



NATIONAL EDUCATION POLICY 2020: THE ROLE OF LAB ATTENDANTS IN SCHOOL SCIENCE EDUCATION

Education

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ABSTRACT

Laboratory experiments to promote basic learning have been reported educational goals, including better student understanding of scientific concepts and their applications; Practical science skills and problem-solving competencies; scientific "habits of the mind" include, like learning, interest and motivation. This paper looked at the National Education Policy 2020: The Role of Lab Attendants in School Science Education. It highlighted the concept of science laboratory and quality education. It looked at the contribution that the laboratory style of instruction makes to raising educational standards, as well as the challenges that come with using it effectively while teaching science. The paper makes the following recommendations, among others: Government should provide physical resources and curriculum development that will enhance the use of the laboratory method and improve the standard of science instruction in schools. Teachers, laboratory attendants, and gardeners must be required to attend relevant workshops, seminars, conferences, and short courses on a regular basis.

KEYWORDS

National Education Policy, Lab Attendants and School Science Education.

INTRODUCTION

Education is fundamental for achieving full human potential, developing an equitable and just society, and promoting national development. Providing universal access to quality education is the key to India's continued ascent, and leadership on the global stage in terms of economic growth, social justice and equality, scientific advancement, national integration, and cultural preservation. Universal high-quality education is the best way forward for developing and maximizing our country's rich talents and resources for the good of the individual, the society, the country, and the world. India will have the highest population of young people in the world over the next decade, and our ability to provide high-quality educational opportunities to them will determine the future of our country. The global education development agenda reflected in the Goal 4 (SDG4) of the 2030 Agenda for Sustainable Development, adopted by India in 2015 - seeks to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. Such a lofty goal will require the entire education system to be reconfigured to support and foster learning, so that all of the critical targets and goals (SDGs) of the 2030 Agenda for Sustainable Development can be achieved.

The world is undergoing rapid changes in the knowledge landscape. With various dramatic scientific and technological advances, such as the rise of big data, machine learning, and artificial intelligence, many unskilled jobs worldwide may be taken over by machines, while the need for a skilled workforce, particularly involving mathematics, computer science, and data science, in conjunction with multidisciplinary abilities across the sciences, social sciences, and humanities, will be increasingly in greater demand. With climate change, increasing pollution, and depleting natural resources, there will be a sizeable shift in how we meet the world's energy, water, food, and sanitation needs, again resulting in the need for new skilled labour, particularly in biology, chemistry, physics, agriculture, climate science, and social science. The growing emergence of epidemics and pandemics will also call for collaborative research in infectious disease management and development of vaccines and the resultant social issues heightens the need for multidisciplinary learning. There will be a growing demand for humanities and art, as India moves towards becoming a developed country as well as among the three largest economies in the world.

Nep 2020 - Major Policies At Secondary School Level

- Early Childhood Care and Education: The Foundation of Learning,
- Foundational Literacy and Numeracy: An Urgent & Necessary Prerequisite to Learning.
- Curtailing Dropout Rates and Ensuring Universal Access to Education at All Levels.
- Curriculum and Pedagogy in Schools: Learning Should be Holistic, Integrated, Enjoyable, and Engaging.

- Teachers.
- Equitable and Inclusive Education: Learning for All
- Efficient Resourcing and Effective Governance through School Complexes/Clusters.
- Standard-setting and Accreditation for School Education.

Role Of Lab Attendants

Laboratory technicians, laboratory attendants have a wide array of workplace options. Using technical skills and scientific knowledge, they work in medical clinics, hospitals, government projects, food and beverage companies, and environmental industries.

Laboratory attendants are key players in a laboratory setting. In hospital and medical clinics, laboratory attendances collect and analyze specimens used to diagnose and treat medical conditions and diseases. In environmental and civil service laboratories, laboratory attendants test samples searching for things that may cause harm to animals, humans and the environment. Laboratory attendants are employed by food and beverage companies to test for safety and product quality. Pharmaceutical labs employ laboratory assistants to assist with the coordination of experiments leading to the technical development of new drugs and treatments.

Attention to detail is critical in this job to ensure laboratory equipment remains sterile and testing results are accurate. Laboratory attendants are often called upon to provide written and verbal reports about testing procedures and results. Also, laboratory attendants manage the maintenance of equipment and stocking of necessary supplies.

Duties To Laboratory Assistants

- To assist students and teachers in conducting practicals and experiments.
- Preparation of chemicals and reagents, autoclaving of instruments/ glassware's, etc., before or during the practical as per the requirement.
- To maintain dead stock and register of consumable materials and to undertake physical stock verification of Laboratory materials.
- To maintain departmental files and records.
- To assist the HoD/ In-charge of Laboratory in purchase and procurement of Laboratory materials with the help of Technician/storekeeper.
- To control the work of Laboratory - MTS working under him/her.
- To assist the HoD/ In-charge of Laboratory in routine administrative matters and to ensure that the Laboratory facilities are not misused by any person.
- To report about breakages/losses in Laboratory to HoD on report from Laboratory - MTS.
- To report to the HoD/ In-charge of laboratory about misbehaviour inside the laboratory by Laboratory - MTS /students.
- To assist HoD/ In-charge to procure requirements of the department seeking approval from the principal.

- To perform Sale of Journals / Lab. Record books to the students and maintaining the respective record.
- To calculate and report amount to be recovered from students towards general breakages in the laboratory.
- To oversee neatness and cleanliness in the department.
- To oversee maintenance of live specimens /preserved specimens/ instruments/ glassware etc.
- To respect staff and students while speaking to them and cooperate with the authorities with the dignity of the profession.
- To perform any other work/duties as and when assigned by the Principal/HoD from time-to-time.

Strategies For Effective Use Of Laboratory Methods

Laboratory Demonstrations

It starts by displaying important methods, showing how to use the materials, or explaining where to find and how to handle unique materials. To keep their attention on you and to make sure that everyone can see and hear you, the students have gathered near to you. Once more, they concentrate on the procedures' core terminology and functionalities while using the demonstration to create curiosity in the lab. The instructor shouldn't try to demonstrate any tools he hasn't used before. It is crucial for instructional purposes to describe any mistakes the teacher who made throughout a demonstration. It is also a good idea to reacquaint him with how the equipment works before the show (Allen, et al., 2009).

Laboratory Instruction

In order for students to understand what to expect from him as an instructor, a competent science teacher should maintain an active involvement and a constant pace of interaction throughout the laboratory period. At crucial times inside the experiment, he should incorporate many examples of instruction for the entire class. It is likely that other groups will have same question or problem if the teacher is asked the same question or encounters the same problem three times. He should catch everyone's attention and take advantage of the opportunity to give everyone personalized, "just in time," advice or feedback. He should roam throughout the classroom during class to be reachable to all pupils, giving both groups that ask and those that don't equal time (Allen, et al., 2009).

Typically, the terms have meant experiences in school settings where students interact with materials to observe and understand the natural world. Some laboratory activities have been designed and conducted to engage students individually, while others have sought to engage students in small groups and in large-group demonstration settings.

Preparing for Lab Sessions

Lecturers and instructors request lab assistants to prepare the laboratory in advance before the lesson starts. They perform this duty by reading the experimental procedure and any additional information given by the lab manager or instructor. Assistants must complete the online lab safety training program before starting to work. They must also adhere to the prescribed lab dress code, such as wearing a white coat and closed shoes, while working.

As a student lab assistant, it's important to ask for any clarification regarding the lab procedure. This helps the assistant and lab manager anticipate questions the students will ask during the lesson.

Assistants set up any laboratory equipment needed for the experiment, such as microscopes, test tubes and calibrated glass flasks. They also prepare simple reagents regularly used during lab procedures and ensure the lab is stocked with the necessary supplies. This includes monitoring all of the supplies used in the lab and restocking them as needed.

Cleaning the Lab

Carrying out experiments in a safe environment reduces the likelihood of accidents occurring. One of the integral duties performed by student lab assistants is securing the lab. This is done by cleaning up any spills, washing the equipment and glassware, such as conical flasks, pipettes and beakers used by students.

Assistants also ensures that all caps and tops of reagent bottles are firmly fastened to prevent spills or leakage. They also put back all the reagents and equipment in the designated place after the lesson ends. Other duties of a lab assistant in engineering colleges, for example, may re-calibrating equipment between lab sections.

Promoting Safety

Accidents in a laboratory may lead to injuries, lost lives and property damage. A student lab assistant ensures that students do not practice any unsafe behaviors in the lab. They lock up all the reagents and unplug all electrical equipment to minimize the chances of accidents and fires.

Assistants show the students how to handle chemical spills, dispose of broken glassware and get rid of non-hazardous and chemical waste safely. They also ensure that students adhere to the lab dress code and wear protective gear, such as safety goggles, during experiments.

Assisting in Experiments

Student lab technicians work closely with students during lab lessons and guide them through experiments. They walk around the lab and answer questions students have concerning the process. This means assistants must read all of the guidelines provided by the lecturer or instructor before the lesson commences.

Preferred Skills And Experience

- Knowledge of current lab safety regulations.
- Prior experience working in a science laboratory.
- Ability to manage a science laboratory and relevant chemicals & equipment.
- Genuine desire to work with children - exhibits patience and empathy when dealing with children.
- Able to address and treat children with respect and dignity.
- Willingness to learn and grow under instruction of teaching faculty and in a professional environment.
- Ability to work individually and as a part of a team.
- Experience working with children, preferably in a school environment.
- Computer literate.
- Good interpersonal and communication skills (especially in English).
- Organized, reliable, dependable, works well independently.

CONCLUSION

Achieving high-quality education requires making the scientific laboratory and the laboratory relevant in the context of learning and teaching science with reference to research issues as well as developmental and implementation challenges. It should go without saying that the laboratory area should be accessible to the instructor during the planning and preparation phase as well as to students for special projects, makeup labs, etc. outside of scheduled class times. Each student should have their own workstation in the lab. To that end, science teachers must be given an annual budget large enough to buy both consumable supplies and the tools required to conduct inquiry-based learning, which is thought to improve the quality of learning.

Recommendations

The government should fund physical resources and curriculum development to boost the utilisation of the laboratory method and the quality of scientific education in schools. Adequate ventilation, fume hoods, reference materials, and laboratory space must be designed such that all students may participate in real-world, hands-on activities. Facilities should be evaluated on a regular basis for structural and configuration updates. There should also be a section dedicated to the cultivation of living specimens for use in biology classrooms (biological garden). In the scientific laboratory classroom, the student-to-instructor ratio must be low enough to provide safe and effective education. Life science professors should not be allocated more than five classes every term or semester due to the additional time and preparation that laboratory courses need.

Teachers should have their own scientific classrooms and should have access to them during preparation periods. Time must also be given up during the instructional day for the setup and breakdown of laboratory preparations. Student or adult laboratory help should be offered whenever available. A laboratory manager (or instructional aid) is required in high school to help in the preparation, setup, and takedown of laboratory supplies for experiential learning classes. Teachers, Laboratory Attendants, and Gardeners must be required to attend relevant workshops, seminars, conferences, and short courses on a regular basis in order to refresh and enhance their knowledge and experiences. The government must take the initiative to enhance the facilities and curriculum for each school. In study reports, the science education community, particularly the research community, must be

cautious to offer full descriptions of the participating students, instructors, classrooms and curriculum environments.

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