



AN OVERVIEW OF GROWTH AND PERFORMANCE OF RESEARCH AND DEVELOPMENT SERVICES WITH REFERENCE TO EDUCATION AND SKILL DEVELOPMENT IN EMPLOYMENT GENERATION IN INDIA

**Dr. Sagar Thakkar,*

** Department of Economics, VPM's Joshi-Bedekar College (Autonomous), Thane, Maharashtra, India*

Abstract:

India is the youngest country in the world and with an increasing population of youth, there is a huge need for employment generation. Skill development with the help of education is one of the possible solutions to meet this challenge. However, to make education skill oriented, reforms in the present education system are required and to affect such reforms research in the field of education is a way-out. If the research is not done in time in industry and welfare sectors, then India's demographic benefit will turn into a demographic curse. Education is one of the effective sources of skill development.

It is important to note that education is also facing many challenges in this rapidly changing era. To cope with the challenges, development in the field of education is a need of time and such can be brought best through research.

Today Research and Development Service is an important sub-sector of the tertiary sector. Research and Development activities can help to evolve existing curricula, learning materials, teaching methodologies and techniques, and current assessment systems which would be able to deliver required skills to youth of India.

In the above context, the present research paper is an attempt to overview growth and performance of Research and Development Services with reference to Education and Skill Development in Employment Generation in India.

Key Words: *India, Research and Development Services, Education, Skill Development, Employment Generation*

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial Use Provided the Original Author and Source Are Credited.

Introduction:

India is the youngest country in the world and with an increasing population of youth, there is a huge need for employment generation. Skill development with the help of education is one of the possible solutions to meet this challenge. However, to make education skill oriented, reforms in the present education system are required and to affect such reforms research in the field of education is a way-out. If the research is not done in time in industry and welfare sectors, then India's demographic benefit will turn into a demographic curse. Education is one of the effective sources of skill development.

It is important to note that education is also facing many challenges in this rapidly changing era. To cope with the challenges, development in the field of education is a need of time and such can be brought best through

research.

Today, Research and Development Service is an important sub-sector of the tertiary sector. Research and Development activities can help to evolve existing curricula, learning materials, teaching methodologies and techniques, and current assessment systems which would be able to deliver required skills to youth of India.

In the above context, the present research paper is an attempt to overview growth and performance of Research and Development Services with reference to Education and Skill Development in Employment Generation in India.

Research Objectives:

The present study is carried out with following objectives in mind:

- To understand the Growth and Performance of Research and Development Services in India.
- To understand the role of Research and Development Services with Reference to Education and Skill Development in Employment Generation in India.

Research Methodology:

A. Data Collection: The secondary sources of data, pertaining to Growth and Performance of Research and Development Services in India and role of Research and Development Services with Reference to Education and Skill Development in Employment Generation in India though Government of India publications like Economic Survey, RBI Reports, and various other National and International Bodies are considered.

B. Analysis: The data collected is analyzed to understand growth patterns of Research and Development Services with Reference to Education and Skill Development in Employment Generation in India

C. Limitations: The study is limited to the secondary sources of data collection.

Educational Research:

Educational Research refers to the systematic collection and analysis of data related to the field of education. Research may involve a variety of methods and various aspects of education including student learning & skill imparting, teaching methods, teacher training, development of employability skills etc. The best teaching and learning process at the higher education level occurs in environments where there is a strong culture of research and knowledge creation. This is testified from the experience of the world's best universities like Harvard, Stanford, Oxford etc.

In India educational research widely takes place at higher education level and therefore, the role of higher educational institutions in this regard is very important.

From the data collected using a variety of sources related to Growth and Performance of Research and Development Services with Reference to Education and Skill Development in Employment Generation in India, following inferences being made:

1. Role of UGC:

The Higher Education Sector is one of the major performers of research. University Grants Commission (UGC), which was established in 1956, under an Act of Parliament, is expected to coordinate the major responsibility of regulating the standard in higher education sector of the country. It has been monitoring the



growth of higher education as well as the establishment of new universities and colleges, so as to ensure that higher education grows in response to the needs of society for trained manpower with appropriate levels of professional training, skills and specializations or general educational attainments.

2. Number of Higher Educational Institutions:

There were 993 universities/deemed universities and 39,931 colleges during 2018–19 to impart higher education in the country.

3. R&D in Higher Education:

During the last decade, the R&D expenditure in higher education has gone up to Rs. 3,306.74 crore in 2010–11, Rs. 6,095.18 crore in 2015–16 and Rs. 7,784.33 crore in 2017–18 constituting 5.5%, 6.4% and 6.8%, respectively of national R&D expenditure. It is estimated at Rs. 8,797.08 crore in 2018–19 constituting 7.1% of national R&D expenditure.

4. Production of Ready and Competent Workforce:

India has a highly skilled and educated demographic advantage provided by R&D in education and innovative skill development initiatives, providing a ready and competent workforce to engage in brain research. In 2016, India produced the highest number of graduates worldwide with 7.8 million fresh graduates, 2.6 million of whom were from STEM (Science, Technology, Engineering and Mathematics).

5. Increase in Investment In Educational R&D by Government:

The Government of India has taken several initiatives to increase investment in R&D as well as to promote and improve the overall research eco-system in the country. These include the Uchchatar Anusandhan Yojna (UAY), which promotes industry- sponsored, result-oriented research with an outlay of Rs 475.00 crore. 25% of the funds under UAY are contributed by the industry.

6. Number of Researchers:

Number of researchers per million population in India has increased to 255 in 2017 from 218 in 2015 and 110 in 2000.

7. R&D Expenditure Per Researcher:

India's R&D expenditure per researcher was US\$ 185000 during 2017-18 and was ahead of the Russian Federation, Israel, Hungary, Spain and UK.

8. R&D Support to the Academic Sector:

R&D support to the Academic Sector (comprising Universities/Colleges, Deemed Universities and Institutes of National Importance) through extramural projects was 68.7% during 2016–17. The share of extramural R&D funding in total National R&D expenditure for 2016–17 was 2.4%.

9. Number of PhDs:

Doctorate degree holders are highly qualified personnel of the education system in India. A Ph.D. degree recipient during 2017–18 reveals that 60% of them were from S&T (Science and Technology) faculties and the rest 40% from other non S&T faculties. India occupies 3rd rank in terms of number of PhDs awarded in Science and Engineering after the USA and China.



10.Role of Teaching Faculties in Educational R&D:

Teaching staff in higher education plays a vital role for training better manpower. UGC is making all efforts to keep the standard of teaching staff up-to-date in knowledge, technical know-how, and skill by providing requisite facilities and incentives through Faculty Improvement Programme and other schemes. Out of the total 12.50 lakh of teaching staff serving in the higher education sector, 15.1% were in university departments/colleges and 84.9% in affiliated colleges.

11.Promotion of Socially Relevant Research In Higher Educational Institutions:

A scheme of Government of India called, Impacting Research Innovation and Technology (IMPRINT) in 2015 focuses on socially relevant research in higher educational institutions with a budget provision of Rs 487 crore. The establishment of 9 research parks at a cost of Rs 5 crores, among them parks at the Indian Institutes of Technology (IITs) and one at the Indian Institutes of Science (IISc). These research parks will promote innovation through incubation and joint research between education and industry.

The National Education Policy (NEP) 2020 suggested the establishment of a National Research Foundation (NRF). The aim is to fund competitive, peer-reviewed grant proposals from the universities, colleges, and institutions of higher learning.

In the same way, Atal Tinkering Labs is an initiative of the Niti Aayog under Atal Innovation Mission. It aims to foster curiosity, creativity and imagination in young minds; and inculcate skills such as design mindset, computational thinking, adaptive learning etc.

12.Intellectual Property Rights related Laws:

The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is the most comprehensive multilateral agreement on intellectual property (IP). India is a signatory to TRIPS and has enacted its domestic IPR laws to foster IPR creation and curtail its violation.

13.Rise in Research Publication:

India is placed 3rd among countries in scientific publication as per NSF (National Science Foundation) database. During 2018, India was ranked at 3rd, 5th and 9th in scientific publication output as per the NSF, SCOPUS (is Elsevier's abstract and citation database) and SCI (Science Citation Index) database respectively.

During 2011-2016, India's growth rate of scientific publication as per the SCOPUS and SCI database was 8.4% and 6.4% as against the world average of 1.9% and 3.7%, respectively.

India's share in global research publication output has increased over the years as reflected in publication databases.

14.Patent Filing:

India is ranked at 9th position in terms of Resident Patent Filing activity in the world. During 2017-18 a total of 47,854 patents were filed in India. Out of which, 15,550 (32%) patents were filed by Indian residents. Patent applications filed in India are dominated by disciplines like Mechanical, Chemical, Computer/Electronics, and Communication.

According to WIPO (World Intellectual Property Organization), India's Patent Office stands at the 7th position among the top 10 Patent Filing Offices in the world.

15. Share of R&D Institutes:

In 2018, out of a total of 6,862 R&D Institutions, 63% of the R&D institutions were in the private sector industry followed by state sector 15%, higher education sector 10% while other sectors occupied a share of less than 10%. A consistent increase in share of R&D Institutions was witnessed during the survey years 2018 and 2010 for both private sector industry and higher education sector by 10% and 3% respectively.

16. R&D expenditure by Institutional sector:

R&D expenditure by the institutional sector was 58.6% of the total national R&D expenditure and the rest 41.4% was incurred by the industrial sector comprising both public and private sector industry during 2017–18.

Conclusion:

Education is one of the effective sources of skill development but to make it effective in real sense, continuous Research and Development in the field of education itself is a must. The development of skills through innovative educational methods can contribute to structural transformation and economic growth by enhancing employability and labor productivity and helping countries to become more competitive. Thus, to increase the employability and productivity for both the current and future workforce, research in education needs to be promoted.

References:

Research and Development Statistics (2019-20), Ministry of Science & Technology, Government of India, New Delhi.

<https://www.investindia.gov.in/team-india-blogs/research-and-development-india-overview>

(Accessed on 04/10/2022)

<https://www.meity.gov.in/content/r-d-information-technology> (Accessed on 04/10/2022)

https://www.researchgate.net/publication/306263593_Educational_Research_in_India_an_Overview

(Accessed on 06/10/2022)

https://www.researchgate.net/publication/319594623_Education_Research_and_Emergence_of_Higher_Education_as_a_Field_of_Study_in_India (Accessed on 06/10/2022)

https://www.academia.edu/19535984/Educational_Research_in_India_A_Need_For_Focus_on_Quality_and_Use_of_Technology (Accessed on 06/10/2022)

<https://www.businesstoday.in/latest/corporate/story/only-26-indian-companies-in-top-2500-global-rd-spenders-277365-2020-11-02> (Accessed on 07/10/2022)

Cite This Article:

* **Dr. Sagar Thakkar (2023).** *An Overview of Growth and Performance of Research and Development Services with Reference to Education and Skill Development in Employment Generation in India, Educreator Research Journal, Volume-X, Issue-I, Jan -Feb 2023, 20-24.*