Impact of Significant Engineering Project Experience on Students' Post Graduate Career Path

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Research Scope

Analyze possible relationships between alumni's team based engineering project experience and their career history.

Data Sources

There are two critical data sources required to investigate the potential relationship between one's collegiate project experience and subsequent career path and growth. The first data source is the academic and co-curricular experiences, which are available from the University of Michigan SA03 Database and the MDP Student Participation Database. The second data source is alumni's career development data. For this data, the University's resources are limited. We chose to draw this data from LinkedIn.

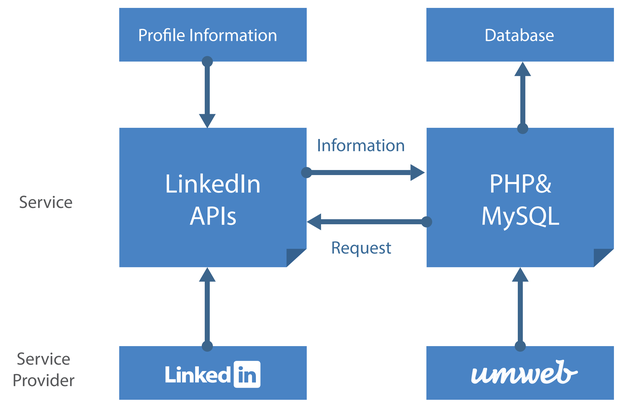
- Two data type we have

Linkedin API

SA03 Student Database
and
MDP Student Participant Database

- LinkedIn Data Collection Tool

— Platform

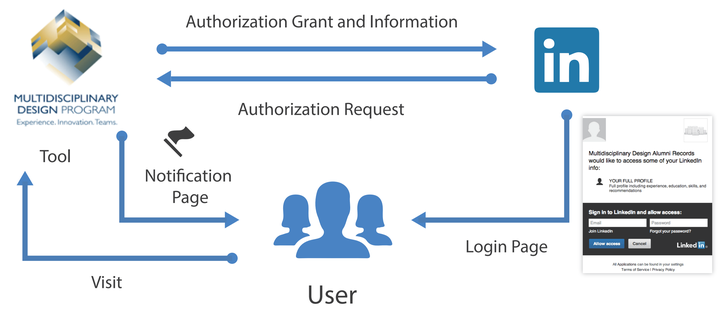


— Process

To Utilize Alumni LinkedIn Career Data

1. An invitation is sent via email to qualified alumni that includes our "Opt-In" LinkedIn Interface website link.
2. Alumni click on that link, arrive at our LinkedIn authorization page, and grant permission for us to utilize their self-reported career information from their LinkedIn page.
3. Our website returns a notification page to Alumni.

Process Instruction Graph



Data Preparation

- Build up link

We can link two pieces of information by matching name, degree information and graduation date.

- Define Variables

Individual Salary I

Given the ability to pull Title, Position Summary and Company name from alumni's LinkedIn profiles, we are able to synthesize this data with a corresponding salary as reported by www.Glassdoor.com. We are also investigating other sources for this type of data.

Individual Salary II

We derive the estimated salary for the individual and then evaluate the relative position of this salary, adjusting for industry standards and location.

We are able to research industry's salary tiers utilizing information from www.Salary.com. With this data, we note the 10%, 25%, 50%, 75% and 90% percentiles of that role within their industry.

Promotion

In prior research conducted, promotions were usually defined as "any increases in level and/or any significant increases in job responsibilities or job scope" (Seibert, Kraimer, & Liden, 2001) along with a "change in compensation grade level and an increase in responsibility and status"(Markham, Harlan, & Hackett, 1987).

There are two examples of self-reported LinkedIn data which indicate an individual has received a promotion. First, if the person lists two or more positions and these positions are in the same company, we conclude that this person has received a promotion. Second, if an individual begins a position with a new firm/organization, we assume this individual has also received a promotion.

Career Success

During this research, we would like to classify alumni into several career success level categories. This would help us grossly evaluate the relationship between career success and collegiate project experience.

Currently, we will use a subjective method to cluster individuals by their career success. We have defined four groups for salary level based on industry and location. We assigned each of these group relative scores as outlined below.

Salary Score

Salary as % of Industry Range	Less Than 25%	25%-50%	50%-75%	Above 75%
Score	-1	0	1	2

Promotion Score

Number of Promotions	0	1	2	>=3
Score	-1	0	1	2

★ Career Success Score =70% Salary Score+30% Number of promotions

Definition

Career Success	<0	[0,1]	>=1
Definition	Less Successful	Successful	Highly Successful

Other Variables

We also define "other variables" such as: 1. Years in the workforce, 2. Age, 3.The number and the cumulative GPA of course projects, 4. Other demographic variables.

Hypotheses

We propose the following two hypotheses:

1. The number of hands-on projects (or semesters of experience in hands-on projects) is positively related to salary, promotion, and career success
2. GPA of these courses is positively related to salary, promotion, and career success

Method

We will use hierarchical multiple regressions to assess the contribution of course projects to career success after controlling for the relevant variables.

Constraints and Future work

An effective study on an individual's career can last multiple years and the Multidisciplinary Design Program is four years old. Right now, we have a limited number of qualified alumni in the workforce available to provide feedback.

In the future , with a large enough dataset, we would like to apply cluster analysis techniques to define differentiated career success categories.