

Analysis of National Education Policies: Issues and Challenges in Pakistan and Development of Science Education

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Abstract

This article has two parts: the development of Science Education and the brief history of Education policies, Commission and Conferences of Pakistan from 1947 to 2009. The study presents the development of science education at higher education, and a brief history of all national education policies of Pakistan from 1947 to 2009. Development of Science education means an individual has the knowledge, skills, ethics, attitudes, responsibilities, and values necessary for his/her bright future. The study also includes issues and challenges in the implementation of National Education policies.

Keywords: Pakistan Education Policies, Development of Science Education, Issue and Challenges

Introduction

Education Policies are the principles as well as the collection of laws and rules developed by government, completed by values and ideas, studied by education actors and implemented by authorities and educational experts. There are many forms of education for many purposes through different institutions (Rayou and van Zanten, 2015).

According to Ozga (2000), Science Education policy is neither limited to formal relationships nor processes of administration, nor does it affect only teachers (and legislation affecting them). A comprehensive definition of policy has political, social and economic contexts to shape Science education policy.

Academic education in Pakistan is considered very poor type of education. Therefore immediate and urgent need for training people in scientific and technical education at higher levels of education is required to build up future economic life so that the government of Pakistan has

proposed to set up a council to promote, plan, and supervise scientific and industrial research and utilize the economic resources of the country to the maximum level. (Ministry of Interior, 1947).

Science education starts from the earliest stage of education for the purpose of solving problems of the society and nation and develop a scientific attitude due to encouraging, sustaining and rewarding the method and spirit of inquiry and scientific thinking, also it is most important and necessary to modernize on continuous basis the curricula for science teaching and science education at higher level. (National Educational Policy 1970)

In Pakistan, several studies have been undertaken to analyse the country's education policy documents, five-year plans, reforms, projects and programmes (Ali, 2017; Ashraf, Hafiza, 2016; Ahsan, 2003). Aims and objectives of many policies were focused on “character building” of the nation from an Islamic ideology perspective. However, an economically poor country like Pakistan needs to improve its Science education resources in order to develop a productive labor force and to identify better solutions for its economy and environment.

According to the Government of Pakistan, “State shall be responsible for eradication of illiteracy and provision of free education and compulsory education up to secondary level, within appropriate possible time” (Article 37-B, 1973 Constitution of Pakistan). Also “The State shall provide the facilities and opportunity for free education and compulsory education to all Pakistani children of the age of five to sixteen years in such manner as may be discussed by law” (N. A. O. Pakistan, 2012).

Pakistan education ratio has been improved continuously and gradually. Some indicators show a mixed situation. In Pakistan the adult literacy rate is 58% (UNDP, 2016). The gross net enrolment rate of primary level of students (age 5 to 10, male and female) is 91% (Statistics, 2016-17). Pakistan, with a population of 200 million people, has a population growth rate of 2.4%. The size of the population in the country is one of the main problems of Pakistan and because of its population size it faces also other challenges and is motivated to develop its human resources for a better quality of life.

Several studies by MOST (Ministry of Science and Technology), PCST (Pakistan Council of Science and Technology), AEPAM (Academy of Educational Planning and Management) have been undertaken to analyse national science educational policies, plans, projects and programs to measure achievement and Science educational outcomes.

This paper reviews how Pakistan’s educational policies play a vital role in the development of science education.

Some questions are created by Pakistan's previous education policies in the context of Science Education Development. Also, it identifies the educational challenges for Pakistan. We present the history of Pakistan's education policies and link them with the development of Science Education.

Literature Review

There is a clear need for research into the relationship between education policies and science development. So, different approaches, contexts and perspectives have been adopted to study education policy linked to science education development. There is much increase in the importance of Science education development at the global level, to improve the quality of life in a nation.

All European citizens appreciate the significance of science and want to be more informed about science education. Over 40 % of population believe that science Education and technological innovation can have a positive effect on the environment, better health and personal empowerment, dynamic engagement in public affairs and society, and improve employability and basic infrastructure in the future (European Commission 2014).

Every society has a number of challenges such as feeding and accommodation for the population, wellness and healthy living, protection and shielding of the environment, producing sufficient energy, supplying of clean water, and climate change. By working together in participatory ways, we can better solve and obtain the goals and outcomes of science education and perform research with the values, needs and expectations of the society (European Union 2012). Science education provides job opportunities as well as cultural awareness and the ability to act towards people as well-informed and good citizens around the whole world (European Commission 2013).

Science education and everyday experiences make hyper links between what is taught in the school and what is taught in the world around us. So, to act and think like an innovator and scientist, it is essential to study and understand the nature of science and science education and thus provide a sound base for future success (Bell, M. 2010).

According to Barban and Harsmen, the primary purpose of education policy is to develop the country's economy in order to compete in the contemporary world (Braban, Harmsen, 2016), and this is true of Pakistan's education policy.

Education investment and implementation by a country's governments is also a method of checking to evaluate the importance and application of education. Investing in human capital is

Language in India www.languageinindia.com ISSN 1930-2940 19:11 November 2019

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the most important and one other tool to explain education policy (Dissou, Didic, Yakautsava, 2016).

There are many approaches that have been adopted to analyse policies. The top-down theorists' approach to policy evaluation has suggested a theoretical map to understand policy formulation, implementation, and analyses. This was initially motivated by the implementation-gap model. Later another one called top-down model of policies having a list of 6 necessary and sufficient conditions for effective policy implementation was also adopted (Sabatier, 1979).

Therefore, there is an argument to implement and have "the educational policies of Pakistan, respond more to the globalization process and development as well - rather than national needs" (Aamir Saeed, 2015), that is, education for all. The maximum policy document and contents tell a different story, that is, about 80% of educational policies do not address the need of the global agenda. However, it is only recently that policies genuinely explain and address some of the international development goals, that is, Universal Primary Education and Education for All.

Science Education at Higher Education Level

Higher education faces the same challenges and problems exactly like those of the Primary education in Pakistan. Higher education plays an important and vital role in high level progress and improvement in any nation through its research work and innovation. "The most important function of higher education is research performance through which it contributes to the innovation process, economic growth, society improvement and social cohesion" (National Education Policy, 2009).

In all Pakistan policy documents, Higher education was considered as primarily taken as an instrument to provide factory workers with knowledge to enable more production for economic growth of the country. All educational policy documents propose higher education as one of the objectives for higher education. Also, Higher education and research and innovation are actually to support the economic state of a country, using the technology to enhance productivity of a country. The Pakistan 2009 education policy discussed some of the challenges and highlighted a strategic vision for education in the field of higher education.

Science and technological Institutions of higher education in a country play a pivotal role in the advancement and improvement of that country. But we are far behind USA and Japan because there are 50% and 25% of the age group of students enrolled in higher education, but we have only 2% of the students enrolled in higher education. Here is a comparison ratio of higher education students per lakh, that is, in Pakistan 175 students are educated per lakh, in USA number

of students at higher education level per lakh is 3700 and in Canada 2000, and 217 students are enrolled in India per lakh in higher education. Thus, to improve this ratio up to 3% it was decided that we must create 10,000 additional places in institutions and universities for higher education by 1980, which will be enough to cover the 3 percent of the concerned age group (National Educational policy 1972-80 p.13).

Colleges occupy an extremely important position in our education system, because in all colleges, science education is provided with facilities for students. Colleges provide healthy and sound conditions to prepare students for higher education and promote science education. So it is clear that the colleges fulfil their important role in the national development, having rich physical facilities for healthy academic atmosphere. For students, there should be hostel accommodation and well balanced curriculum and co-curriculum activities should be provided to the students (NEP 1979, P.88)

There are three categories of colleges in our education system: Government Colleges, Nationalized Colleges and Provincialized Colleges. All colleges have inadequate and insufficient physical facilities. Also, there are problems related to building. Most of the college buildings were originally designed for schools, or just in the shape of houses in rented buildings with a huge deficiency of classrooms, furniture, laboratories, equipment and playground as well. Those colleges which are situated in bigger towns or cities are over-crowded and situated in busy and congested and commercial areas. Thus, there is no good atmosphere for healthy teaching (NEP 1979, P.89).

According to National Education Policy, government tried their best to supply scientific equipment and laboratory facilities to a maximum number of colleges and provide the opportunities for research studies and also provided the opportunity for starting new colleges to reduce severe stress on the physical facilities, libraries, equipment, laboratories, books, etc. Government also provided maximum facilities to selected institutions of science education and technology and to improve and modernize its socio-cultural life of the colleges and ways to improve and advance it (NEP.1979, P.90).

To evaluate the performance and achievement of universities in the field of science education and other fields as well as the financial needs of the university, the government set up University Grants Commission. After looking into many different aspects, the Commission concluded the following issues and problems: teacher's problems, student's problems, examination problems, financial needs problems, Equivalence problems of degree and diplomas in different disciplines. (NEP1979. P. 95)

To improve the economy and progress of a nation the role of scientific research is very important and necessary. Due to scientific research, not only the agriculture of a state is developed but also the resources for industries are developed. Scientific research standardizes the raw materials and increases efficiency for production in agriculture. For the improvement of agriculture actually we need to develop the industries and achieve resources and raise the standard of the society and the life of its people. So it is absolutely necessary that we develop scientific research to develop the economic, industrial and educational aspects (Ministry of Interior, 1947)

For the promotion of science education and scientific research programmes, government should start different programmes such as Council of Scientific and Industrial Research. The work of the council is to check and study all the existing research facilities and develop them by different means, that is, by supplying additional staff and equipment. Scientific research should be promoted with the collaboration of Science Laboratories and Engineering Colleges affiliated with the universities of Punjab. Science education and scientific research can be improved with sufficiently well-equipped laboratories and research centres. Thus, for the improvement of scientific research we shall require maximum number of research institutions and centres. This requires considerable amount of funds for their maintenance and running (Ministry of Interior, 1947a).

Education Policy in Pakistan: Issues and Challenges

National Education Policy is a priority agenda for every country across the globe. Many Educational policies have been developed for the purpose of educational advancement since 1947 up to 2009 by different governments in Pakistan. Also, agencies are developed for the purpose of achieving the objectives and for reviewing and monitoring processes during implementation of the policy. Evaluation studies are also made for the success of implementation of the policies.

In order to analyze the education policy formulation and implementation processes in Pakistan, it is important to understand their defined objectives and evaluate them to support the achievement of those objectives (Aamir Saeed, 2015).

The main problems of resettlement as well as poor infrastructure, food, climate, security, and violence. Despite this the education conference was organized in the early months to discuss the urgent issue of education. The education policies and other documents discussed are mentioned in the following sentences.

To promote education in newborn state, the first Pakistan Educational Conference was held in Karachi in November 1947. The Conference was chaired by Mr Fazul Rahman, Minister for the Interior Broadcasting and Education. Also, other bodies such as Political leaders, academic expert's university teachers, and educators were also invited from both East Pakistan and West

Pakistan. In the Conference focus was given to the production of and the setting of broad goals, emphasizing moral values and ethics driven by Islamic ideology of Pakistan. It is clear from the documents that the basic objectives for education can be seen to be the same today, 70 years later. But no one of these objectives had been achieved by 2009.

Pakistan's education policy failure is one of the clear and classic examples among all the policies of not being able to achieve set objectives even after seventy two years of its independence. The main domains of education were focused on compulsory Primary education, spiritual, ethical, physical, vocational, technical, computer and Higher education. The main issues expressed show concerns about the poor infrastructure of schools. It was recommended by the conference that the educational ideology should be based on the Islamic concept of learning and also the brotherhood of man, social democracy, and social justice, social behavior as well. From the initial to the higher stage, students should be compelled to learn fundamental religious principles of Islam. In- Service teacher training was also part of the policy for the development of education. Short term courses were also offered to improve teaching skills. Physical education, scouting, rifle clubs, and mountaineering were also given special emphasis in the conference. Madrasah schools were also included to be a part of the existing educational system.

The second conference was held in 1952, in which the old year's progress and improvement of the second and its implementation were discussed. It was followed by a special National Commission set up in 1959. A series of special plans to deal with education were prepared in the years from 1955 to 1970: similarly The first Five Year Development Plan was prepared for 1955-1960 which was very fruitful for education improvement, the second for five year plan was from 1960-65, and then also another or the third five years plan for 1965-70. Initial policies as well as plans were focused on the moral behavior and values development of the nation.

But at time the moment when the country was struggling for economic growth and development as well. For this purpose, the country required a practical, commercial, skilled technical human capital and labor. Nation building and foundation was driven by Islamic ideology. Urdu was introduced as the national language in the country. Whereas in East Pakistan Bangla language was introduced.

Primary level schooling was considered as compulsory and free; to promote education privatization concept was introduced. So the agenda of the conference of 1951 set a target to achieve 100% universal primary education (UPE) by 1971; due to different problems unfortunately that target remains unfulfilled. Then the same pointed targets changed from one policy to another, and hence started the inconsistent approach within the education policy arena. President General

Mohammad Ayub Khan Asked the National Commission on Education for a new educational policy in 1959 that meets the needs of the nation.

The 1959 report stressed the need to develop and create skilled labor, practical students, and force to exploit natural resources for economic development, result-oriented education. Interestingly, in this document the aims of producing productive, intelligent, constructive, and capable individuals for a society and nation development. Primary education was made compulsory.

Three aspects of children's personality development were: moral, physical, and mental soundness and produce a sense of becoming individuals, responsible citizens was the focus area. Quality education was also discussed in the commission. But all the issues remain same as 70 years ago all of that, such as teacher training, teaching methods, classroom management, classroom aid, infrastructure, textbooks, library, equipment, finance, mismanagement, administrative problems, rules, corruption, and political interference are the same.

The 1970 educational policy gives us the importance and need of industrialization education; so, this policy emphasized on the transformation of agriculture to industrialization and industry needs more skilled human capital. This policy mentions five areas: Focus on Islamic values, economic need oriented education, education for social change, Education of great quality, and last one is the decentralization of educational administration. Policy emphasizes the examination system of education also because our education system failing to achieve its objectives and quality.

The 1972 policy document stressed the universal Primary education for boys in 1979 and for girls in 1984, so education system has failed to achieve such types of universal primary education. Even elementary schools were proposed for universal access, 1982 for boys and 1987 for girls but not yet achieved. The education policy of 1970 was the one which gives stronger emphasis on educational improvements. But the period of 1970s was a crisis period for Pakistan Education.

A new educational aim was put up for the first time in this 1970 policy document, that each Pakistani individual should be educated to become a Muslim ummah for the whole Muslim brothers across the world and spread the message of Islam. In this policy stress was given to the literacy, promotion and propagation of scientific and technological training and for the socio-economic growth of the country research was established.

But according to the political situation, all of those issues are still the same today and also more complication produced in the education system. However, the whole issue and failure is related to the administrative mis-management, non-social situation, and religious environment which delayed its implementation plans and the achievement of quality education in Pakistan (Afzal, 1988).

In the 1992 policy documents emphasized four values, which are education, economic, social, and institutional were focused upon for the country's education improvement, the previous policy and this policy having the same conceptual frame-work. It also based on Islamic values and Islamic principles. The main difference between this policy and the previous is the term Islamization of education converted into "Islamic education through the educational system for the purpose to create a Muslim society". The main principles of the policy documents were equality, quality, and efficiency (Ministry of Education, 1992).

Conclusion

Education completely serves as the backbone and the major part of the development of nations. Those countries having education systems with the effective impressive need-oriented, profitable and effective implementation comes out to be the leaders of the world, in all aspects of the progress, socially and economically. Pakistan's current state demands that the allocations and resources for education be doubled to meet the challenges. Millennium Development Goals are yet to be realized, latest by 2015.

The major barriers in the path of education are natural calamities, political turbulence, provincialisms, and political motivations, biasing, mismanagement make the best plans fail. It is compulsory for us to revisit our priorities to keep the country on the track of progress. These changes and reforms in the education system of Pakistan cannot be done by the government alone, it required the public-private participation and a contribution of formal as well as non-formal education so that it can pull out the majority of country's population from illiteracy. Similarly, more stress and attention and opportunity should also be paid to vocational, scientific and technical training.

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Language in India www.languageinindia.com ISSN 1930-2940 19:11 November 2019

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Language in India www.languageinindia.com ISSN 1930-2940 19:11 November 2019

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