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Changing the World of Higher Education: Creating a Student Capital Management System

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Abstract

Higher education is plagued with new concerns regarding government oversight and the college “rating system” that will hold schools accountable for student outcomes. This research supports the development of a student capital management system (SCM) that controls and protects student information while ensuring student outcomes data quality. Presented is an empirical model that connects colleges to the business world, while allowing higher education to access student data after they graduate. The first phase in developing a secure validated network of student data is the connection with the workforce and to the government in a system that offers granular access to the student and aggregate data to the other entities. This research presents the findings from the classroom action research project in two marketing classes where efforts assisted in promoting this cause.

I. Research Problem

Control and access to information will determine how markets develop and compete in the digital economy. As technology becomes ubiquitous, technology related privacy and security policies are underdeveloped and unregulated in every industry (Brennan, & Macauley, 2010). Developing an integrated system that protects individual’s privacy and security is complex. Who should be responsible for information: companies like, Google, Apple, Monster, Disney, Amazon, or the federal or local government? These options may seem unfavorable to most, but without structure around what information can be collected and shared by whom, it is impossible to protect society and insure information privacy.

How do we secure student information while still having access to data to improve the decision process? The only rational explanation is to develop a mature portal system that collects information in such a way that the individual has control over their own information and how it is shared. The system needs to allow access to specific information in some instances and aggregate information in other instances. There is an increasing desire for access to real-time data for decision-making. Data needs to uncover trends based on longitudinal information, while maintaining accuracy and privacy.

There are several government initiatives that have started to address data collection with regards to student data. Each of these organizations in the following paragraphs are working to develop a system that will provide better tracking for decision-making, but lack an integrated perspective that is fully functional. Furthermore, each initiative is

seeking to change the process of higher education instead of incorporating the current structure used by most colleges.

One of the largest government initiatives is the Data Quality Campaign (DQC), which is assessing and developing a state-based system that will link state K–12 data systems with early learning, postsecondary, workforce, and other critical state agency data systems. It will implement policies and promote practices to build educators' capacity to use data (DQC, 2015). Even though more than 88 non-profit organizations are working on this process, and DQC has been moderately successful in some states, it lacks the overarching presence to become the standard. Furthermore, this DQC initiative makes intrastate communications and information sharing next to impossible to manage.

The National Center for Higher Education Management Systems (NCHEMS) has a state-based system called the Center for State Policy on Student Progression (C2SP). This center provides a central resource for policy makers to understand and shape increasingly complex patterns of student flow into and through postsecondary education in order to maximize educational attainment and employment for students drawn from all income and demographic backgrounds (NCHEMS, 2015). C2SP is working on making student unit records (SUR) available for better student tracking access. Unfortunately, this organization focuses on students attending college and is not particularly focused on the transition to the real world. C2SP is also attempting to set up systems that operate in each state. This method is not forward thinking and it still has the government oversight; making the implementation of it's projects faulty and ethically unappealing.

The Department of Education has also initiated a program called the College Scorecard. According to an article published on ED.GOV in 2014 "College Scorecard, we need better information, tools, and resources to help students and families select schools that provide good outcomes at an affordable price. Without this, there is insufficient incentive within the higher education marketplace to offer a quality education at a lower price, or for low-performing institutions to improve."(2.ed.gov, 2014). This College Scorecard project is not highly supported by higher education institutions because it limits academic freedom and controls the structure of the college environment. Furthermore, colleges do not have the access to the information that is being reported on their institution until after the government compiles it. The method leads to misconceptions, incorrect data and a general lack of understanding about a process that was supposed to provide transparency.

The Scorecard is developed as a portal, designed for the College Affordability and Transparency initiative. The Scorecard has information designed to help prospective students select colleges. The data presented about each college is derived from the Postsecondary Education Data System (IPEDS). The career salary information about the college graduates is collected as a 10-year average based on financial aid data (Blumenstyk, 2015). The research posits that college outcomes on these measures will eventually be correlated with financial aid funding for the colleges and universities. Using student financial aid data to calculate salary data is incomplete and skewed because not all students, and typically the best students do not need financial aid because they will be given grants and scholarships. The intention of the College Scorecard, to

provide transparency to prospective students is a good one, however, the process of data collection needs to be controlled by the colleges and universities.

To further illustrate the notion that financial aid disbursements to non-profit colleges might be in jeopardy based on the student outcomes data, one would just need to review the Gainful Employment Act that was enacted July 1, 2015. This enactment states that for-profit colleges cannot offer loans to students that exceed 20% of discretionary income or 8% of the total earnings. The government collects salary information through the Financial Aid Loan process. This process is enacted to ensure performance, but Arne Duncan, U.S. Secretary of Education states these are only the beginning steps in the process of improving student outcomes and access to information. It is clear that these are the DOE intentions: to overhaul the education process. Schools could be held accountable for things that are not the fault of the program, such as a student choosing not to work or the flawed data collection of only looking at students who need financial aid. These discussions should be a red flag to the higher education industry and a need for a more directed study about how this governmental oversight is developed.

The Lumina Foundation is also working on a credentialing system (Lumina, 2015). This system has an education framework that is attempting to match learning outcomes with needed job skills. This process is being developed from the workforce perspective and is missing the connection to higher education. Furthermore, there is no true connection with a method that enhances the current operation; it is more of a disruptive force. Many organizations are attempting to change the current process of teaching and learning into a transactional process. For-profit organizations like LinkedIn are also seeking to capitalize on transaction-based learning with the acquisition of Lynda for \$1.5 Billion (Silverman, R.A., & Waller N., 2015).

Finding a solution that is networkable is recommended, since this offers individualized control by the higher education institution and protects the student. Having the government control access is not going to lead to improvements in the college setting. Having for-profit organizations like LinkedIn controlling the learning environment is going to lead to more degree mills and less quality in academia. Higher education, collectively, needs to provide a more functional role in career placement for graduates. Providing a student capital management portal (SCMP) maintained by each college, supported by businesses can offer benchmarks to the federal government, which would ensure the traditions and quality of each independent institution. Student information would be managed individually in the portal. This model also aligns with the current IPEDS practices and provides more transparency to prospective students.

Colleges who have access to longitudinal data are able to update the content of the degree programs. Colleges who stay engaged with students as alumni have better career resources.

Careers and higher education have been a major topic of debate in Europe since the 1960s. Teichler (2015) discusses these topics based on three themes; the quantitative-structural theme, the functional discourse theme and the substantive theme. These

interrelated controversial keys can be addressed as part of this research. Teichler's findings support the need for an integrated design that allows collaboration and communication between business and higher education.

The quantitative-structural theme pertains to having the correct amount of individuals to fill the correct amount of jobs. The best measure of these data comes for the business sector and information that is reported and collected by the Bureau of Labor and Statistics. Unfortunately, missing data pertaining to degree completion makes this number an enigma. Having better access to the number of students in relation to careers would be helpful to inform conversations pertaining to the quantitative-structural theme.

The functional theme pertains to higher education's role in graduate employment and job-preparation. The conflict in this key issue is control of the employment system where there are conflicting opinions. One option states higher education should support businesses and graduate employment. The other option is higher education should challenge current business practices (Teichler, 2015). Still another opinion would pertain to government control of employment and job-preparation. This notion would be challenged in academia. The third theme, substantive discourse has to do with the specific tasks and job performance and how these actions are learned. Substantive discourse is beyond the scope of this research, but may later be supported when the SCMP is further developed.

This system automation could help match more students with the best career path based on student interests, geography and individual skills sets. In the past, hiring young people meant employers would discriminate based on the signaling model of education (Weiss, 1995), or discrimination (Lundberg, & Startz, 1983). Now hiring decisions can be made based on input from the colleges, based on specific knowledge obtained down to what was covered in specific course. As the system is developed, colleges can start to collect and manage the needs of their students in relation to the career paths of the program.

II Data

Current process

Currently, in the non-profit sector the degree to workforce system is not effective in helping students find jobs, or in protecting the student data. Students spend numerous hours filling out job applications online for an endless number of job boards, some of which are developed just to collect student information with no intention of offering the student jobs. Job boards are flooded with unverifiable data making them inefficient and a poor example of data quality.

Colleges lose track of students after they graduate. Resources and time are spent to try to obtain information about what happens to the graduates by alumni offices. If there was a better connection between alumni offices and the career centers in colleges. Some of the alumni resources could be used to help with career opportunities for students.

The College Scorecard enacted this year shows real action by the government to start to control and organize information regarding student outcomes. If the government controls this information, it will not be collected properly and the students' information will not be secure. The colleges need to be involved with the development of the system, to ensure the data is functional and protected.

Data collection

A beta version of the student capital management portal (SCMP) called Degree2Career.org was empirically tested as an integrated system that will provide control and access to the colleges, career information to students and a reporting mechanism for DOE. The project will help students who are seeking employment by providing job opportunities. Students and graduates will update this portal system when they are seeking internships and/or careers for life. The Degree2Career organization will work with each student to help provide career counseling and resources to jobs. This process is running manually in the beta version, but will be later automated based on student, college and industry inputs.

Later versions of the database will be developed with each college domain and the portal will be designed to fit the needs of each college. The student will be able to toggle on and off access to specific pieces of information about themselves to the job market they specify. Colleges will still be able to utilize the student information in the database unless the student completely removes their record from D2C. The aggregated student data will update benchmark reports for the IPEDS system. This internal access to student and graduate data by the colleges will be used to improve quality in degree programs. Furthermore, the colleges will protect students' information from access to unscrupulous organizations during the job search process.

The IPEDS system is built using Taylor Series Linearization. Degree2Career (D2C) will use this process to integrate the college information with the IPEDS system and to help the colleges discover trends in the career datasets. D2C is in the process of integrating with the Program Participation Agreement (PPA) that exists between each college and the Department of Education. Working with each school, based on the 8-digit Office of Postsecondary Education Identification (OPE ID), the OPE ID information could be requested as part of this reporting process (NCES, 2015). These accurate data inputs can then be imported into the Scorecard, improving access to information for prospective students while giving the colleges better access to longitudinal career information on their degree programs. This process will provide transparency and accuracy to the colleges while meeting the government's need for data collection. The student information will be safe from government control.

Each OPE ID (Title IV participant) will have a portal in D2C that will allow access to these data on the individual student level, allowing for degree program enhancements. The government will not have access to individual student data, but will be able to pull in aggregated data from this system. The college will have access to build in systems that

will assist current students with career planning. The colleges can add career resources, and other types of training programs to this portal based on need. These customizations will be developed and managed by D2C.

Businesses will have the opportunity to post job information into D2C based on type of student, particular college, or post to all students in the system. The businesses can also have access to student information (only for the students who have allowed personal information to be released). Students will have access to manage their profile on the granular level to this population.

III Results

The researcher worked with 40 students on the Degree2Career project. Even though the task was daunting at times to coordinate because the project ran in two separate classes. Students sought more direction than expected in the beginning but the project was seen as a success for the cause, for the students and for the professor.

Students were asked to solicit volunteers who were seeking jobs to participate in this project, as part of a sales and marketing project in the classroom. Students were also asked to promote the cause; colleges should develop a student capital management system that offers career placement for graduates. Those with interest were asked to complete a profile and then the professor and a few students helped those individuals find jobs. This completed Phase I of the project; which was developed mainly to give the students the opportunity to promote and market a cause as part of a real world experiment.

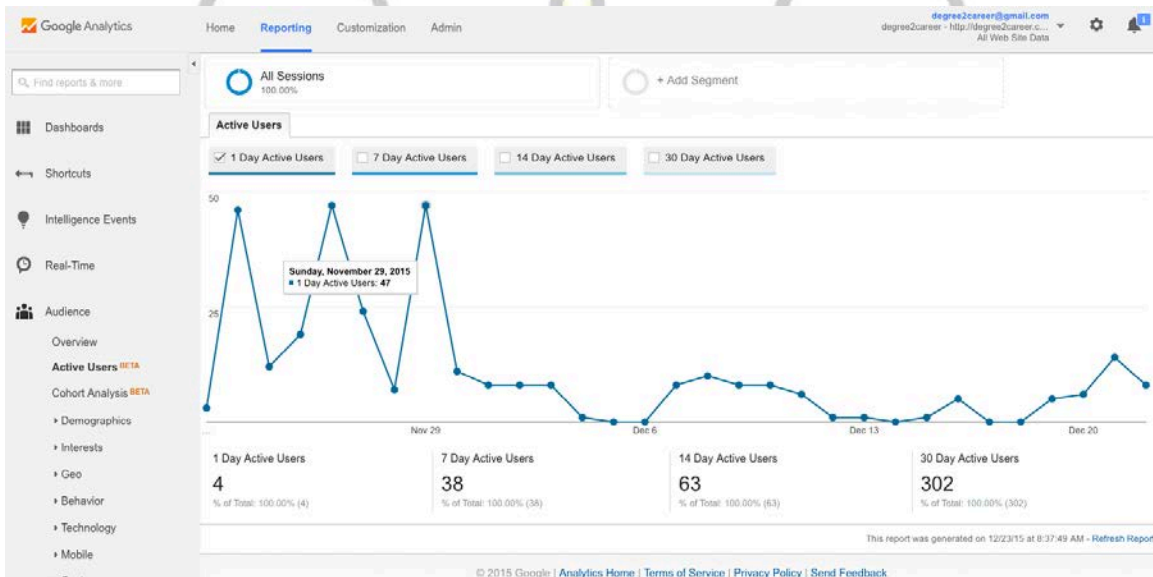
Degree2Career had 200 active profiles from at least ten colleges by the end of the term. This number does not accurately reflect the effort that the students offered on this project. Through their work over 15 weeks students began to understand the complexities of creating, running and monitoring a marketing campaign for a very needed cause. They worked in teams and leaders were hired based on specific skillsets.

Phase I also allowed for the website called <http://degree2career.com> and the profile to be developed and modified based on feedback from the team. Several iterations of profile questions were tested and developed throughout the course. Students had the opportunity to market a cause that they believed in and that was paving the way to a career by building skills.

The screenshot shows the Degree2Career website. On the left is a user login form with fields for Username and Password, and links for 'Create new account' and 'Request new password'. The main content area is titled 'Improving the World of Higher Education' and contains a blue link: 'CLICK HERE TO CREATE AN ACCOUNT AND BEGIN THE SURVEY'. Below this is a paragraph of text explaining the survey's purpose: 'Degree2Career is offering this voluntary survey; which will collect information about college graduates including expectations, career aspirations and degree program effectiveness in preparing students for the job market. The survey results will be used to improve the ongoing process for degree program development in colleges and universities. This research will also support the College Scorecard program being enacted by the Department of Education and the Data Quality Campaign; which was developed to improve access to national information for better decision-making. Wilkes University students are collecting these data as part of a pilot program, which will provide an opportunity for students to develop business skills while they learn to sell, and market this cause-higher education should be more involved in career outcomes for students.'

The Degree2Career program is overseen by Dr. Kathleen Houlihan.

In Phase I of this project students also developed social media sites for degree to career including creating YouTube videos, Facebook, and twitter accounts. The students wrote content, developed campaigns, and tracked user engagement. The students were able to increase site traffic up to 47 users on November 29, 2015.



The feedback from the students about this course format was very positive. They embraced the need for this SCM system. Students interacted with the data and developed URLs that connected with the cause. They had the opportunity to provide constructive feedback to classmates and even had the opportunity grade their classmates' performance. The work was collaborative and meaningful because the students wanted to see this idea come to fruition.

IV. Conclusions

There is an enormous opportunity to develop an effective Student Capital Management (SCM) system, which could serve as the pilot for our nation. The system will connect college graduates with appropriate jobs in their field of interest while allowing the colleges to obtain longitudinal outcomes data on their students. This SCM will provide a secure validated network of longitudinal student data that can be controlled on the granular level by the student. Furthermore, a SCM will alleviate the buying and selling of student data and improve the hiring process for all companies while cutting costs for everyone. Using this process, companies can obtain qualified leads for existing positions within their organizations. The companies will also have a closer connection to the colleges for collaboration and program development.

Government officials can utilize the aggregate data as part of the College Scorecard to assess college performance and provide insights to prospective students regarding student outcomes for specific programs of study.

Consequently, this SCM will work in conjunction with government, higher education and businesses to effectively improve the student capital management process, first in PA and then nationally. This project aligns with several government initiatives by providing collection, security and access to data.

The D2C system will provide more information and a better process for student engagement. It will also give schools better access and more information to improve operations before government funding is jeopardized by looming recommendations that will disrupt the entire system, similar to the new healthcare regulations. Elected officials from both sides lobby for changes in education, so taking a hands-off approach is not recommended. Developing this system before it is required is the best approach. How the system is developed will take more than the opinions of the researcher and will take the efforts of the entire higher educational system.

System integration of this magnitude will help colleges stay relevant while compiling information of verifiable student data for more advanced program development. This process will protect the student while it enhances the marketability of each organization specifically and generally help to answer the age-old question, does the price of a college education offer a significant ROI (Walsh, 1935). The system can be designed to fit the needs of the college, right down to the needs of each department. For those divisions that offer more opportunities for advanced research, this system will be connected to all of the colleges so helping to build connections for research opportunities can also be realized.

Even enhancements like professional references can be added to the functionality of the database. The financial savings and time savings that Degree2Career will offer can change the world of higher education, positioning each organization in their own deep-rooted values while embracing the advanced design of access and control of information.

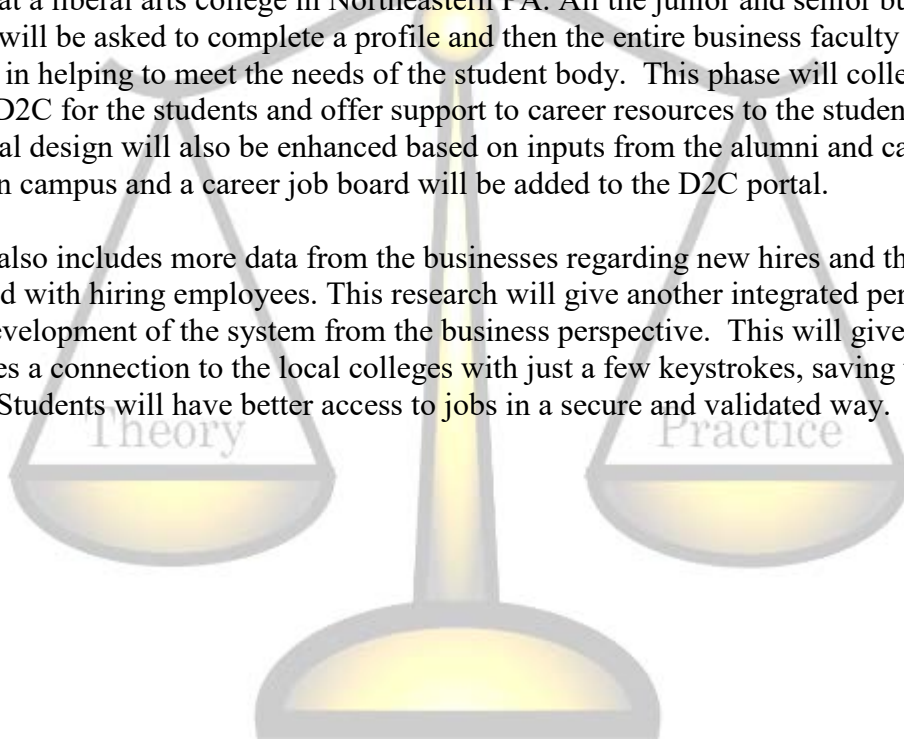
The Degree2Career cause gave students the opportunity to work on real world project that directly impacts the needs of the students right now as they develop. It gave the researcher access to resources in the form of apprenticeship so students could participate in an action based research project.

V. Future Research

Working on this plan has provided numerous challenges and opportunities. Support from the colleges, students, government, businesses and other non-profits have been insurmountable. Efforts are on going to find the best method of developing a student capital management system that will provide a secure validated network to student data.

This project has moved now into Phase II, which is integrating the inputs for the entire campus on how to improve the career resources and faculty access to career information for alumni. In the spring 2016 term, this technology will be piloted to the senior business students at a liberal arts college in Northeastern PA. All the junior and senior business students will be asked to complete a profile and then the entire business faculty will get involved in helping to meet the needs of the student body. This phase will collect inputs through D2C for the students and offer support to career resources to the students. Functional design will also be enhanced based on inputs from the alumni and career offices on campus and a career job board will be added to the D2C portal.

Phase II also includes more data from the businesses regarding new hires and the costs associated with hiring employees. This research will give another integrated perspective on the development of the system from the business perspective. This will give businesses a connection to the local colleges with just a few keystrokes, saving time and money. Students will have better access to jobs in a secure and validated way.



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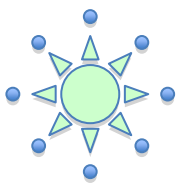
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Degree2Career Improving Higher Education

Higher Education Benefits

1. Portal System (networked with colleges and businesses)
2. Colleges own student data
3. Access to longitudinal data
4. Degree enhancements
5. Viable job opportunities for students (internships) and graduates

Process

1. Introduce in FYF - student will create a profile for life – (connection with college for life)
2. Continue PPD (Career office)
3. Alumni Office
4. Portfolio can be recorded
5. *Colleges will pay for the service (grant opportunity)*

Benefits of this process

1. Improved Retention - early discussion about careers
2. Integrated with current operation
3. Enhanced Alumni Giving - “we care after you leave”
4. Improved relationship with students and alumni
5. Portal can be enhanced based on school needs (leadership, skills training)

Business Benefits

1. Business will have access to permitted student records
2. Business will not need to pay to post jobs, moving it to the top of the list for adoption
3. Business will be able to target the right individuals
4. Businesses will be more engaged with higher education and can provide process improvements
5. Access to integrated forward-thinking services

Process

1. A job board will be created
2. Jobs and internships can be posted for free by businesses
3. Students who want to permit personal access to businesses will manage this through the portal (*fee service for business*)

Benefits of this Process

1. Process is forward thinking
2. Portal can be enhance (Skill Survey)
3. References
4. Common Application

Department of Education Benefits

1. D2C process aligns with College Scorecard
<http://bit.ly/1j9ZNZ9>
2. Creates better access to student data for high school student decision making
3. Aligns with the Data Quality Campaign (national initiative)
4. Data will be collected and analyzed using the same process as other IPEDS data reporting

Process

1. In the 2015-16 year colleges are responsible to start collecting student outcomes data
2. Since this is a new standard, rules are undefined allowing the D2C project to set the standard
3. Information will be compiled and sent for each institution by D2C (Grant Opportunity)

Benefits of this process

1. Prospective students will get the information they need, but government will not “own” student data - the Colleges will.