Finding Gaps and Inequities in Higher Education

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American Physical Society (APS)
THE SCIENTIFIC METHOD
We use the best available data to guide timely, thoughtful decision making. We solve problems by building on success and learning from failure. We embrace forward thinking that fosters innovation.

EDUCATION AND LEARNING
We promote personal and professional growth. We embrace change and seek continuous improvement. We learn from each other to succeed together.

TRUTH AND INTEGRITY
We communicate respectfully and honestly while considering others. We perform our jobs with excellence, integrity, and accountability. We hold ourselves to the highest ethical standards.

PARTNERING, COOPERATION, AND OPEN COLLABORATION
We listen and respond to each other and to our communities. We collaborate and act with good intent. We celebrate successes and acknowledge everyone’s contributions.

DIVERSITY, INCLUSION, AND RESPECT
We respect each other’s differences and value everyone’s time and talents. We commit to creating an inclusive and accepting working environment. We seek diverse perspectives and ensure that all voices are heard.

SPRINGING OUT
We seek and provide respectful feedback from each other. We talk through issues and propose solutions to address conflict. We address situations that are inconsistent with our values.
“The Society of Physics Students (SPS) welcomes all students with a passion for physics independent of identities including but not limited to race, ethnic origin, religious beliefs, gender presentation, gender identity, sexual orientation, ability, age, family and socio-economic status, or cultural background. Many groups are under-represented in physics and SPS and Sigma Pi Sigma (ΣΠΣ) have not always been welcoming to diverse groups. Today all of our events are subject to our Code of Conduct, and SPS and ΣΠΣ are committed to working to correct this exclusion and will continue to update our policies and best practices in pursuit of promoting diversity, inclusion, and equity.”

Comments:
The inclusion of everyone takes many forms and must be an active process that SPS leaders and members adopt. It is encouraged that an SPS chapters and members reach out to all students who might have an interest in physics. This should include majors, minors, and those who might not realize their interest in physics yet. Some students may have limited availability but are still welcome at events. The SPS National Office encourages chapters to announce events and meetings well in advance, through several modes of communication, and make accommodations for anyone that wants to participate. While traditions and commitment to an SPS is important, so too is being inclusive of the wide variety of people within a department. Be kind and caring to all members. We are stronger together and the SPS National Office can help chapters achieve this goal. Please email sps@aip.org for assistance.
My role: updating statistics on the APS website on the degrees granted across demographics at colleges and universities in the US

- Demographics for my project consisted mainly of race and gender.
- Visual representation of the data is a good way to encourage discussion and show obvious trends and disparities.
Who is using the data?

- Schools
- Grant proposals
- You and me
- Students and professors

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**Current Trends in Physics Enrollment**

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**Abstract**

We analyze the current trends in higher education and discuss its impact on physics enrollment in US institutions. The pandemic, lockdowns, unemployment, and healthcare problems have led to unique social and economic conditions. These conditions have modified the latest trends in education. COVID-19 has had great impact on the academic culture due to online teaching and learning methods. We identify some of the key factors including economic problems, changes in job market, modifications in family obligations, physical and mental health conditions, and overall insecurity and uncertainty in life. These key factors are causing a shift in educational preferences. A few recommendations are made to get out of the current dilemma. We use all the data collected by the American Physical Society statistics department [1].

**Identification of the Problem**

Physics has never been a very popular subject and has been almost accepted as a low enrollment discipline. Physics departments are relatively small departments and physics programs are smaller programs and have to be continuously watched and special recruitment tools are used.

(Masood, 2022)
Methods used to collect the most recent data and update the website

- IPEDS (Integrated Postsecondary Education Data System) is a system of interrelated surveys conducted annually by the U.S. Department of Education's National Center for Education Statistics (NCES).

- Selected data in IPEDS and put it into excel sheets
Updating the Überspreadsheet with 2020 data
Results: I generated 18 plots

- There continues to be disparities between demographic groups in higher education
Education Diversity and Inclusion (EDI) papers

A comparative examination of research on why women are more underrepresented in some STEMM disciplines compared to others, with a particular focus on computer science, engineering, physics, mathematics, medicine, chemistry, and biology.

Summary
In this paper, the experience of women or "climatized" and while some into STEM, women in science, disabled women are getting wrong of gender, to understand the.

Introduction

International Journal of Qualitative Studies in Education

Just what is critical race theory and what's it doing in a nice field like education?

Gloria Ladson-Billings

To cite this article: Gloria Ladson Billings (1998) Just what is doing in a nice field like education?, International Journal of Qualitative Studies in Education, 11:1, 5-24, DOI: 10.1080/09518399823963

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Making Black Women Scientists under White Empiricism: The Racialization of Epistemology in Physics

Chanda Prescod-Weinstein

Expanding and enacting transformative meanings of equity, diversity and social justice in science education

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Call to action

- The first step: check out the website!
- The second step in changing culture and the systemic issues we are facing is acknowledging that there is an issue.
- A third step is letting others know about the information.
Step three continued: letting others know about the information

- Implementing ways of welcoming marginalized groups in Physics and STEM and amplifying and listening to marginalized groups.
  - There are free resources for the physics community such as:
    - IDEA: Inclusion, Diversity, and Equity Alliance (APS)
References


The Rutgers Center for Minority Serving Institutions. “Rutgers GSE CMSI - What are MSIs? The Rutgers Center for Minority Serving Institutions, Rutgers University, 2022, https://cmsi.gse.rutgers.edu/content/what-are-msis. Accessed 20 July 2022.


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Summary slide

Background: APS, SPS, and other STEM organizations value diversity and inclusion.

Methods: making excel sheets and coding in Python to update the website.

Results: There continues to be disparities; the use of EDI papers to fill gaps.

Call to action: Identify disparities, share information, and implement EDI actions.