PROJECT CLICKTHROUGH: CONNECTING IT, DECISION SUPPORT SYSTEMS, STRATEGY, AND MARKETING

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ABSTRACT

This paper describes an integrative, experiential assignment designed to teach IT and IT strategy principles using Google Adwords and Google Analytics services. The project allows instructors to introduce and connect a wide range of concepts including IP networking, online advertising networks, and the alignment of IT and organizations strategy. Student feedback has been positive and points to an enhanced ability to see the big picture and identify critical relationships, patterns and trends. The classroom assignment, example projects, and lessons learned are described.

Keywords: IT strategy, Advertising and Promotion, Project Management, IT concepts, Search optimization, Marketing

INNOVATION SUMMARY

Most students in graduate business schools must take a course with learning objectives that address using information technologies (IT), including decision support systems and aligning IT policies and procedures with an organization's strategy and goals. Students not pursuing IT-related careers struggle to learn these concepts when they perceive them as irrelevant to their future job roles. Through case studies, discussions, and exercises, students can learn how to use IT systems and how organizations have benefited from aligning IT practices with organizational goals. However, simply learning how to use IT tools and how others have benefited from using them is likely to be insufficient to spark their interest and to support the development of the

competencies and self-efficacy necessary for them to apply their knowledge to problems outside the classroom. To address this problem and solidify the acquisition of their knowledge, students need experiential opportunities to apply their new knowledge to non-classroom problems with the support of an instructor and a classroom environment.

Project Clickthrough provides a framework for a problem-centered, experiential learning experience where students can address real-time, multidimensional problems that provide them with highly effective learning experiences that cases or simulations cannot. Project Clickthrough's problems are always new and the solutions affect real organizations. It allows instructors to adapt classroom resources and instruction to address problems students are facing in the real world. For example, depending on problems (and opportunities) students encounter, the instructor might introduce lectures on how data flow through the Internet, click fraud, denial of service attacks, information security, online advertising networks, market mechanisms, online privacy, social networks, search-engine optimization, business intelligence, decision support systems, aligning IT and organizational strategy, and many other topics. In addition, as students are required to identify and retain a real-life client for their project, they practice and develop interpersonal skills including client and expectations management.

INTRODUCTION

Most students in graduate business schools must take a course with learning objectives that address using information technologies (IT), including decision support systems and aligning IT policies and procedures with an organization's strategy and goals. Students not pursuing IT-related careers can struggle to learn these concepts because they perceive them as irrelevant to their future job roles. Through case studies, discussions, and exercises, students can learn how to use IT systems and how organizations have benefited from aligning IT practices with organizational goals. Traditional methods might be sufficient if the goal was to prepare students for a standardized examination, but this is not so for more and more instructors success is measured by their students' ability to apply their learning from the classroom to the increasingly complex workplace.

Students can come to see the traditional methods of instruction as busy work because the class before them "solved" the same problems and the class after them will "solve" the same problems, which can lead to less learning (Dunlap, 2005). They are working through preprogrammed exercises whose "solutions" are known and irrelevant. Learning how to use IT tools and how others have benefited from using them to solve problems that others have solved is insufficient to support students' development of the competencies and self-efficacy necessary for them to apply their knowledge to novel problems outside the classroom. Traditional methods can support the acquisition of low-level skills, but they do not prepare students to solve novel, ill-defined "real world" problems that require the application of multidisciplinary perspectives as well as creativity. As has been found in other areas, by encountering and overcoming obstacles in the application of principles and practices from the classroom, students actively learn lessons, and solidify the acquisition of their knowledge (Felder and Brent, 2003). In short, students need

opportunities to apply their new knowledge to real problems, but with the support of the instructor and opportunity for reflection provided by the classroom.

Project Clickthrough provides a framework, along with the tools they need for success, for a problem-centered learning environment where students encounter real world, multidimensional problems that provide them with learning experiences that cases and simulations cannot. Unlike cases or exercises, the problems and solutions in Project Clickthrough are always unique, and most important, reflect the input of real managers and affect real organizations. The diverse nature of problems encountered in Project Clickthrough allows instructors to adapt the support materials (cases, exercises, etc.) to address learning needs relevant and important to the students. For example, depending on the problems encountered, the instructor might introduce lectures or provide resources on how data flows through the Internet, click fraud, denial of service attacks, information security, online advertising networks, market mechanisms, privacy, social networks, search-engine optimization, business intelligence, decision support systems, aligning IT and organizational strategy, and many other topics.

Student Population

Ninety-two MBA and MS students at one university and 15 MBA students at a second university have completed Project Clickthrough, resulting in a population of 107 students. Instructors have adapted the project to fit in 16-, 12-, and eight-week terms. The following results indicate that the project has worked well with graduate students. In the authors' opinion and experience, nothing would prevent it from working just as well in an advanced undergraduate course.

Objectives

The primary objective of this project is to provide students with a real world, problem-based learning opportunity requiring multidisciplinary teams to integrate multiple sources of information and develop a solution that balances competing priorities in a dynamic, constrained environment. The project allows students to experience the challenges and opportunities that organizations face when trying to leverage IT to support organizational goals in a way that cases and simulations cannot. In addition, it familiarizes them with the interactions among new decision support systems, online advertising networks, website tracking tools, spreadsheets, and presentation tools. Students work in teams of four or five for this project and learn with and from other teams through making real time decisions and preparing intermediary and final reports. The high-level learning objectives listed below guided the activity.

Upon completion of this assignment, students will be able to:
- Demonstrate the ability to integrate information from many decision support systems and produce a coherent analysis.
- Demonstrate the ability to use many decision support systems to make appropriate decisions and recommendations based on an organization's goals.

Literature

Student can learn about the challenges associated with solving complex problems by reading cases, participating in simulations, and solving textbook problems (Anderson & Lawton, 2009; Smith-Daniels & Smith-Daniels, 2008; Walker, 2004). However, these methods have shortcomings, which include: 1) experiences are limited to those prepared by the instructor, 2) artificial problems can limit student engagement and, 3) surprises intended to inform students can be compromised by class graduates (Prince & Felder, 2006). Project Clickthrough is a problem-based learning exercise that addresses the shortcomings of existing methods. It requires students to integrate multiple sources of information and develop a solution for a real organization's problems that requires seeing the big picture, identifying critical relationships, patterns and trends and balances competing priorities.

Innovation

Project Clickthrough is unique because it provides a multidimensional problem-based learning experience that exceeds what cases or simulations can provide. This is because the problems are always new and the solutions affect real organizations. The diverse nature of the topics encountered in Project Clickthrough allows instructors to provide learning support materials (cases, exercises, etc.) relevant to students' learning needs. For example, the project could support students learning how networks operate, click fraud detection, security, online advertising networks, market pricing mechanisms, privacy, social networks, search-engine optimization, business intelligence, decision support systems, and aligning IT and organizational strategy.

IMPLEMENTATION

The project is introduced to students during the first class. As homework during the first week, students view web tutorials explaining how online advertising systems work (https://adwords.google.com) and how web-tracking systems work (http://www.google.com/analytics/). They are encouraged to begin questioning potential partner organizations about their willingness to participate in the project. By the third week of class, they form teams and submit a list of potential partner organizations. Projects can focus on increasing awareness of the organization or an event, generating sales leads, promoting a product for purchase offline, promoting the sale of a product through a website, or other goals of the organization. The instructor must approve the project proposal before students can begin their work. By the end of the fourth week, students submit a statement of work that has been approved by the sponsoring organization. Next, students set out to learn about the organization's strategic objectives, develop a profile of the targeted customers, and identify search terms that match their project.

Before collecting data, students view online tutorials from Google and work through exercises using Microsoft Excel. This provides them with the ability to export data from Google and prepare it for the report using Microsoft Excel and Microsoft PowerPoint. Although online advertising and website tracking tools are not the focus of the exercise, students have commented that they appreciated gaining insight into how the tools they use daily sustain themselves.

After establishing the project this way, students complete the following steps outside of class:
1. Using the identified search terms, conduct searches using google.com, yahoo.com and msn.com and record the page ranking that the campaign targets. For example, using Google and searching on the words "boat dealer," the company's site was the twenty-fifth listing in the search results. They repeat this step with three search engines and record the results in a Microsoft Excel workbook.
2. If the organization does not have website tracking enabled, they set up an account with Google Analytics and work with the organization's webmaster to add the tracking code to the relevant webpages.
3. After recording a month of website traffic data, the team begins an online advertising campaign using a service like Google Adwords (https://adwords.google.com). This campaign can have a preset spending limit of as little as $30.00.
4. The team manages the advertising campaign for one month. The advertising campaign must have at least three advertisements and use at a minimum 10 search keywords. Each team is responsible for monitoring and adjusting the advertisements and the keywords.
5. The campaign is ended after one month at which time the teams repeat step one and record the new search rankings.
6. Each team must develop oral and written reports describing problems encountered, solutions developed, and results of the efforts. The written report should expand on the topics touched on in the oral presentation. Reports are due at the beginning of the class during which the presentation is scheduled. The report should not exceed ten pages (double-spaced, 1-inch margins, 12 point Times New Roman) excluding any appendices. At least one appendix should include the results of steps one and five and a table showing all keywords used and the corresponding number of clicks generated by each keyword. For each visit that resulted from an advertisement click, students should record and report the visitor's geographic location, referring site, and time spent on the site. The oral presentation is limited to twelve minutes for each group.
7. Finally, students submit a peer evaluation describing the contributions of each team member.

Student are encouraged but not required to use Google Adwords and Google Analytics. Adwords is Google's system for delivering advertisements across a range of devices and websites. Anyone can set up and manage an Adwords account, and create text or graphic advertisements that link to a website. Advertisements are associated with keywords and are displayed when someone searches for one of the associated keywords or visits a website associated with one of the keywords. Google Analytics is Google's service for tracking activity on a website. Like Adwords, it is free and accessible through a web browser.

EFFECTIVENESS

Project Clickthrough provides students with an authentic, multidisciplinary, problem-based learning opportunity that cases and simulations cannot replicate. Students have responded positively to the project. They can use tools they know (MS Excel and PowerPoint) and some they might not have considered using such as Google Trends, a tool for seeing how search terms

are trending over time. While students understand online advertising because they see it every day, most students do not understand the business models sustaining search engines and social networks at the beginning of the project, but they gain a better understanding of them because of this project.

Student comments have been positive.
- "This is an extremely valuable project."
- "The experience of establishing and seeing the first-hand results of our efforts demonstrated how technology can be used to increase consumer interest in a company's website and direct users to perform actions that they might not have performed otherwise."
- "The Internet opens up new avenues for serving the needs of an entirely new group of customers."
- "Seeing how effectively we could leverage IT to improve and/or create a completely new model for the business."
- "This is another example of how IT is an important part of a company's overall business strategy."
- "The most important result was the insight our team gained about potential clients."
- "This project has helped spark new life into the company."
- "These tools are valuable and practical for any company that wants to unleash the full potential of its website."
- "This project gave us a real insight into to the services that are important to potential customers."

In addition to students' comments and instructors' perceptions of effectiveness, team written and oral reports were assessed using a rubric based on the two learning objectives. The first objective evaluated was: "Demonstrate the ability to integrate information from many decision support systems and produce a coherent analysis." Students were able to demonstrate competence in this area. Ninety percent of student work products included evidence demonstrating this competence. The usability of Google's reporting tools probably contributed to this outcome. One student reported: "All reports were very intuitive and clear. If there was any confusion, Google provided us with help pages explaining all tables and charts." Also, no work products contained evidence that students experienced difficulties articulating their organization's goals.

The second objective evaluated was: "Demonstrate the ability to use many decision support systems to make appropriate recommendations based on an organization's goals." Student did not perform as well on this objective. Only 68% of student work products included evidence demonstrating this ability. Most teams that experienced positive results from their campaigns could make appropriate recommendations for building on their success. This was not universal. Some teams found success, but failed to make recommendations tied to their organization's goals. The most common reason teams failed to achieve the second objective was due to a poor understanding of an organization's long-term goals. Other teams failed because they chose goals incompatible with what the technology could support (for example, an increase in airplane part sales). The failures made for great teaching moments and class discussions.

TRANSFERABILITY AND IMPLICATIONS

Project Clickthrough addresses the shortcomings of traditional instructional methods while providing sufficient structure to accommodate the needs of instructors and students working in term-based university environments. It provides students with problem-based learning opportunities where they work in multidisciplinary teams and use decision support systems to develop a recommendation that aligns an organization's IT systems with its organizational goals. In addition, it provides students with the opportunity to interact with a real world manager and practice client management skills. Each team's recommendations are unique and potentially useful to an organization outside the classroom.

Project Clickthrough has been used successfully for more than four semesters in 16-, 12-, and eight-week terms. Students in online courses can complete it. The size of the surrounding population does not limit the feasibility of executing the project. In settings with fewer potential business partners, academic programs, athletic programs, and campus organizations can substitute for businesses without compromising student learning. Students of all disciplines understand the relevance of this project in part because online advertising is ubiquitous. The project allows instructors to introduce many concepts including networking, online advertising networks, and the alignment of IT and organizational strategy.

Instructors in classes such as information systems, marketing, decision sciences, and capstone classes can use this exercise. By changing the advertising outlet from search engines to social networks, the project can be adapted to support learning objectives related to social networks and online messaging platforms supported by other advertising methods such as those offered by Facebook and Twitter. All of these social networks make it easy for individuals to place and track advertisements. For instructors wanting to use this project in a marketing course or as part of a joint decision sciences/marketing course, Google hosts the Google Online Marketing Challenge competition and provides each team with $250.00 of credit for online advertisements (http://www.google.com/onlinechallenge/).

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