ENGINEERING AND HR DEVELOPMENT: BUILDING TALENT FOR THE FUTURE

OCTOBER 7, 2016
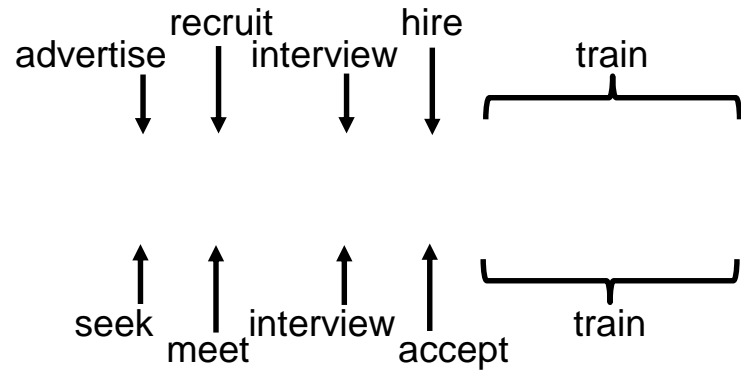
Edward Berger

Associate Professor of Engineering Education
Associate Professor of Mechanical Engineering
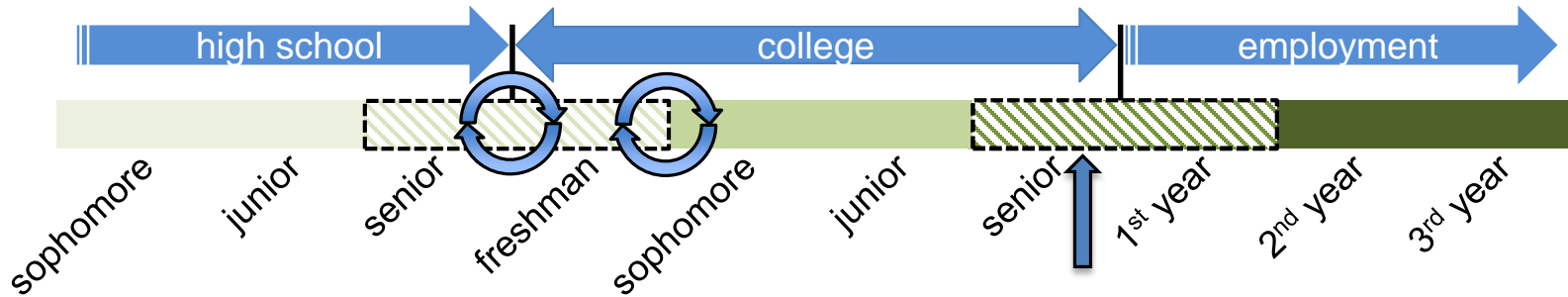bergere@purdue.edu

PURDUE
UNIVERSITY

THE ENGINEER DEVELOPMENT TIMELINE

STUDENTS UNDERGO A SERIES OF IMPORTANT TRANSITIONS

advertise recruit interview hire train

seek meet interview accept train

How can we manage this process to the benefit of:

- *Students, who are*: well trained both technically and professionally; confident and independent problem solvers; thriving both personally and professionally; deriving value from their work
- *Employers, who are*: seeing real value creation within their organization; employing technical professionals who 'fit' into their organization; optimizing their hiring process finances to experience more 'hits' than 'misses'

high school → ← college → employment

sophomore junior senior freshman sophomore junior senior 1st year 2nd year 3rd year

NSF RED: 5 years, $2M

NSF IUSE 'freeform': 4 years, $1.4M

NSF IUSE 'grit': 4 years, $2M

PURDUE UNIVERSITY

EXISTING RESEARCH: GALLUP-PURDUE

HOW DO GRADUATES "THRIVE IN THEIR WELL-BEING"?

Five dimensions of "thriving":

1. *Purpose*: do you like what you do?
2. *Social*: do you have strong and positive relationships?
3. *Financial*: do you effectively manage your financial life?
4. *Community*: do you like where you live, and are your engaged with the area?
5. *Physical*: do you have good health?

From the graduate's perspective, they are 'thriving" if:

*   *They feel engaged at work.* G-P shows that 39% are 'engaged', 49% are 'not engaged', and 12% are 'actively disengaged'.
*   *They feel their undergraduate experience prepared them well for their life outside of college.* The odds of being engaged at work are 2.6x higher if "college prepared me for life outside of college."
*   *They feel engaged at work.* Graduates who are engaged at work are nearly 5x as likely to be thriving on all five dimensions of well-being.

PURDUE
UNIVERSITY

THE KEY QUESTION

WHAT IF YOU HIRED ONE LESS PERSON PER YEAR WHO ENDED UP BEING 'DISENGAGED'?

We see incentives for both you (employers) and us (universities) to partner on an ambitious and unprecedented research project to answer this question.
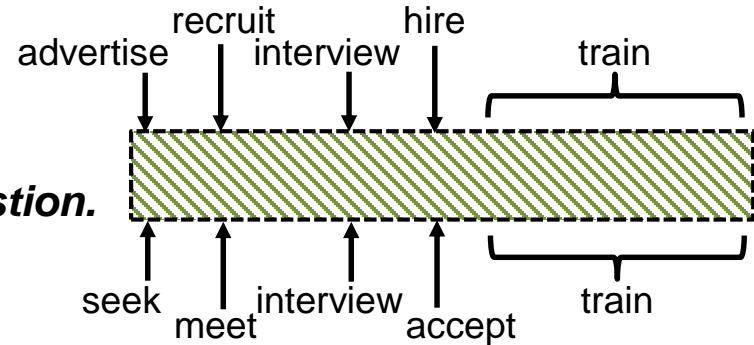
Open questions:

1. How do we structure U/I relationships that are focused around human resources development research questions (rather than about specific technical questions with IP)?

   a. To what extent do you possess "HR-related" IP?

   b. What investment would you be willing to make, and over what time scale would you expect a return?

2. What specific research questions, data collection approaches, and analysis methods would be required to answer this question?

   a. From a practical standpoint, what is possible in terms of longitudinal data collection?

   b. How do we navigate privacy issues around academic records and HR records?

PURDUE
U N I V E R S I T Y

POTENTIAL RESEARCH QUESTIONS

Potential research questions:

1. From the university's standpoint, what does it look like to "prepare students for life outside of college"? To what extent is this related to the curriculum? In what ways is this related to professional skills (communication, teamwork, creativity, etc.)?

2. What metrics or credentials, beyond the academic transcript, would be valuable in the hiring process to increase the odds of hiring a graduate who will be 'engaged'?

3. To what extent are current education, interview/hiring, and employee training practices promoting engineering as a career path for diverse students? In what ways can a U/I partnership across the school-to-work transition enhance diversity in the workforce?

4. In what ways are the industry's training procedures aligned with, and in what ways are they in tension with, what we teach and how we "do" at the university?

5. To what extent are the answers to these questions discipline- or industry-specific?

PURDUE
UNIVERSITY

Ed Berger (Engineering Education and Mechanical Engineering)
bergere@purdue.edu

Jennifer DeBoer (Engineering Education)
deboerj@purdue.edu

Jeff Rhoads (Mechanical Engineering)
jfrhoads@purdue.edu

PURDUE
UNIVERSITY