Let Us Build a Seamless Pathway from High School to PhD

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1. How to prepare high school students for college?

- Q: How to prepare high school students for college?
- A: They can take classes at community college or a university.
- A: They can take Advanced Placement classes that give them college credit.

- Q: How to prepare community college students for transition to a university?
- A: They can attend seminars and/or take classes at the university.

- Q: How to prepare undergraduate students for graduate school?
- A: They can start participating in research while undergraduate.
2. Our idea and our experience

- So why not combine all these transitions into some smooth pathway, when:
  
  - students from community college – and some even from high school
  
  - start getting serious research experience?

- This is what we have been doing.

- One of us (C.S.) leads an XAI Institute at EPCC.

- At this institute:

  - students get acquainted with the latest research trends, with an emphasis on research activities at UTEP and NMSU, and
  
  - can try their hands on related problems.

- This activity has already led to several dozen students who – after transitioning to UTEP – co-authored research papers.
3. Who helped us

- This activity has been helped:
  - by the Local REU (LREU) program started last year by Computing Alliance of Hispanic Serving Institutions (CAHSI) and
  - by local (El Paso) section and Southwest Region (Region 5) of IEEE, the world’s largest engineering professional organization.

- We even have high school students participating in this program.

- One of us (F.M.) has just moved from EPCC to UTEP and got support from both CAHSI and IEEE.

- He will talk about his experiences and his plans.
4. Why do we talk about this?

- Why do we talk about all this?
- Because we believe that this is the way to go.
- We want faculty from all the departments to help us build such a seamless pathway.
5. How audience members will be engaged?

- The attendees:
  - will learn about our activities and
  - will be – hopefully – inspired to emulate it in their disciplines.

- Our points:
  - This is doable – we had many students who went through this and succeeded.
  - This is helpful:
    * students get excited about research, and
    * this also makes them even more excited about classes that they need to take to be better in research.
  - There is assistance and support – we are sure that:
    * similarly to CAHSI and IEEE,
    * other professional organizations will help support such efforts.

- After all, these young kids are the future of all our professions!
6. Our plan

- Our plan is that after our short presentations, we will have a discussion.
- In this discussion, other participants will:
  - propose possible ideas,
  - inform others about successes and challenges (real and expected) of similar efforts in their discipline.
- And maybe we can come up with a joint plan to help each other, to learn how to overcome common problems.
7. **Summary: what will attendees know and/or be able to do after they participate in this session**

- **Attendees:**
  - will learn about our activities in designing a seamless research-oriented pathway from high school to PhD, and
  - will become inspired to emulate it in their disciplines.

- This is doable, and, in our experience, professional organizations can help.

- After all, these kids are our future!
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