensure that the curriculum is aligned with current market needs. Industries often participate in designing the curriculum, providing training facilities, and offering internships and job placements.

Government Initiatives: Programs like the National Skill Development Mission (NSDM), Pradhan Mantri Kaushal

Vikas Yojana (PMKVY), and the Skill India Mission aim to enhance the skill sets of the workforce through vocational training.

Skill Development Councils: Sector Skill Councils (SSCs) have been established to create skill competency standards and frameworks, conduct training programs, and accredit institutions offering vocational education.

Benefits

Enhanced Employability: Vocational education equips students with job-specific skills, making them readily employable. This is particularly crucial in a country with a large youth population and high unemployment rates.

Economic Growth: By creating a skilled workforce, vocational education contributes to economic development. Skilled workers are more productive and can drive innovation and efficiency in various sectors.

Social Mobility: Vocational education provides opportunities for individuals from lower socio-economic backgrounds to acquire skills that can lead to stable and well-paying jobs, thereby improving their living standards.

Reduction in Skill Gaps: Addressing the mismatch between the skills possessed by the workforce and those required by industries helps in reducing skill gaps, enhancing overall productivity.

Regional Development: By focusing on local industry needs, vocational education can stimulate regional development. Training programs tailored to local economic activities can lead to job creation and economic stability in rural and underdeveloped areas.

Challenges and Considerations

Perception Issues: Vocational education is often viewed as a less prestigious alternative to traditional academic education. Changing societal perceptions is crucial for the widespread acceptance of vocational training.

Quality of Training: Ensuring the quality of vocational training programs is a challenge. Regular updates to the curriculum, teacher training, and infrastructure improvements are necessary to maintain high standards.

Accessibility: While efforts are being made to improve accessibility, there are still significant gaps, particularly in rural and remote areas. Expanding the reach of vocational education is essential for inclusive development.

Funding and Resources: Adequate funding is required to sustain and expand vocational training programs. Investment in infrastructure, training materials, and skilled trainers is necessary for the effective delivery of vocational education. Policy

Recommendations: Strengthen Partnerships: Encourage collaboration between HEIs, industries, and government to ensure vocational programs are relevant and effective.

Improve Funding: Allocate sufficient resources to vocational education to enhance program quality and accessibility.

Raise Awareness: Conduct campaigns to improve the

perception of vocational education and highlight its benefits for individuals and society.

Develop Comprehensive Policies: Formulate policies that integrate vocational education into the broader higher education framework, ensuring alignment with economic and social development goals.

Conclusion: Integrating vocational education into higher education institutions presents a significant opportunity to enhance social development by equipping individuals with practical skills and improving employability. While challenges such as stigma, funding, and policy coordination exist, successful models from around the world provide valuable lessons. By fostering partnerships, increasing funding, and promoting awareness, the role of vocational education in higher education can be strengthened, contributing to broader social and economic progress.

Vocational education in higher education institutions is a key driver of social development in India. By providing practical skills and improving employability, it helps address unemployment and underemployment, promotes economic growth, and enhances social mobility. While there are challenges related to perception, quality, accessibility, and funding, continued efforts from the government, industry, and educational institutions can help overcome these

barriers. Expanding and improving vocational education is essential for fostering inclusive and sustainable development in India.

Acknowledgments: The authors are thankful to Department of Higher Education (DHE), Government of Madhya Pradesh and UGC New Delhi.

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Importance of Vocational Education in NEP 2020 within Higher Education

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Abstract - Vocational education prepares people for work and develops citizen's skills to remain employable and respond to the needs of the economy. It can be defined as skilled based education. It is the need of the hour for every country to have strong vocational education system. Vocational Education helps in Economic growth. The Indian education system recognizes the role of education and particularly Vocational Education. National Council for Vocational Training, an advisory body, was set up by the Government of India plays its important role in implementation of Vocational Education in India. Although there are lots of areas in which India is facing problems in Vocational Education Implementation. This paper explores the significance, implementation strategies, challenges, and potential impacts of vocational education as outlined in NEP 2020.

Keywords: Vocational Education, Occupation, Skill base education, Economic growth, NEP 2020.

Introduction - Every nation has its intrinsic cogitation to keep the inhabitants in pecuniary opulence and it is very cumbersome for an over-populated country to gratify this volition as the impact of population growth per capita income is very adverse. In developing countries like India, the increase in population has become a liability than asset and it has slowed down the pace of economic development (Agarwal, 2014). Students having Graduation, Masters or more scholastic degrees can prepare themselves very well and are filtered by service or job facilities but the residue population along with under-educated youths envisages myriads of challenges to get any type of financial assurance or occupational safety. In spite of having degrees and bona fide certificates they remain unskilled having scanty experience in productive work and get eliminated from employment. To get rid of this melancholic and morbid status, education must be re-oriented through the philosophy of vocational objectives in such a manner that the potent youths may be involved in their preferred activity zones and the productivity of the nation increases. Moreover, to enjoy the fruits of vocational education it should be redefined in a flexible, synchronous, pertinent, creative and inclusive manner (Rani, 2015).

The quality of human life is enriched certainly in any educational system if it incorporates the principles of vocational education as vocation-centered education yields cohesion with real life experiences by assisting the learners to become more knowledgeable (Bengeri, 2014). The concept of vocational education enables the learners to be equipped with practical training through a need-based

curriculum and it entails all the niceties required for comprehensive experience. In the context of rapid industrialization, global marketing technology and economic development it is manifested that the general education system is not condign to accomplish the thriving demands of the diversifying economy. For the socio-economic development of the country, it is necessary to establish and develop more and more industries and technical laboratories but its cherishing can be acquired through the programmes of vocational training in educational institutions which are the principal pathos. The youths of our nation at the secondary and tertiary stage must be the part and parcel of these loftier goals as effective vocationalisation of school education is very badly needed in India (Singh, Grover, Padmanabhan & Chaudhary, 2015). Recently, the National Education Policy (2020) also has aimed to address the many growing developmental imperatives of the nation and put an urgency of the need to hasten the spread of vocational education in India. Vocational Education and its Ancient Glance Vocational education refers to wide range of courses/ skills which help students to get ready for entering employment (Ireland, 2008). It is restricted to preparing young people and adults for working life (Clarke & Winch, 2007). From a school perspective, vocational education teaches people how to work effectively (Byram & Wenrich, 1956). In ancient India the fundamental tenets of Shilpa Shastra were followed everywhere like in town planning, stone studded golden stairways, iron pillars, gold coins, jewelry and metal sculptures without any formal education system. During Vedic cultures all practical

aspects of knowledge like hatu-vidya, chikitsa-vidya, sabda-vidya etc. which were enveloped as Aparā Vidya comprising of Four Vedas and Six Veda gas inculcated the seed of vocational education among the learners (Kaibarta, 2018). Thus, vocational education has an indispensable genre from the ancient age of India. Vocational education is designed to equip students with practical skills and knowledge directly applicable to specific trades or professions. NEP 2020 aims to bridge the gap between academic learning and the job market, promoting skill development and employability. This paper examines the rationale behind integrating vocational education into higher education, its expected benefits, and the proposed framework for its implementation.

Rationale for Vocational Education in Higher Education:

1. Skill Development: The policy emphasizes the need for a skilled workforce to meet the demands of a rapidly evolving economy. Vocational education provides hands-on training, fostering practical skills and expertise.

2. Employability: Integrating vocational courses in higher education aims to enhance employability by aligning educational outcomes with industry requirements.

3. Economic Growth: A skilled workforce contributes to economic growth by increasing productivity and innovation.

Implementation Strategies:

1. Curriculum Integration: Vocational courses will be integrated into the higher education curriculum, offering students the flexibility to pursue vocational training alongside their academic studies.

2. Collaborations with Industry: Partnerships with industries will ensure that vocational training is relevant and up-to-date with current market needs.

3. Skill Hubs and Vocational Labs: Establishing skill hubs and vocational labs within higher education institutions to provide practical training and exposure to real-world scenarios.

4. Credit-Based System: Introducing a credit-based system that allows students to earn credits for vocational courses, this can be accumulated towards their degree.

Key Challenges in the Progress of Vocational Education: The progress of vocational education has been facing myriads of challenges in India. Some major issues may be summarized as follow:

Less focused pathways: Only post-secondary students (Grades XI & XII) and drop outs in Grade VIII and upwards were involved in the recent past of vocational education which is very low in respect of participants involved. Moreover, students do not find well-defined pathways to sustain their chosen vocation in higher education after passing out from Grades XI & XII with vocational subjects. These students also confront problems in the admission criteria for general higher education as the process has not been designed to intake students smoothly from vocational background.

Ceased vertical mobility: Opting for vocational stream

instead of mainstream education is realized as inferior and also it seems hugely for the less scholastic learners which have imposed a social status hierarchy. After finishing senior secondary grades in vocational stream students do not have the opportunity to get admitted in higher education and become isolated as 'disadvantaged cluster' compared to mainstream learners and their vertical mobility get refrained and their acquired skills are lost.

Paucity of skilled instructors and master trainers: Shortage of skilled professionals in each course is a great problem in this field as experience-oriented training is more important than knowledge-based information.

Lack of vocational institutes: The number of institutes offering vocational courses in India is not sufficient. Full-fledged progress of vocational education largely depends upon the institutional infrastructure and experienced faculty which is lacking in the present situation.

Lack of new skill-based courses: Recent accrual in science and technology demands more experienced personnel in diverse disciplines but vocational courses can meet the demand only for some selected disciplines. There is a huge gap between demand and supply which requires introduction of some relevant skill-based new vocational courses to meet the need.

Rigid regulations: Present regulations are very rigid in respect of skill up gradation and in switching over to general stream from vocational stream. Students do not have opportunity or flexibility i.e., multiple entry and exit points to taste the flavor of skill-based course before opting a particular stream after passing out secondary or senior secondary examination.

Deficient career opportunity: Students after completing vocational education do not get enormous opportunity in their career progress. All courses are not fully job secured. Especially the certificate level skilled and semi-skilled workers face great challenges to get a job.

Outdated centralized curriculum: The existing vocational curriculum in the entire nation at all three-tier is not updated or not aligned according to the versatility of skill-based sectors. Various industries, government and other sectors are hiring skilled personnel as per their present need and day by day the varieties of technical assistance are increasing. In view of the practical demand an updated centralized version of vocational curriculum is truly essential to meet the demand in diverse technical fields.

Potential Impacts:

1. Enhanced Employability: Graduates with vocational skills are better equipped to secure employment, reducing unemployment rates and addressing skill shortages in various industries.

2. Economic Development: A skilled workforce contributes to economic growth by driving innovation, productivity, and competitiveness.

3. Social Inclusivity: Vocational education can provide opportunities for marginalized communities, promoting

social inclusivity and economic mobility.

Case Studies and Examples

1. International Models: Examining successful vocational education models from countries like Germany and Switzerland can provide valuable insights for implementation in India.

2. Indian Initiatives: Highlighting existing vocational education initiatives in India and their outcomes can demonstrate the potential benefits and areas for improvement.

Vocational Education as Real Need of the Hour :

Technical skills always outweigh the academic knowledge and it can simply be understood through any life experience. If there is a sudden break down in the house hold pipe-line or in the electric circuit or in the television set or in the car engine we must have to call a mechanic/skilled person in the relevant field to get immediate repairing and a person having bookish knowledge and many academic degrees even in the relevant fields has no role to do. Practical knowledge based programs are offered through vocational education. NEP 2020 has re-imagined vocational education and proposed various action plans which are to be implemented. Vocational education being a need based education it can convert unskilled, inexperienced and low-literate population of the nation into human resources. It can induce a long lasting impact on the socio-economic development through the below-mentioned aspects.

1. Vocational education opens the doors for the learners who have dilemma in pursuing general degree education and seeking for jobs.
2. This education provides opportunities to the students to master over marketable skills and techniques from the classrooms and apply into the working fields.
3. The application of knowledge into hands on activities in this education attracts more and more learners through their intrinsic motivation and vocational fields are becoming more comfortable zones than the formal education sectors.
4. Vocational education helps to create independent, responsible, skilled workforce required for every nation.
5. The skills obtained through this education are also applicable to foreign markets and this applicability creates an employment opportunities in the foreign counties also.
6. Excellence and expertise in some special technical trades brings well-paid and successful career fields even without a college degree.

The acquisition of skills, capabilities and competencies associated with vocational education helps the individual to adapt with real working world and secures the future of the individual on their own feet. They need not to ponder about their career if they are skilled and competent. So, vocational education should be fostered among the students to make them self-reliant. This education indeed a real need of the hour as the learners possesses self-efficacy about

their intrinsic abilities which eventually guides for the roadmap to success.

Conclusion: The integration of vocational education into higher education as envisioned by NEP 2020 holds significant promise for enhancing employability, economic growth, and social inclusivity. By addressing the challenges and leveraging implementation strategies, India can create a robust and dynamic educational framework that aligns with the demands of the 21st century.

Acknowledgments: The authors are thankful to Department of Higher Education (DHE), Government of Madhya Pradesh and UGC New Delhi.

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Significance of Vocational Education in Higher Education Institutions of Madhya Pradesh: An Overview

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Abstract - The National Education Policy (NEP) of India launched in 2020 has generated significant discussions on the changes needed in the higher education system of the country to transform India into a knowledge based economy; NEP proposes several reforms in the education sector including changes in curriculum pedagogy and assessment methods. One important aspect of any NEP is its potential impact on various industries as vocational courses. The focus of higher education was more on creating knowledge societies, thereafter stress shifted on balancing the knowledge content with real life requirement of skills to make the students of higher education system more employable as skill development and education is the need of the hour. This paper focuses on understanding the implementation of NEP in the context of vocational courses and skill-based education in general in the higher education system of India.

Keywords: New Education Policy (NEP) 2020, Skill-based education, Vocational education.

Introduction - The National Education Policy (NEP) 2020 has laid emphasis on vocational education. Revamping of vocational education has been thoroughly discussed in the policy document of NEP 2020. Over the years, the different commissions on education. viz. the Kothari Commission report of 1966, the National Education Policy, 1986 have been recommending about bringing vocational education into mainstream education and NEP 2020 has suggested and emphasized on the integration of vocational education into mainstream education in all educational institutions in a phased manner. The growth of vocational education has been very slow. According to the estimates of the 12th Five Year Plan (2012-2017) less than 5% of the Indian workforce between the ages of 19-24 received formal vocational education. Through vocational education, students are taught traits which can prepare them for an occupation which requires skills. In case of vocational training, there is the necessity for class room training, hands-on training or a combination of both. In our country, India, although it is seen that one or two vocational subjects are included in the secondary and higher secondary education, vocational training in the true sense is imparted outside the formal education system and this vocational education often leads to a certification or a diploma. Vocational training may also be undertaken as an apprentice or a trainee with or without

any formal qualification. In NEP 2020, much emphasis has been placed on vocational education. According to NEP 2020, at least 50% of the learners from the schools and the higher education system shall be exposed to vocational education and learning. NEP 2020 aims at imparting vocational education in middle and secondary schools and then integrating it smoothly into higher education. As per the policy every child should learn “at least one vocation” and he/she should be “exposed to several more”. In collaboration with polytechnics and local industries, the NEP expects the setting up of “skill labs” and the policy also proposes to set up the vocational courses in the online mode. Vocational education and training helps in preparing young men and women with skills and knowledge which goes a long way in helping them to perform well in their jobs. In accordance with NEP 2020, the learners will be provided with enhanced flexibility and choice of subjects to study especially in the secondary schools. There shall be subjects in arts and crafts, physical education and vocational skills so as to enable them to make their desired life plans and design their own paths of study. The students shall be exposed to vocational education in the middle and secondary schools. The higher education institutions shall make way for different models of vocational education and there shall be provisions to set up incubation centers in the

higher education institutions in collaboration with industries. The credit-based Framework shall also help in the mobility across 'general' and vocational education.

Review of Literature

National Education Policy (NEP) 2020 was approved by the Union Cabinet led by Prime Minister Narendra Modi on 29 July 2020, after the education policy implemented in the country since 1986. There are many important proposals under NEP 2020 both at the level of school education and higher education. While the 10+2 education system in school education has been recommended to be replaced by the 5+3+3+4 model, on the other hand, at the higher education level, multidisciplinary (multi-disciplinary) bachelor's degrees have been recommended. Provision has been made in which all subjects except medical and law will be included and due to the credit transfer system, students will get the option of taking courses from multiple institutes and multiple exits. Since the approval of the Union Cabinet on NEP 2020, the process of implementing its proposals is being done by the governments in various states across the country. Right now two states have implemented NEP 2020 from the current academic session 2021-22 themselves, while there are many such states which are in the process of implementing the new education policy. In this sequence, Karnataka is the first state in the country where NEP 2020 has been implemented.

Aithal S. and SubraJyothsna A. in the paper the new education policy 2020 effectiveness in achieving the objectives highlighted the overview of National education policy 2020 and equated it with previous education policies and found the drawbacks of existing education policy The study had also accompanied suggestions for the educational departments regarding implementation of new education policy 2020 like multidisciplinary approach, faculty training and focus on research etc. Praveen J. and Pooja P., in their study examined the updates done by the ministry of education from last three educational policies and it has also criticized the factors which are contributing for holistic development in the education sector. The study highlighted the interventions required by all the stake holders for effective implementation of NEP 2020. Muskan S. highlighted on the national education policy 2020. The researcher concentrated on all the segments of education sector and their effects on the economy. The study majorly described the national education policy from the time of announcement done by the prime minister till the various challenges to be faced by the educational institutions in adopting the changes in their work environment based on the National education policy 2020. Devi L. and Cheluvvaraju Dec 2020 in their research A Study on Awareness about the Impact of National Education Policy-2020 among the Stakeholder of Commerce and Management Disciplinary highlighted the importance of NEP and its impact on various stakeholders of commerce and management education.

Initiation of new education policy 2020 in Madhya

Pradesh Higher Education: After Karnataka, Madhya Pradesh is the second state to implement the National Education Policy 2020 for the current academic session 2021-22 at both the school and higher education levels. As per Higher education minister, under the implementation of NEP 2020, 177 diploma and 279 certificate courses of vocational education will be offered in various higher education institutions of the state. All these students will be able to do diploma or certificate course while doing degree. The aim of NEP implementation in Madhya Pradesh higher education is to provide inclusive, qualitative, equitable education to all the learners irrespective of socio-economic differences, so that no one should be left behind.

Vocational Courses in NEP

1. Beauty and Wellness: A Beauty and Wellness course typically refers to an educational program or training focusing on various aspects of beauty, skincare, makeup, and overall well-being. Beauty and Wellness courses are designed to provide individuals with the knowledge and skills needed to pursue a career in the beauty and wellness industry.

2. Medicinal Plants: A medicinal plant is any plant which, in one or more of its organs, contains substances that can be used for therapeutic purposes or which are precursors for the synthesis of useful drugs.

3. Nutrition and dietetics: Food is one of the basic needs of life. It is required for growth, to maintain good health, to meet special needs during pregnancy and lactation and recovery from illness. Food is composed of nutrients required for our body. Upon consumption of food, organisms assimilate the nutrients present in them and use it for growth and replacement of tissues. The process of assimilation of nutrients is called 'Nutrition'. Therefore, to lead a healthy life, we all need adequate food and nourishment. Food, which is essential for survival and growth of human beings, can also lead us

4. Export Import Management: Export/Import Management course aids in understanding international marketing, trade and the concept of foreign exchange. Export is the selling of goods or services from one country to another. Import is when one country buys goods or services from another. Exports and Imports are two critical components which maintain the economic well being of a country.

5. E-Accounting and Taxation with GST: The subject of e-accounting and taxation with GST, Analyze financial statements to take effective business decisions. Gain insights into a company's financial performance and position. Identify and prevent fraud and earnings manipulation. Establish internal as well as external Corporate Governance mechanisms.

6. Finance Services and Insurance: Banking, financial services and insurance (BFSI) is the industry's umbrella term for companies that provide a range of such financial products or services. This includes universal banks that

provide a range of financial services or companies that operate in one or more of these financial sectors. BFSI comprises commercial banks, insurance companies, non-banking financial companies, cooperatives, pension's funds, mutual funds and other smaller financial entities.

7. Retail Management : Retail management is the process of overseeing and coordinating the various aspects of running a retail store, including sales, customer service, inventory management, and staffing. Effective retail management is crucial for ensuring customer satisfaction, increasing profitability, and contributing to the overall success of the business.

8. Digital Marketing: Digital marketing, also called online marketing, is the promotion of brands to connect with potential customers using the internet and other forms of digital communication.

9. Salesmanship: Salesmanship is seller-initiated effort that provides prospective. Buyers with information and motivates or persuades them to make favorable buying decisions concerning the seller's products or service.

10. Accounting and Tally: The name of the business solution, Tally, is inspired by the meaning of the word "tally", which is to count, to keep the record. Accounting is the activity or the system of keeping records of transactions of a business or any other organizations in monetary terms.

11. Desktop Publishing DTP: Desktop publishing (DTP) is the use of personal computers to design books and booklets that are intended to be printed by ink jet or laser printers. The software that supports desktop publishing has a WYSIWYG graphical user interface (GUI) to make the set-up for publishing as easy as possible. Desktop publishing is especially helpful as an independent publishing option and can be used to produce information on a variety of topics

12. Web Designing: Web designing is the process of planning, conceptualizing, and implementing the plan for designing a website in a way that is functional and offers a good user experience. User experience is central to the web designing process.

13. Electrical Technology: The subject Electrical Technology is one of the important courses in the Engineering subject which deals with the principles of DC and AC Machines like generators, motors, transformers. Also some of the special types of machines like single phase motors, AC servomotors, and principles and types of electrical measuring instruments will be studied.

14. Electronics Technology: Electronics comprises the physics, engineering, technology and applications that deal with the emission, flow and control of electrons in vacuum and matter. This distinguishes it from classical electrical engineering as it uses active devices to control electron flow by amplification and rectification rather than just using passive effects such as resistance, capacitance and inductance.

15. Handicrafts: Something we make with our own hands,

especially an ornament or decoration, is a handicraft. We might buy some local handicrafts on our trip to Mexico, like woven bags or handmade toys, as gifts for our family.

16. Food Preservation and Processing: Food preservation, any of a number of methods by which food is kept from spoilage after harvest or slaughter. Such practices date to prehistoric times. Among the oldest methods of preservation are drying, refrigeration, and fermentation. Modern methods include canning, pasteurization, freezing, irradiation, and the addition of chemicals. Advances in packaging materials have played an important role in modern food preservation.

17. Organic Farming: In an era where environmental concerns and the need for sustainable practices are at the forefront, organic farming emerges as a powerful solution for sustainable agriculture. Organic farming is an environmentally friendly approach to agriculture that emphasizes sustainability and natural processes. Without the use of synthetic fertilizers, pesticides, or genetically modified organisms (GMOs), it attempts to cultivate crops and raise cattle. This approach encourages biodiversity, soil health and the overall health of ecosystems

18. Horticulture:The ability to cultivate and improve the growth of medicinal plants is imperative for isolating active components. This area of study is referred to as horticulture, where plants may be propagated and cultivated for various reasons, including those for medicinal purposes. Horticulture is the art and science involved in growing, grooming, and marketing plants, and differs from agriculture as it incorporates smaller plots, often with a variety of plants.

19. Personality Development: Personality development includes activities that improve awareness and identity, develop talents and potential, build human capital and facilitate employability, enhance quality of life and contribute to the realization of dreams and aspirations.

20. Tourism transport and travel services: Transportation needs for tourism promotion and tourism development among others, to be maintenance of the existing roads, construction of more roads/rail track/sea and air transportation, and construction of local airports and enhancement of local flight operations.

21. Vermicomposting: Vermicomposting of municipal solid waste is gaining popularity these days because it adds value to the waste while also reducing volume, making it easier to use. Vermicomposting is the process of stabilizing organic solid waste by converting it to earthworm castings through consumption of waste by earthworms. Vermicomposting occurs when organic waste is degraded by gut microbes of earthworms, resulting in stable and mature vermicompost.

22. Dairy Management: Dairy management encompasses a variety of different attributes of dairy farming. From cow comfort and health to business and family relations, management of the dairy is exceedingly complex. Here you will find resources related to a variety of manage-

ment topics related to animal care and financial well-being of the dairy business.

23. Medical Diagnostics: The course is designed to facilitate learning the essentials of Medical Diagnostics. Design of the course shall aid in developing skills required in planning and executing Laboratory process. Laboratory techniques along with fundamentals of laboratory management shall direct the learning process and will ensure efficient and effective understanding and performance in all spheres of laboratory works.

24. Information Technology: Information technology (IT) is the use of computer systems to manage process, protect, and exchange information. It's a vast field of expertise that includes a variety of subfields and specializations. The common goal between them is to use technology systems to solve problems and handle information.

25. Fashion Design: The course incorporates traditional rural craftwork by working with indigenous rural artisans via the cluster program. Students gain valuable insight into the broad spectrum that Indian fashion encompasses through internships, Industry based Graduation Project at leading export houses, retail brands, designers, NGOs or a Design Collection based on self-articulated brief to improve knowledge and overcome the practical challenges faced.

26. Catering Management: Catering management is a multifaceted field that involves planning, organizing, and overseeing the provision of food and beverage services for various events and occasions. The introduction of catering management typically involves understanding the fundamental principles and practices that are essential for successfully operating a catering business or managing catering services within an organization.

27. Poultry Management: Poultry management usually refers to the husbandry practices or production techniques that help to maximize the efficiency of production. Sound management practices are very essential to optimize production. Scientific poultry management aims at maximizing returns with minimum investment.

Importance of vocational education: Vocational education helps learners to perform better in their jobs as they are equipped with a great learning experience. Vocational education makes employees ready for the workplace which helps them while performing various tasks. Vocational Education creates specialized students and as such their chances for absorption in the market is much more than the others. Certain vocational skills acquired from vocational education teach students the importance of manual work. Majority of vocational skills are applicable all over the world and these help in creating employment opportunities in foreign countries. Again hands-on training and other work activities imparted through vocational education helps in the direct application of acquired knowledge. Vocational education can help to solve the problem of dropouts in education institutions to a certain

extent. It has been observed that learners who are at risk of leaving education and their studies are very often retained by vocational education. It has been observed that through vocational education it has been possible to bring back students who have already left education.

It is the responsibility of the Government to reduce the dropout rates in education and as such there is the need to streamline their initiatives and also there should be a co-ordination between the policy makers, civil society, educators and employers and so on. NEP 2020 has emphasized the role of vocational education and it very clearly specifies that the education system should provide exposure to vocational education. Students finding difficulty to study out of a textbook can be easily reached out by vocational education. One important aspect of vocational education is that it teaches the learners things in which they are interested and as such this encourages them to continue their learning. As an alternative to traditional academic subjects, vocational education prepares the students for work in a specific trade or a craft. It also makes the student ready as a technician or for a vocational profession. Vocational education is often found to be a part of an apprenticeship programme. Different vocational courses like hospitality and tourism. Healthcare, jewelry designing, animation, graphic design, food processing technology, beauty therapy and aesthetics etc. goes a long way in preparing the learners for jobs which are based on manual or practical activities. Generally, in an education institution students opt for academic courses and when they find themselves not being able to cope with their studies and also when they feel that they do not see any relevance of these courses in the activities they want to pursue after the completion of their studies, they get frustrated which leads them to disengage themselves from their pursuance of education. In such circumstances vocational education can help re-engage the students because it prepares them to succeed in the labor market. Many students who may not be very much comfortable with academic courses are found to be at ease with the vocational ones and this might be a reason as to why vocational education may help in reducing the dropout rates of the students. Again, because of the ability of vocational education to generate interest among the students it could, in fact, help in curtailing the dropping out ratios in the different educational institutions.

Conclusion: After 34 years India is again geared up to implement the guidelines of National Education Policy throughout the country to reform and make sweeping changes in education system. Madhya Pradesh is as a pioneer state is contributing effectively in making this history happen. Government along with higher education department is focusing on implementing NEP in the state which is creating a path breaking history for other states as well. The mission is inspirational and implementation road map is ready to foster inclusive education for learners to make them industry and future ready. If country wants to

reap the benefits of NEP 2020, it has to be implemented nationwide so that the benefits of concepts like Academic Bank of Credit, multiple entry-exit etc. can be realized effectively. This paper discussed the impact of NEP on HEIs in Madhya Pradesh and simultaneously it also addresses various issues and challenges faced by stakeholders in the state. Despite the fact that learners and educators are facing various challenges in implementation of NEP, this research also highlights the Suggestion and recommendation for inclusive, quality and equitable education in Madhya Pradesh. The systematic implementation of the proposed policies is possible by creating multi-disciplinary, degree offering, autonomous higher education institutions with students belonging to different disciplines at UG, PG, and research levels is very difficult to manage but as students are guided by highly committed teachers, experiential learning, holistic development through vocational skills, mathematical thinking and 21st century skills like artificial intelligence and coding skills, larger goal is to make learners truly global citizens who are future-ready.

Acknowledgments: The authors are thankful to Department of Higher Education (DHE), Government of Madhya Pradesh and UGC New Delhi.

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Library Automation in Higher Education Institutions in Madhya Pradesh: A Literature Review

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Abstract - The collection, services and users of college and university libraries are different from other type of libraries. Use of Information Technology has changed the information handling activities in modern libraries. Now a day the process of automation by using e-Granthalaya software in government colleges and universities has become fast. There are several reasons for automating the library activities especially for saving the time of a reader. In this review discussion about various issues related to the automation of college and university libraries in Madhya Pradesh describe in detailed.

Keywords: Library Automation, Information Communication Technology, Library Software.

Introduction - A library is a temple of learning. It is a knowledge centre; it is the hard-disk vital that stores the images of History the confusion of the contemporary and keeps blank shelves for the hope of the progeny. Such confusion of the contemporary is further confounded when they double every eight hours and such prodigious doubling means a spatial squeeze, as there are four time increase of the living habitants every day. Well, the concerns of this researcher-librarian if not that paramount, like trying to make space for singularities, is yet in magnitude and immensity even of the now a virtually insurmountable task. This considering the need to operate within the web of the given limited infra-structural facilities.

Next comes the problem of dissemination and here one would like to homologues the sensibilities of a UGC and an INFLIBNET who too having walked the same road, burnt mid-night oil like this researcher too. It is this thought that provoked the researcher, a librarian by habit to take his first few steps in the area of automation and make his core concern the study of e-Granthalaya software that promises in potential possibilities. e-Granthalaya is a digital platform developed by National Center for Informatics, Ministry of Electronics and Information Technology, Government of India for Automation and Networking of Government and Semi-Government Libraries. The platform offers a complete ICT solution for library computerization with integrated library management software, a digital library module, a cloud hosting environment and a library portal (OPAC) with integrated NICS implementation services and support. e-Granthalaya is helpful in transforming traditional libraries into e-libraries with digital library services and providing various online services to members through a

one-stop access system.

E-Granthalaya was started as an in-house project at 'Karnataka State Centre of NIC, Bangalore' and the first version of the software was designed for the Public Libraries in the State. Later, NIC HQs 'Library and Information Services Division' took over the designing of the software where library professionals were involved in the designing process and, thus, improved the software with enhanced user interface and simplified the workflow of library functions so that it can suit all kinds of libraries.

Some of the salient features of the e-Granthalaya are:

1. Cloud-Ready Application with Mass Deployment Architecture.
2. We can connect any type of DBMS to Postgre SQL, an open-source DBMS, even if it is hosted on NIC Cloud.
3. The multi-Tenant application connects multiple databases with Single-Signup across libraries.
4. Well scalable with more virtual machines and other cloud resources.
5. Well secured app with audit with well-written documentation.
6. Supports multitasking and can be opened in different browsers with many windows.
7. Integration with MAIL/SMS/Smart Card/Barcode/RFID/AADHAR.

E-Granthalaya provides a range of pre-defined reports and statistical analysis options to help libraries generate insights and track their collection usage, circulation trends, and other key metrics. It's important to note that the actual content in the e-Granthalaya software would vary from one library to another based on their specific collections and

holdings. Libraries can customize the software to suit their needs and add their own content, such as digital resources, local databases, and other materials unique to their collections. If we have access to a library that uses e-Granthalaya, we can explore their online catalogue or visit the library's website to browse their specific collection and available resources.

Importance of the review: Perhaps there is no comprehensive document that exclusively deals with the college and university libraries of Madhya Pradesh. The present work represents the first attempt made with regard to the study of the subject on a comprehensive scale and, as such is an original and a significant contribution to the existing knowledge. This study, it is hoped, will be of vital importance not only to the practicing librarians and scholars but also for the intellectuals', students, policy makers and the government. Also the recommendations made by the researcher will provide necessary guidelines for the proper growth of newly established and developing libraries, besides helping the already developed libraries in rationalization their functions in certain fields.

Objectives of the review: The objectives of the study are-

1. To find out the status and position of libraries and other supporting staff.
2. To identify library collection.
3. To find out the areas of library automation.
4. To find out problems in automation of libraries.

Outline of the structure: Following modules are important for this structure:

1. Database administrator
2. Cluster admin
3. Library administrator
4. Master data
5. Books acquisition
6. Cataloging
7. Circulation
8. Serials
9. Search and reports

Literature review

Review of literature fundamentally refers to the origin of the subject, the theoretical foundations of the subject and the methodological application for content research. Review of Literature thus entails a search for all available literature on the subject. It is the most significant search in the research process. It is also a tool that is interactive and able of feedback. The review of literature provides key inputs to have derived outputs in the appropriate direction. The search for a literature needless to iterate thus is primarily a knowledge exercise. Review of Literature in origin is an academic concept. It is the basic premise in all researches catering to academic purposes. Although one might think of novels and poetry when we hear the word "literature", in terms of review of the literature, "the literature" means the works consulted in order to understand and investigate the research problem. It is a presentation of the subject which

has been discussed and analysed earlier at different places, different times and in different manners. It is known as a Review of Literature because it provides a brief account of the research conducted in the past. Review itself expresses the fact that it relates to the gist or an abstract of what has been completed earlier. Further, review of literature is not a description. It is not necessarily a narration of the repetitions of conclusions of past research. The researcher is expected to be careful in reviewing the literature; ideally it begins with a reading of past theses and dissertations, journals article, books, conference proceedings and or officially published documents. Review of literature must carry authenticity in nature, meaning that any literature published without supporting reference, evidence or document should not be regarded for review of literature. In the review of literature size is insignificant and depth is significant.

Review of Literature is a basically the search for available literature. It is the most significant search in the research process. Only after having identified the research problems, it is easy to locate literature review. It is also a tool that is interactive and able of feedback. The review of literature provides key inputs to have derived outputs in the appropriate directions. The search for a literature needless to iterate thus is primarily a knowledge exercise.

Sources:

Journal articles: These are good especially for up-to-date information. It must be borne in mind though that it can take up to two years to publish articles and so there is a shelf-life. They are frequently used in literature reviews because they offer a relatively concise, up-to-date format for research, and further as all reputable journals are refereed (i.e. editors publish only the most relevant and reliable research). **Books:** Books tend to be less up-to-date as it takes longer for a book to be published than for a journal article. Good books however have a longer shelf - life and this must be remembered.

Conference proceedings: These can be useful in providing the latest research, or research that has not been published. They are also helpful in providing information on the people who are currently involved in research, and so can be helpful in tracking down other work by the same researchers. **Government/Corporate reports:** Many government departments and corporations/ commissions carry out research. Their published findings can provide a useful source of information, as usually their canvas is large. **Newspapers:** Since newspapers are generally intended for a general (not specialized) audience, the information they provide will be for a limited use only for literature reviews. Yet, they may prove useful as they are more helpful as providers of information about recent trends, discoveries or changes, e.g. announcing changes in government policy, but then one should then search for more details on the information in other sources.

Review of National Article

Library Automation: This Research paper has been written by T.A.V. Murthy, Director of INFLIBNET, in CALIBER-2003. Information technology has been one of the major factors causing changes in the way people communicate, locate, retrieve, and use information. The impact of automation on the library is quite obvious as it has created new types of work, prompted redefinition of certain functions, influenced interpersonal relationships, and transformed traditional organizational structures into new institutional entities. This paper has been given detail of MARC and OCLC's automation project and also Resource sharing, beginning of INFLIBNET, objective of INFLIBNET etc. To bring the IT culture in the universities and automate the university libraries INFLIBNET with the support of UGC has spent several crores of rupees by giving the initial grant and subsequent grant for five years to these universities. This helped the libraries substantially to procure the hardware and software for library automation activities. The university libraries faced difficulty with the use of software for its day to day operations. Though there are many commercial software available, but they have individual limitations. The libraries participating in INFLIBNET faced difficulty in easy transfer of data to INFLIBNET for Union Database. Hence many universities suggested INFLIBNET should make an attempt in software development for academic libraries. Comprehensive library software has been designed and developed suited to the Indian Academic Libraries. The SOUL software is updated time to time and compatible with international standard. INFLIBNET has also initiated two major projects Retrospective Conservation of Collection and Document Delivery Services. In this paper Authors very beautifully described all information services of INFLIBNET. INFLIBNET centre, in its initial phase has focused on the building up the IT infrastructure for the participating libraries, and preparing them to accept the change brought about by the information technology. In conclusion authors conclude that, to be successful in the present century, libraries have to more proactive and more customer service oriented. It is observed that there was a lack of leadership and enthusiasm among the libraries and librarian in the beginning. However the situation in the university system has now changed. They have realized the importance of centre like INFLIBNET and need for Resource sharing and automation.

University Library Automation Scenario – A Study: This paper focuses on University Library Automation for only three universities at M.P. This is unique in nature and shows that academic libraries are empowered by INFLIBNET programme, which is a boon to the academic environment. The study was conducted through questionnaire based on survey. A structured questionnaire with multiple choice and open ended questions, designed according to the objectives, was distributed to the University Libraries with request to fill it. They were properly filled and returned. The data in the questionnaire was analysed and interpreted in

suitable manner. In this paper authors give 11 tables of data analysis, on the basis of certain conclusions here presented. It is evident from the records of the university libraries, that there is recession in progress. Budget cuts, reduction of staff size; delay in other resources allocations is the common features. The academic libraries are far behind in providing technological and qualitative service to the users compared to others. The INFLIBNET programme is an Oasis in the dwindling future of libraries. The strength of document resources is encouraging in the university libraries. But, more infrastructural facilities are required by the libraries for automation. The technical knowledge to library professionals has been imparted on priority basis. The requirement for hardware and software is high in university libraries. The present facilities are quite inadequate. The automation work in the library is at infancy, but, encouraging. To reemphasis, the INFLIBNET programme is a boon to academic libraries.

Library automation software packages in India: A study of the cataloguing modules of Alice for Windows, Libsys and Virtua, The present article discusses the salient features of cataloguing module of three such packages, namely, Alice for Windows, Libsys and Virtua and their acceptability in a developing nation. Introduction of computers in libraries has immensely enhanced the effectiveness of library services including efficient organization and retrieval of information activities. Since the information technology has been applied to libraries, one of the greatest challenges before the library managers is the selection of a good library automation software package which can cater to the needs of a particular library. The selection of relevant software is an important step in the library automation process. In any library automation system, cataloguing module is an important module as it caters to the needs of data base creation of library holdings. The three packages are integrated with several modules. For the present study, only the cataloguing module has been studied. In this article authors give cataloguing module comparison of 12 characteristics of software. The study of the three software packages namely Alice for Windows, Libsys and Virtua reveals that each package has got its own capabilities and limitations. If AfW has a unique feature of tracing a document at a particular location in the library (Map facility), Virtua supports Unicode Standards. This facility makes Virtua to deal with the library collection in many different languages especially oriental one. While AfW and Virtua run on selected platforms, Libsys has got its uniqueness to run on any platforms which makes Libsys one of the most popular Indian library software. The powerful data entry facility in Libsys provides option to import data in MARC and non-MARC formats from established bibliographic databases. Cataloguing module of Libsys also includes Catalogue production, Catalogue maintenance, Catalogue cards generation, Thesaurus Construction, Authority files, etc. It however remains the decision of the individual library

to select software that serves its requirements in the best way.

Discussion: Beginning with an introduction to Education, which served to locate the nation, also spiritually, the researcher went on to locate the self in the context of the modern nation -State. The role of the University in the national educational Project was looked into next and this paved the way for looking at education and related development as the purview of the library. A detailed look meant a definition of the aims, objectives and goals of a university library that had the dual task of preserving the Heritage and Dissemination of Knowledge. Such Knowledge as it was made available at different times, when different conditions persisted, meant an adoption of different tools for the understanding of such differential locations. The researcher thus divided the knowledge repository of the country and studied them principally in two phases, i.e., knowledge centers before the arrival of the colonialist and knowledge centres after the fact of colonialism up to the Post-Colonial period. An in-depth study of the association of Indian Universities 1925, the Monitoring Institutions, the Establishment and Development of the UGC, 1956 and also a review of Boards were undertaken before looking at the larger national Policy on Education (New) 1986.

Conclusion: This researcher has not only been faithful to the dictates of the seven golden tasks but had taken recourse to all the available suggestions, methods and inputs that were considered significant. Every instance of a finding was checked, re-verified with certain other parameters and other sources depending upon the nature of subject and tool of verification. For instance, a study of inspiring texts has not been merely appropriated with a cloudy head of absolute fascination but one where inspiring texts had been doubly verified in the contexts of certain other tools which would announce a new significance for it before it being naturalised as part of this researcher's own attempt. Further, the method and methodology adopted for review were made manifest as part of process, indented, so that it stays not as a mere plagiarised text for the one and for the other to glorify an earlier finding. Further, whatever been the source only the positive deflections been studied.

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Industrial and Societal Consequence of Nanotechnology: Professional View

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Abstract - In accordance with International Organization for Standardization and American Society for Testing and Materials standards, nanoparticles are particles of sizes ranging from 1 to 100 nanometer with one or more dimensions. The nanoparticles are usually classified into the organic, inorganic and carbon occupying particles in nanometric scale that has improved properties compared to larger sizes of respective materials. The nanoparticles show enhanced properties such as high reactivity, strength, surface area, sensitivity, stability, etc. Because of its small size nanoparticles are synthesized in a number of research and commercial applications that are divided into three main types namely physical, chemical and mechanical processes that have seen significant progress over time. This paper introduces a review of nanoparticles, their types, structures, combinations, methods of classifying characters and their use in the field of the environment.

Keywords: Nanoparticles, Synthesis methods and Applications.

Introduction - Nanomaterials, by definition, have one or more dimensions in the nanometer scale range and subsequently show novel properties from their bulk materials. The synthesis, characterization and application of nanoparticles are among the most important sections of the wide range of nanotechnology fields that fall under the general “nanotechnology” umbrella. In recent years, nanoparticles have been the focus of researchers in this field because the transition from microparticles to nanoparticles has resulted in drastic changes in the physical and chemical properties of materials. Among many other features, the most important features at the nanoscale are, first of all, the small size of the particles, which leads to an increased surface area-to-volume ratio and consequently to enter the domain where quantum effects predominate. Second, an increase in the surface area to volume ratio leads to an increase in the dominance of surface atoms of the nanoparticle over its interior. Nanoparticle synthesis is a complex process and therefore a wide range of techniques are available to produce different types of nanoparticles. The result is that it is impossible to generalize to all currently available synthesis techniques. However, broadly speaking, all these techniques essentially fall into three categories: vapor condensation, synthesis by chemical reaction, and solid-state processes such as milling. Not only pure nanoparticles but also hybrid or coated nanoparticles can be synthesized using the above-mentioned techniques. Initially researchers studied single nanoparticles because such particles have much better properties than bulk

materials. Later, in the late 1980s, researchers found that heterogeneous, composite or sandwich colloidal semiconductor particles have better efficiency than their corresponding single particles; in some cases, they also develop some new properties [1–3]. As recently as the early 1990s, researchers synthesized concentrated multilayer semiconductor nanoparticles with a view to improving the properties of semiconductor materials.

Safety in nano-technology is a very important theme that needs to be addressed in order to determine the boundary between adverse and normal. For example, the main issue with the safety and efficacy of nanomaterials in environmental and medical contexts is uncertainty. This uncertainty cut across many fields of human sectors. Most forms of calculation in these fields deal with calculable risk – for instance, dose effects in toxicology and related researches. A lot of the issues around social acceptance revolve around the difficulties of dealing with uncertainty. Many of these issues will only be resolved through large scale population studies either through longitudinal cohort studies or big data linkage.

Techniques Of Nanoparticle Synthesis And Characterization: In general, core/shell nanoparticles are synthesized using a two-step process, first the synthesis of the core and the second the synthesis of the shell. Synthesis techniques of core/shell nanoparticles can be classified into two types based on the availability of core particles: the core particles are synthesized and systems with proper surface modification for coating the shell

material [4, 5] are included separately. Core particles are synthesized in situ, and this is followed by coating of shell material [6, 7]. In the first method, after the core particles are synthesized separately, purified by continuous washing, and dried, they then pass through the appropriate surface. Modifications for coating shale material in the reaction mixture for shale formation. In the second method, core particles are first synthesized using appropriate reactants in the presence of growth inhibitors and/or surface modifiers; then after core formation is complete, more reactants are added to form shell particles in situ [8]. As a result shale material is selectively deposited on the modified core surface and core/shell particles are formed. The basic advantage of outer core synthesis is that the core particles are available in pure form and therefore less prone to impurities on the core surface. Whereas, in situ synthesis, the main problem is that some impurities from the reaction media may be trapped between the core and the shell layer. The most important step during the synthesis of core/shell particles is to maintain a uniform coating and to control the thickness of the shell. Some of the various synthetic methods for core/shell particles used by different research groups are precipitation [9] polymerization [10]. Although many researchers have attempted to control shell thickness and uniform coating using these methods, the methods are still not well established, and proper control is very difficult. The main difficulties are: agglomeration of core particles in the reaction media, preferential formation of individual particles of shell material instead of core coating, incomplete coverage of the core surface, and control of the reaction rate. Typically, for the main surface modification purposes, surface active agents and polymers are often used by various research groups. These surfactants or polymers can change the surface charge and selectivity of the core particles. So that the shell material can be selectively deposited on the core surface to form a uniform and fully coated core/shell particle.

The characterization of core / shell nanoparticles is important due to the presence of shell material in the spinal area; therefore, proper character separation is always required in both the context and the shell. Many of the characterization methods used are similar to those used for individual particles, but one procedure may not be sufficient. The most important measurement methods used for basic core / shell are those that measure size, shell thickness, basic and over-analysis, visual properties, and thermal stability among others. Therefore, standard measurement techniques such as fluorescent light dispersion, electron microscopy scanning, electron microscopy transmission, thermal gravimetric analysis, X-ray photoelectron spectroscopy, photoluminescence, and high-performance UV-vis spectroscopy .

Microscopic analysis is a common and reliable method of direct visualization of different types of nanoparticles. Scanning electron microscopy is the most common

microscopic method used to analyze the size and structure of nanoparticles. It can reach a magnitude of 10^5 - 10^6 However, in the core / shell nanoparticles, it is difficult to distinguish between the main material and the shell, as it can only produce a high-resolution image. But when SEM is connected to X-ray spectroscopy dissecting energy, it can be used for basic shell site analysis. Recently FESEM (field-emission SEM), which can achieve a much higher magnification than conventional SEM, proved to be useful. Highly enlarged FESEM images can provide information about whether the shell surface is smooth or hard. Smooth surfaces may occur when shell material molecules are directly propagated in the spinal cord due to various nucleation. However, the surface of the shell becomes hard when the size of the small shell, uniform or nonuniform shell coating, the lattice edges of the shell material, etc.

Light structures are generally more sensitive to any local changes in the nanocrystal; as a result they may give indirect ideas about the adhesion of shell material to the spinal area. UV vis spectroscopy is a common spectroscopic method used to analyze different types of nanoparticles. In particular, those who have the ability to absorb energy in the UV vis area provide a absorbing spectrum in the region. In the contextual nanoparticle / shell characteristic, UV vis is used to compare each spectra of core, shell, and core / shell material. Fluorescence or photoluminescence spectroscopy is also used as an important means of distinguishing the elements of objects, such as semiconductor objects, with fluorescence structures. In both UV and PL spectra, the intensity and frequency of wavelengths change after coating. In addition, with increasing stiffness of the shell material, the stiffness and high wavelength are transferred to those of the shell material. However, UV or PL spectroscopy provides the most indirect support for the shell arrow in the spinal cord.

Light, electrons, or neutrons dispersed in materials are one of the major mechanisms for the division of nanoparticle particles either in colloidal form or in powder form. Dynamic light scattering, sometimes called photon correlation spectroscopy or quasi-elastic light scattering is another major method used to measure the exact particle size in the nanoparticle formation. By measuring the particle size before and after coating, the size of the shell can be measured [11-13]. Indirect evidence of the rate of basic land conversion can also be obtained by measuring the strength of key particles in solution [14]. This method provides a hydrodynamic range of particles.

Thermal gravimetric analysis is another method used to show the thermal stability of compounds. TGA analysis of weight loss measurement and differential temperature analysis gives the thermal profile of any object as the temperature rises. This process is also used to support the removal of organic core from the core particles / shell during the formation of empty particles [15 - 17].

Applications: Core/shell nanoparticles have many potential

and exciting applications in the biomedical field. Although over more than a decade some applications have already been developed there are major applications still at the innovation stage [18]. In the biomedical field, core/shell nanoparticles are mainly used for controlled drug delivery, for bioimaging, for cell labeling, as biosensors, and in tissue engineering applications[19] etc. Recently, the performance of drug delivery systems has improved enormously because of the development of controlled release of drugs over the more traditional uncontrolled release. Advances in this area have become easier and more precise because of nanotechnology developments. Simultaneously, very specific drug delivery is now possible to a particular location inside the body or to an organ in what is called “targeted delivery”. The combination of these two approaches can be exploited for targeted drug delivery at a specific location with controlled release. Therefore, in order to further improve the drug delivery system, some crucial properties of the free drugs such as solubility, in vivo stability, pharmacokinetics, and biodistribution must be considered. The overall efficacy can be improved by using suitable nanoparticles with increasing drug selectivity toward the targeted tissue [20].

Magnetic particles coated with a functional material such as a noble metal, semiconductor, or appropriate oxide increase the physical properties (optical, catalytic activity, electrical, magnetic, and thermal) of the combined particles compared with the pure core particles [21]. Nanosized metal oxides (MgO, CaO) have destructive adsorption capacity of halogenated hydrocarbons and organophosphorous compounds but a coating of a transition metal oxide onto the original metal oxide increases the destructive adsorption capacity several fold. Similarly, the catalytic conversion of CO to CO₂ by Fe₂O₃-coated Au nanoparticles supported on SiO₂ was studied by Yin et al. [22]. Their results showed that the conversion efficiency is more than that for Au alone supported on SiO₂. They also found that the efficiency increases with preheating of the catalyst but that excess heating can decrease the efficiency mainly because of the increase in percentage of Au metal and crystalline nature of the Fe₂O₃. The conversion efficiency of the Au/Fe₂O₃ particles is improved because of the presence of the support material. In addition, results show that the percent improvement is almost independent of the nature of the support material (SiO₂, C, Fe₂O₃) except for TiO₂. Similarly, a porous stable silica coating on metal cores (Fe, Co, Ni, Ru) increases the core stability. Normally, because of the synergetic effect, bimetallic core/shell nanoparticles show better catalytic activity compared with the single pure metallic nanoparticles. Bimetallic core/shell nanoparticles, especially Au/Pd, Au/Ag, Au/Pt, Pt/Pd, and Co/Pt are used as catalysts in a range of reactions. Core/shell nanoparticles with either core or shell made of a semiconductor or a metal are equally important in the electronics field. Polymeric materials are easy to process, but these materials have

low dielectric constant. On the other hand, ceramic materials have high dielectric constants but are more difficult to process. Interestingly, a combination of these two materials in the form of core/shell with ceramic core and a thin polymer shell increases the dielectric constant compared with the pure polymer. At the same time, it renders them more easily process able. Because of their high capacitance these materials are used in electronics. Similar to other applications, here the basic advantage of the core/shell particles is the shell material coating the core surface, which increases the colloidal stability and prevents photo degradation of the core particle. Among the different inorganic materials used, silica is the most common one. Silica is an inert material and hence does not affect the redox reaction of the core material. Instead it just blocks the core particle so that the colloidal stability of the particle increases.

In addition, the silica shell is optically transparent so that chemical reaction of the core particle can be easily studied spectroscopically. In addition, it reduces the bulk conductivity of the metal core particle thus preventing the photocatalytic degradation of the polymeric materials. Silica shells are also used to modulate the position and intensity of the colloidal metal surface plasmon adsorption band. The main application of the carbon coating on the metal or metal oxide nanoparticles is to increase the core particle stability with a subsequent increase in catalytic properties, biocompatibility, and nontoxicity. Organic/silica core/shell nanoparticles combine the properties of both the polymeric (e.g., flexibility, ductility, dielectric) and silica components while including some additional special or novel properties, which are a result of their special microstructures. These have potential use in many fields: plastics, rubbers, coatings, inks, etc. [23].

Some important applications of nanotechnology are:

Water Purification: The availability of clean, safe water is fundamental to the sustenance of life and it is important to health, environment, and economy. As the global population increases, the demand for water increases and an adequate supply of water becomes great concern especially, in water-stressed areas, leading to the exploration of unconventional sources of water such as seawater and wastewater. The current water purification technologies are therefore gradually becoming inadequate for meeting the need for safe water. A number of technologies like filtration, reverse osmosis, germicidal lamps, chlorination, and ozonation which are modified forms of 19th and 20th-century inventions are being deployed to purify water. These technologies are, however, becoming inadequate for water treatments as more than 1000 new industrial wastes that were not envisaged at the conceptual and design stage of these technologies are released into the environment annually. Consequently, new technologies that adequately address the current challenges of water purification are not negotiable. These technologies, among other things, should

effectively remove the contaminants, be economically viable, environmentally friendly and energy less intensive.

Health Care: The application of nanotechnology in health care is known as nanomedicine. Applications of nanotechnology in medicine include prevention, diagnosis, treatment, follow-ups of diseases, drug delivery, therapy and disinfection.

Transportation: Transportation involves the conveyance of people, goods and other things over macroscale distances. The role of transportation in economic development cannot be overemphasized. An effective transportation system requires a sustainable facility for the conveyance of goods and people and is expected to be safe, durable and economical. There are several opportunities for the application of nanotechnology to adequately meet these requirements in the transportation industry. Although nanotechnology involves use of phenomena on atomic and molecular scale to offer structures and materials that perform tasks that would be impossible if the materials in their usual macroscopic form were rather used, the technology is relevant in the process of providing, operating and managing the needed infrastructure that allow vehicles to travel; maintenance of the routes and management of the vehicles that make use of the routes.

Environmental Bioremediation: Several daily human activities, industrial processes, and agriculture inherently release chemicals and harmful substances into the environment. At sufficient concentrations, these chemicals and harmful substances disrupt the ecosystem and have destructive effects on humans and organisms in the environment. In the bid to address environmental contamination issues, several environmental remediation technologies have been developed and bioremediation proves to be more effective and reliable because of its eco-friendly features.

Electronics: The currently predominant electronic technology for manufacturing chip is known as lithography or etching and is based on Moore's law which permits enhanced functionality, a higher speed of computations, savings in raw materials, weight, and power consumption through continued miniaturization of electronic devices. It is opined that in the nearest future, the technology will no longer be sufficient to handle the demand for new chips as there is a limit to the extent of miniaturization and improved performance attainable through Moore's law.

Energy: Nanotechnology is being used and is being considered for increased sustainability of the energy sector. Nanotechnology has the capability to provide cleaner and more efficient supplies and usage of energy. Even though not all applications of nanotechnology in the energy sector necessarily affect energy transmission directly; they, however, possess the potential for reducing the need for electricity, natural gas and other fossil fuels. In the energy sector, nanotechnology plays significant roles in the areas

of lighting, heating, renewable energy, energy storage, fuel cells, and hydrogen power generation and storage.

Conclusion: The present review explores to assert whereby the research field of core/shell nanoparticles has been expanding into a new dimension over the former two decades. Finally this field will continue to produce development discoveries for the synthesis, properties, modification and applications of this advanced class of nanomaterials. Future generations of core / shell nanoparticles will showcase many new structures that will lead to new applications with improved performance. The core / shell nanoparticles are generally known for better stability, for their ability to protect the core material in the environment, to improve physical and chemical properties, to improve semiconductor structures, to facilitate biofunctionalization, etc. Most of the exciting new findings show that there is a wide range in biomedical use such as controlled drug delivery and release, targeted drug delivery, bioimaging, cell measurement, biomedical sensors, testing, immune testing and much more. In the near future, innovation has the potential to improve the treatment of cancer and many other life-threatening diseases.

Acknowledgments: The authors are thankful to Department of Higher Education (DHE), Government of Madhya Pradesh and UGC New Delhi.

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The Semiconductor Technological Device and its Societal Significance

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Abstract - In this paper we discuss together the social implications and ubiquitous impact of semiconductor devices in today's life throughout every corner of the world. It is our intention to show tangible examples on how high-technology electron devices have improved the quality and conditions of human life, while helping to preserve a sustainable and greener environment. We present here a compilation of several different applications, where high-technology or state-of-the-art electron devices make it possible to save vast amount of energy in several areas; from more energy efficient lighting, control of motors, scaling down to the plethora of electronic systems that are prevalent in modern society and have changed the manner in which we interact with others at the local and global levels. We intend to show how new materials or fabrication steps, incorporated in the manufacture of high-technology electron devices, have been combined to produce solutions that reach far beyond the microprocessor's mainstream. Applications beyond the highly integrated processors, which are the main driving force of high-technology electron devices, have been shown to be highly effective in several fields, such as energy conversion, biosignal monitoring, human health, medicine, and drinking water monitoring and decontamination, to list just a few examples.

Keywords: Semiconductor materials, Electronics, Semiconductor devices.

Introduction - The properties of semiconductor materials make possible numerous technological wonders, including transistors, microchips, solar cells, and LED displays. Without transistors and integrated circuits made of semiconductors, much of modern life would be very different. No hand-held electronic games would entertain children for hours. No bar-code readers would speed checkout lines and compile inventories at the same time and no computers would handle tasks at work and home, nor would microprocessors control the operations of cars, planes, and space vehicles. The revolution in electronics that made such wonders possible began in 1947. That year Walter H. Brattain, John Bardeen, and William B. Shockley, working together at Bell Labs, made the first transistor. Their research led to a smaller, lighter, and more durable replacement for the vacuum tube, an innovation widely adopted in the 1920s. Vacuum tubes could amplify electrical signals in radios and record players and serve as the on-off switch necessary for the binary code employed in computers. The transistor, eventually more efficient and much smaller, could do this and more [1-3].

Transistors, and many other electronic devices, are made of semiconductors — materials that conduct electricity only weakly under certain conditions. Radar technology, developed during World War II, used semiconductors, germanium and silicon, to detect short-

wave radio signals. Although the theory on which the Bell Labs scientists based their work was largely the product of the 1920s and 1930s, the wartime experience of purifying these elements and exploring their electronic properties brought the three scientists to the threshold of their invention. The first transistor was a point-contact transistor, in which contact was made between a piece of germanium and three wires. Shortly thereafter Shockley invented the more reliable junction transistor, a “sandwich” of two types of germanium (N and P) produced by adding small amount of impurities. Silicon became the preferred material for making transistors; its ability to form a dioxide layer easily also made today's integrated circuits possible [4].

An integrated circuit, or IC, contains many transistors and other devices on a single “chip” of silicon. Jack S. Kilby of Texas Instruments made the first IC in 1958. In 1959 Fairchild's Jean Hoerni invented the planar process, which Robert Noyce, another Fairchild scientist, used to produce a chip that, unlike Kilby's, did not require any external wiring: the circuit is printed in the dioxide layer. In 1960 Dawon Kahng and Martin Atalla of Bell Labs created the first metal oxide semiconductor (MOS), or field effect, transistor, the kind of transistor most used today. Like planar processing and integrated circuits, MOS transistors transformed the semiconductor electronics industry. In 1965 Gordon Moore, a co-founder of both Fairchild and Intel, predicted that the

number of transistors that would fit on a given area of silicon would double every year. In 1975 he modified this to every two years — stills an astonishing prediction that has thus far proved accurate [5-8].

In effects first observed in the 1870s, some semiconductors respond to light by producing an electric current (the photovoltaic effect) or becoming able to conduct current (the photoelectric effect). Photovoltaic (solar) cells are used to provide electrical power to remote locations, on satellites, and, in combination with storage batteries, for some outdoor lighting. Still other semiconductors give off light when they gain electrons. Gallium arsenide and aluminium phosphate, which were developed in the 1960s, are made into the light-emitting diodes (LEDs) used as displays in digital clocks, microwave ovens, and countless other electronic devices. Those same materials can be shaped to form a reflecting cavity that amplifies and directs the light it produces, creating a semiconductor laser. Semiconductor lasers are often paired with photoelectric cells in automatic doors, burglar alarms, bar-code readers, and fiber-optic communications devices [9].

Classification of Semiconductors : Semiconductors may be classified broadly as:

- I. Intrinsic semiconductor
- II. Extrinsic semiconductor

Intrinsic semiconductor: There are two ways to define an intrinsic semiconductor. In simple words, an intrinsic semiconductor is one which is made up of a very pure semiconductor material. In more technical terminology it can be stated that an intrinsic semiconductor is one where the number of holes is equal to the number of electrons in the conduction band. The forbidden energy gap in case of such semiconductors is very minute and even the energy available at room temperature is sufficient for the valence electrons to jump across to the conduction band. Another characteristic feature of an intrinsic semiconductor is that the Fermi level of such materials lies somewhere in between the valence band and the conduction band. In case you are not familiar with the term Fermi level, it refers to that level of energy where the probability of finding an electron is 0.5 or half. If a potential difference is applied across an intrinsic semiconductor, electrons will move towards positive terminal while holes will drift towards negative terminal. The total current inside the semiconductor is the sum of the current due to free electrons and holes. If the temperature of the semiconductor increases, the number of hole-electron pairs increases and current through the semiconductor increases. If temperature falls, the reverse happens.

Extrinsic semiconductor: These are semiconductors in which the pure state of the semiconductor material is deliberately diluted by adding very minute quantities of impurities. To be more specific, the impurities are known as dopants or doping agents. It must be kept in mind that the addition of such impurities is really very minuscule and a

typical dopant could have a concentration of the order of 1 part in a hundred million parts or it is equivalent to 0.01 ppm. The materials chosen for doping are deliberately chosen in such a manner that either they have 5 electrons in their valence band, or they have just 3 electrons in their valence band. Accordingly such dopants are known as pentavalent or trivalent dopants respectively. The type of dopant also gives rise to two types of extrinsic semiconductors namely P-type and N-type semiconductors. A pentavalent dopant such as Antimony are known as donor impurities since they donate an extra electron in the crystal structure which is not required for covalent bonding purposes and is readily available to be shifted to the conduction band. This electron does not give rise to a corresponding hole in the valence band because it is already excess, therefore upon doping with such a material, the base material such as Germanium contains more electrons than holes, hence the nomenclature N type intrinsic semiconductors. On the other hand when a trivalent dopant such as Boron is added to Germanium additional or extra holes get formed due to the exactly reverse process of what was described in the upper section. Hence this dopant which is also known as acceptor creates a P-type semiconductor. Hence electrons are the majority carriers (of current) in N-type while holes are minority carriers. The reverse is true of P-type semiconductors. Another difference is that whereas the Fermi level of intrinsic semiconductors is somewhere midway between the valence band and the conduction band, it shifts upwards in case of N-type while it drifts downward in case of P-type due to obvious reasons.

Applications of Semiconductors

Electronic Devices: Semiconductors are the materials that conduct electric current, can be easily regulated, and can act as both insulators and conductors. These qualities have made semiconductors useful in the field of electronics. Semiconductor devices are all around us. They can be found in just about every commercial product we contact, from the family car to the pocket calculator. Today semiconductor devices are omnipresent in a wide range of industries, including computers, communications, aerospace, manufacturing, agriculture, and healthcare. Semiconductors have made electronic devices – such as MP3 players, HDTVs / TVs, CD players, computers, and cell phones – smaller, cheaper, faster, and more reliable. Science and industry also depend heavily on semiconductor devices. Research laboratories use these devices in all sorts of electronic instruments to perform tests, measurements, and numerous other experimental tasks. Industrial control systems and automatic telephone exchanges also use semiconductors. Even today heavy-duty versions of the solid-state rectifier diode are being used to convert large amounts of power for electric railroads. Of the many different applications for solid-state devices, space systems, computers, and data processing equipment are some of the largest consumers.

Solar Cells: Now-a-days most of the solar cells the absorption of photons, as a results of the generation of the charge carriers, and the subsequent separation of the photo-generated charge carriers take place in semiconductor materials. Therefore, the semiconductor layers are the most important parts of a solar cell and they form the central part of the solar cell. There are a number of different semiconductor materials that are suitable for the conversion of photons energy into electrical energy. The crystalline silicon (c-Si) solar cell, which dominates the PV market at present, has a simple structure, and provides a superior example of a typical solar cell structure.

Telecommunications: The telecommunications industry is growing larger than ever mainly due to the demand for faster information transfer. Fiber optic communication is rapidly becoming the backbone for voice, video, and internet data transfer. As this industry matures, the components for broadband fiber networking undergo continuous research and development. These components include VCSEL and edge-emitting lasers, thin-film DWDM filters and waveguides for multiplexing/demultiplexing, EDFA and Raman amplifiers, photodiode detectors, and more. Thin films are critical to the performance of these devices. Spectroscopic ellipsometry (SE) is uniquely suited to measure both film thickness and refractive index at telecom wavelengths in the infrared.

Computers: Semiconductors are one of the most important enabling technologies for digital computers. They are the foundation of all modern electronic devices which use circuitry. These materials were first introduced to computing to solve issues related to vacuum tubes used in analog computers. The tubes would often leak, and the metals used to transmit electrons within them would frequently burn out. Semiconductors did not suffer these issues. Semiconductor materials conduct electrons in an entirely different manner than metals, causing them to avoid burn out. Unlike vacuum tubes, semiconductors did not need to warm up over long periods of time prior to use. Additionally, they required far less space than a series of vacuum tubes. The first semiconductor based transistor was made in 1947. The first integrated circuit based on semiconductor technology followed shortly after, in 1959. All the semiconductor materials are not used in computers. The material which has become the standard semiconductor for circuitry is silicon. Silicon is the most abundant element in the earth's crust, and is accessible from almost anywhere on earth. This makes silicon inexpensive, driving down the cost of computers and other technological devices. Some computers use other semiconductor materials to achieve faster electron conduction speeds. An example is germanium with a small concentration of arsenic impurities. While this material achieves faster conduction rates, its cost is significantly higher than silicon [10-19].

Conclusion: Semiconductor materials have had an unprecedented impact on society, driving the advancement

of technology across diverse industries. From integrated circuits to solar cells, these materials continue to transform the way we live and interact with the world. These materials may be considered as the information carrier of our times. In the history of information there were two revolutions (approximately 500 years apart). The first was that of Johan Gutenberg who made information available to many, the other is the invention of the transistor. Currently the global amount of information doubles every year. Many things we are taking for granted (such as, e.g., computers, Internet and mobile phones) would not be possible without silicon microelectronics. Electronic circuits are also present in cars, home appliances, machinery, etc. Optoelectronic devices are equally important in everyday life, e.g., fiber optic communications for data transfer, data storage, digital cameras, etc. Since the beginning of semiconductor electronics the number of transistors in an integrated circuit has been increasing exponentially with time. As researchers strive to push the boundaries of what is possible with semiconductors, we can look forward to a future filled with even more remarkable innovations and breakthroughs

Acknowledgments: The authors are thankful to Department of Higher Education (DHE), Government of Madhya Pradesh and UGC New Delhi.

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