

## METHODS OF IMPROVING THE SCIENTIFIC POTENTIAL OF STUDENTS IN HIGHER EDUCATION INSTITUTIONS

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### Annotation:

This article describes the techniques of improving to increase students' motivation to learn by means of internal settings set by the teacher to himself, aimed at establishing a common frequency with students.

**Keywords:** education, scientific potential, experimental techniques, learning strategies, interdisciplinary collaborations, internship, scientific communication

Higher education institutions play a crucial role in nurturing and developing the scientific potential of students. These institutions have the responsibility to equip students with the necessary knowledge, skills, and mindset to excel in scientific pursuits. To achieve this goal, various methods can be employed to enhance the scientific potential of students. This article explores several effective approaches that can be implemented by higher education institutions to foster scientific excellence among their students.

### Promoting a Research Culture

Higher education institutions should foster a strong research culture by encouraging faculty and students to engage in scientific research. This can be accomplished through the establishment of research centers, promoting interdisciplinary collaborations, and providing adequate resources for conducting research. Encouraging faculty members to involve students in their research projects and offering research opportunities to undergraduate and graduate students can greatly enhance their scientific potential.

### Enhancing Practical Skills

Scientific potential is best developed through hands-on experiences. Institutions should focus on providing students with ample opportunities to acquire practical skills that are directly applicable to scientific research. Laboratories, workshops, and internships should be an integral part of the curriculum to enable students to develop critical thinking, problem-solving abilities, and proficiency in experimental techniques. Engaging students in real-world research problems can help them gain a deeper understanding of scientific concepts.

"The teaching and learning process is a complex one that involves many aspects, which contribute to its success. One of these aspects is the method of delivery and practices used in the classroom by the instructor. The focus of our study is to highlight the importance of combining theoretical and practical work in the educational process, specifically in the field of Science.( "Improving Students' Scientific Thinking" David Klahr, Corinne Zimmerman, and Bryan Matlen) "

#### Incorporating Active Learning Strategies

Active learning techniques, such as group discussions, case studies, and problem-based learning, should be integrated into the curriculum to stimulate critical thinking and analytical skills among students. These methods encourage students to actively participate in the learning process, ask questions, and explore solutions independently. By engaging in active learning, students can develop a more profound understanding of scientific principles and foster their scientific potential.

#### Encouraging Scientific Communication

Effective communication is essential for scientists to share their ideas, collaborate, and disseminate research findings. And also Forrest Warner(2004) defines "Scholarly Communication is the technological and institutional means by which theories, interpretations and findings are submitted to the scrutiny of disciplinary experts and critiqued, endorsed, disseminated, synthesized and achieved on behalf of a broad community of teachers and learners". Higher education institutions should emphasize the development of communication skills, including scientific writing, presenting research findings, and participating in scientific conferences. By providing training and opportunities for students to



present their work, institutions can enhance their ability to communicate scientific ideas confidently and clearly.

### Mentorship and Guidance

Mentorship programs can play a pivotal role in nurturing scientific potential. Assigning faculty mentors to students and providing guidance throughout their academic journey can greatly influence their scientific growth. Mentors can offer valuable insights, advice, and support, helping students develop research interests, set goals, and navigate challenges. Additionally, mentorship programs can facilitate networking opportunities and foster a sense of belonging within the scientific community.

### Access to State-of-the-Art Facilities and Technology

Majority of students in the tertiary education are millennial generation. This generation, also known as the digital natives, are used to the information technology devices such as mobile phones, smartphones, and tablets since their early age (Economides, 2013). To enhance the scientific potential of students, higher education institutions should provide access to state-of-the-art facilities, equipment, and technology. Accessible laboratories, cutting-edge research instruments, and advanced computational resources enable students to explore scientific concepts in a hands-on manner and facilitate innovation. Institutions should prioritize investment in infrastructure and keep pace with technological advancements to ensure students receive the best resources for scientific exploration. Given the pervasiveness of information technologies in education, researchers and governments are beginning to visualise a paradigm shift towards higher education for all, anytime and anywhere (Jordan, 2014; Economides, 2013; Materu, 2007).

### Conclusion

Developing the scientific potential of students in higher education institutions is a multi-faceted endeavor that requires a comprehensive approach. By promoting a research culture, enhancing practical skills, incorporating active learning strategies, encouraging scientific communication, providing mentorship, and ensuring access to advanced facilities, institutions can effectively nurture and empower students to excel in scientific pursuits. The collective efforts of higher education institutions, faculty, and students are crucial in cultivating a new generation of scientists who



will drive innovation, contribute to the advancement of knowledge, and tackle complex challenges facing our world.

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