An exploratory investigation of the impact of surprise interviews with former graduates on online students learning in an introductory IT course

Taowen Le*
Goddard School of Business and Economics,
Weber State University,
Layton, UT 84040, USA
E-mail: Let@weber.edu
*Corresponding author

Jin Zhang
School of Information Studies,
University of Wisconsin Milwaukee
Milwaukee, WI 53211, USA
E-mail: jzhang@uwm.edu

Edward Harris
Goddard School of Business and Economics,
Weber State University,
Layton, UT 84040, USA
E-mail: EdHarris@weber.edu

Abstract: This study explored a unique approach to motivating online students in an introductory IT course. The authors conducted and videotaped surprise interviews with former business graduates and offered the recorded interviews to online business students enrolled in an introductory IT course. The authors then compared the academic performances of the students who watched the surprise interviews and those who did not. The study employed a mixed research methodology and found that students who watched the surprise interviews achieved significantly better performance than students who did not in all aspects of learning outcome assessment.

Keywords: online education; internet education; motivational impact; surprise interviews; former graduates.

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Biographical notes: Taowen Le is a Full Professor of Information Systems and Technologies in the Goddard School of Business and Economics at Weber State University. He received his PhD from Brigham Young University in 1991 and has since served in leadership positions in the IT industry, government organisations, and the academia. He has published in a broad range of IT areas including IT policies, software development and outsourcing, internet technologies, and IT education. He has been invited as keynote speaker at a number of international IT conferences.

Jin Zhang is a Full Professor at the School of Information Studies, University of Wisconsin-Milwaukee, USA. He received his PhD from School of Information Sciences, the University of Pittsburgh. He has published extensively in international journals. His book “Visualization for information retrieval” was published in the Information Retrieval Series by Springer in 2008. His research interests include visualisation for information retrieval, information retrieval theory and algorithm, internet information organisation, search engine evaluation, consumer health informatics, transaction log analysis, digital libraries, and computer human Interface design.

Ed Harris is an Associate Professor of Information Systems and Technologies in the Goddard School of Business and Economics at Weber State University. He received his PhD from Utah State University. In addition to a trail of successes as a business owner and manager, he has also successfully managed an academic department as well as other university programs. In 2010, he successfully chaired the annual Mountain Plains Management Conference, a regional academic conference in the USA. He has published and presented in numerous IT fields with a main interest in network technologies, virtualisation, and teaching pedagogy.

1 Introduction

The learning process has been updated continuously, at least since the time of Socrates when the Socratic Method was popular (Kakabadse and Steane, 2010). While learning theories such as the cognitive-constructivist paradigm emphasise iterative processes of structuring, refining, and restructuring of mental models as critical components of advanced learning methods (Yadin and Or-Bach, 2010), research also shows that although students may obtain some superficial learning with almost any teaching method, a higher level of learning could be reached through the employment of motivation strategies (Graham and Weiner, 1996; Palmer, 2005).

Proper motivation and sustained involvement are essential ingredients to measurable learning (Hansford and Wylie, 2002). Effective motivation helps to stimulate students to become active participants of the learning process (Palmer, 2005). Some research shows that students with high achievement goals will likely utilise adaptive study skills to maximise their learning (Linnenbrink and Pintrich, 2002), other research shows that by using various motivation strategies instructors can heavily influence learners to be more goal–directed and thereby optimise student learning (Sinatra and
T. Le et al.

Pintrich, 2003). Some researchers, upon exploring the internal theoretical construct of motivation, label motivation as an enabler for academic success (Linnenbrink and Pintrich, 2002).

In modern internet learning environment, learning processes often include the employment of online discussions and other applications of virtual-world technology, making today’s classroom radically different from the traditional classroom of years past (Gulikers et al., 2005). With the utilisation of Web 2.0, instant messaging, podcasts, Google Apps, and other like IT products, educators are now better assisted in helping students learn difficult concepts (Harris and Rea, 2009; Williams and Chinn, 2009). However, in the excitement of all the technological advances, the ingredient of motivating students sometimes becomes elusive in today’s classroom, especially in IT classrooms.

The field of information technology is a field of frequent breakthroughs that generate sufficient challenges for IT instructors in just keeping themselves updated (Ruzic-Dimitrijevic and Dimitrijevic, 2010). Therefore, although researchers have studied different teaching styles and methodology as applied to IT education, the emphasis is typically on instructor or curriculum development (Crawford, 2000; Cohen, 2002; Dadashzadeh et al., 2002; Luger, 2006; Wagner et al., 2008; Bunch, 2009; Abrahams and Singh, 2010; Newby and Nguyen, 2010; Olszak and Ziemb, 2010). A few studies have explored motivation of IT students or impact of student attitudes on learning outcomes of IT students (Nilsen, 2007; Ballou and Huguenard, 2008; Shroff et al., 2008) or have experimented with designing an IT curricula for practical relevance (Surendra and Denton, 2009); however, no prior study seems to have explored the impact of interviews with former graduates upon online students learning in introductory IT courses.

As the business world continues to integrate information technology into its various sectors, it becomes increasingly important that today’s business students are properly prepared with an adequate understanding of the fundamentals of information technology during their curricular studies. IST3110 was an introductory IT course offered online by the business college of Weber State University to all non-IT business majors within the college. In addition to providing students with a systematic understanding of the basic terms and concepts of the IT field, the course also targeted at generating awareness in students of the major IT advancements and developments as well as providing students hands-on experience with information technology tools useful for academic and professional activities.

As an exploratory investigation, researchers of this study tried out an approach that had not been previously explored by others: conducting and videotaping a series of surprise interviews with former business graduates and offering the interviews at the beginning of each semester to business students enrolled in the above-mentioned online introductory IT course. The purpose of the study is to examine if there are differences in academic performances between students who watch those interviews and those who do not. The major research question for the study is therefore whether sharing school and work experiences of former graduates with students in an online introductory IT course would have a positive impact on students’ academic performances in the course.
An exploratory investigation of the impact of surprise interviews

2 Research design and methodologies

To address the proposed research question, the study employed a mixed research methodology which included both a qualitative research method (interviews) and a quantitative research method (T-tests).

2.1 The preparation of the surprise interviews

During the summer of 2008, the researchers identified 10 former business graduates that were working in the locality of Weber State University and conducted a series of surprise interviews with them. The 10 interviewees included one top executive (CIO of a major company), one middle-level manager, two team leaders, a few senior employees, and a few junior employees. All interviewees had graduated with undergraduate business degrees in fields ranging from business administration, accounting, marketing, to management information systems. To capture the most authentic feelings of the interviewees, the researchers did not give the interviewees time to prepare in advance. Some of the interviewees did not even know that they would be interviewed and none of the interviewees knew what questions they would be asked beforehand.

The interview with the top executive focused on the following two questions:

- For non-IT-major employees, when they come to the company, do you or the company expect them to have any IT knowledge or skills; if yes, what specific knowledge or skills? To this question, the unrehearsed reply was: yes, the company typically expects them to possess a set of basic computer skills and analytical skills, but not in-depth technical skills. In expounding on analytical skills, the interviewee further clarified: similar to what programmers would need, the skills of taking a business process, breaking it into components, and building a solution or system around it.

- Given your employment experience, if you were a non-IT business major today, what would you pay attention to in an introductory IT course? To this question, the interviewee replied: a basic understanding of the development life cycle as well as high-level design skills, but not in-depth technical knowledge.

The interviews with non-IT business graduates focused on the following questions:

- As a non-IT business major, when you started college, did you expect to learn much IT in your program? When you joined your company, did you find yourself needing any IT skills? All of them reported that they did not expect to learn much IT in their curriculum, and one reported that even though his program offered two IT courses, he did not take the introductory course seriously. After joining the workforce, all of them found themselves lacking certain basic IT skills such as Excel and Report Writing. The interviewee who did not take the introductory IT course seriously reported having difficulty communicating with IT personnel within the company.
Based on your experience, could you think of a contemporary professional job that might not require IT skills or knowledge? While none of them could think of such a job, they pointed out that in modern business world, employees heavily rely on information technology to gather and analyse business data, to make informed decisions, and to stay productive.

What would you recommend for non-IT business students who are enrolled in an introductory IT course? The interviewees jointly recommended taking the introductory course seriously. They pointed out the importance of effective communication with IT employees within business organisations as well as a basic understanding of information technology, and they believed that an introductory IT course would provide the needed basic understanding of information systems and the information technology terminology needed in communicating with IT employees.

To help students understand the importance of information technology terminology, surprise interviews were also conducted with a few business school graduates whose major was management information systems. Each of them was generally asked to comment on their current job responsibilities. All but one voluntarily reported working with business users or other departments daily.

The researchers used a personal digital camera to record the interviews. Following the interviews, the researchers transformed the Sony-formatted digital interviews into video streams that would be easily viewable online. None of the interviews was cut or edited. All interviews were presented in their original forms. Hyperlinks to these interviews were then established in the course content for the first week of the course.

2.2 The administration of the surprise interviews

The digital interviews were administered in four consecutive semesters to students of IST3110 at Weber State University during the academic years of 2008–2010: Autumn 2008, Spring 2009, Autumn 2009, and Spring 2010.

Constrained by the university policy of non-discrimination, the interviews were offered to all students enrolled. However, not all students would watch them. In the end, students were classified into two groups: those who watched the interviews and those who did not. Table 1 summarises the two groups for this study.

Table 1 The two groups of study

<table>
<thead>
<tr>
<th>Semester</th>
<th>Total no. of students</th>
<th>No. of students who watched the surprise interviews</th>
<th>No. of students who did not watch the surprise interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn 2008</td>
<td>36</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Spring 2009</td>
<td>38</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Autumn 2009</td>
<td>77</td>
<td>33</td>
<td>44</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>67</td>
<td>23</td>
<td>44</td>
</tr>
<tr>
<td>Total Objects of Study</td>
<td>218</td>
<td>92</td>
<td>126</td>
</tr>
</tbody>
</table>
2.3 The execution of study and collection of data

In each given semester, the same course content, same teaching methodologies, same instructions, same measurement instruments, and same grading procedures were administered to both groups of students.

In each given semester, students were required to complete two 35-point comprehensive hands-on projects. In the first project, students were given a set of specifications and were asked to create an MS Access database following the specifications; they were also required to populate the database with provided data, design and execute queries of varying complexity levels to address provided inquiries, design a fairly complex professional report and a professional data entry form. In the second project, students were provided a set of MS Excel worksheets populated with industry data and were asked to perform various data analysis tasks including different levels of AutoFilter, Custom Filter, Conditional Formatting, and pivot-tables.

In addition, students were also required to take eight timed 10-point quizzes online. Each quiz focused on one particular chapter and consisted of custom-designed multiple-choice questions.

Each semester, students were also required to take three timed 100-point exams online. Each exam consisted of 40 multiple choice questions and covered four to five chapters of the course textbook.

Thus, the total maximum score each student could receive on the two project assignments, eight quizzes, and the three exams would be 450 \( (35 \times 2 + 10 \times 8 + 100 \times 3) \). Each semester, identical assignments, quizzes, and exams were administered to both groups of students.

At the end of the semesters, average project scores (0–35), average quiz scores (0–10), average examination scores (0–100), and final total scores (0–450) in the two student groups were collected and tabulated respectively. Scores of students who watched the interviews and scores of students who did not were compared and analysed to assess any differences in student academic performance between the two groups. Table 2 summarises the assessment tools employed in the course and the maximum points allocated to each.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Summary of assessment tools employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects</td>
<td>Quizzes</td>
</tr>
<tr>
<td>P1</td>
<td>P2</td>
</tr>
<tr>
<td>Maximum individual score</td>
<td>35</td>
</tr>
<tr>
<td>Maximum average score</td>
<td>35</td>
</tr>
</tbody>
</table>

2.4 Hypotheses

Because the performance of a student in the course is well reflected in project assignments, quizzes, examinations, and overall achievements, four individual
hypotheses based on project assignments, quizzes, examinations, and overall achievements, respectively, are proposed as follow to answer the overarching research question in the study.

\textit{H1}_1: There is no significant difference in academic performance on project assignments between students who watched the surprise interviews and students who did not.

\textit{H1}_2: There is no significant difference in academic performance on quizzes between students who watched the surprise interviews and students who did not.

\textit{H1}_3: There is no significant difference in academic performance on examinations between students who watched the surprise interviews and students who did not.

\textit{H1}_4: There is no significant difference in overall academic performance between students who watched the surprise interviews and students who did not.

The academic performance of a student was measured by his or her average project assignment score, average quiz score, average examination score, and final total score in the course.

A T-test method was used for each of the hypotheses to test the proposed hypotheses. The significance level (\(p\)) or \(\text{sig}\) is 0.05 for all the tests in this study. In other words, if \(p\) or the \(\text{sig}\) is smaller than 0.05 in a test, the finding of the test is statistically significant and the corresponding null hypothesis is rejected; otherwise, the null hypothesis is accepted.

2.5 Research limitation

Since IST3110 was a normal academic course at Weber State University, not a specially-designed research class, researchers of this study were subject to the constraints of the university policy of non-discrimination. Consequently, the interviews had to be offered to all students enrolled. Although in the end, nearly half students watched the interviews while the others did not, resulting in two comparable groups of study objects, the more ideal setting would be a specially-designed research class with two groups of students randomly drawn: one group is to watch the interviews and the other group is not.

3 Findings and analyses

3.1 Project assignments

\textit{Hypothesis \textit{H1}}_1: There is no significant difference in academic performance on project assignments between students who watched the surprise interviews and students who did not.

In Table 4, the significance level (\(p\)) or \(\text{sig}\) is 0.000 which is smaller than 0.05. The proposed hypothesis is rejected. It indicates that there is a significant difference
An exploratory investigation of the impact of surprise interviews

between the students who watched the surprise interviews and the students who did not in terms of academic performance on project assignments in the course. In Table 3, the mean score (32.7500) of the group that watched the interviews is larger than the mean score (31.7341) of the group that did not watch the surprise interviews. It suggests that the students who watched the surprise interviews achieved better performance than the students who did not in terms of project assignment scores in the course.

Table 3  Group statistics for the project scores

<table>
<thead>
<tr>
<th>Watched interviews</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proj.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (Yes)</td>
<td>92</td>
<td>32.7500</td>
<td>4.74588</td>
<td>0.49479</td>
</tr>
<tr>
<td>2 (No)</td>
<td>126</td>
<td>31.7341</td>
<td>15.96213</td>
<td>1.42202</td>
</tr>
</tbody>
</table>

Table 4  Independent samples test for the project scores

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>Sig.</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean</th>
<th>Std. error difference</th>
<th>95% confidence interval of the difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proj. Equal variances assumed</td>
<td>23.442</td>
<td>0.000</td>
<td>0.591</td>
<td>216</td>
<td>0.555</td>
<td>1.01587</td>
<td>1.71795</td>
<td>–2.37023</td>
<td>4.40197</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.675</td>
<td>153.999</td>
<td>0.501</td>
<td>0.50564</td>
<td>–1.95851</td>
<td>3.99025</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2 Quizzes

Hypothesis H1_2: There is no significant difference in academic performance on quizzes between students who watched the surprise interviews and students who did not.

In Table 6, the significance level (p) or sig is 0.000 which is smaller than 0.05. The proposed hypothesis is rejected. It indicates that there is a significant difference between the students who watched the surprise interviews and the students who did not in terms of academic performance on quizzes in the course. In Table 5, the mean score (7.6135) of the group that watched the interviews is larger than the mean score (6.4320) of the group that did not. It suggests that the students who watched the surprise interviews achieved better performance than the students who did not in terms of quiz scores in the course.
Table 5  Group statistics for the quiz scores

<table>
<thead>
<tr>
<th>Watched interviews</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (Yes)</td>
<td>92</td>
<td>7.6135</td>
<td>1.46852</td>
<td>0.15310</td>
</tr>
<tr>
<td>2 (No)</td>
<td>126</td>
<td>6.4320</td>
<td>2.39388</td>
<td>0.21326</td>
</tr>
</tbody>
</table>

Table 6  Independent samples test for the quiz scores

<table>
<thead>
<tr>
<th></th>
<th>Levene’s test for equality of variances</th>
<th>t-test for equality of means</th>
<th>95% confidence interval of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Quiz</td>
<td>Equal variances assumed</td>
<td>18.195</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>4.500</td>
<td>210.314</td>
</tr>
</tbody>
</table>

3.3 Examinations

Hypothesis H1_3: There is no significant difference in academic performance on examinations between students who watched the surprise interviews and students who did not.

3.4 Overall total score

Hypothesis H1_4: There is no significant difference in overall academic performance between students who watched the surprise interviews and students who did not.

In Table 10, the significance level (p) or sig is 0.000 which is smaller than 0.05. The proposed hypothesis is rejected. It indicates that there is a significant difference between the students who watched the surprise interviews and the students who did not in terms of overall academic performance in the course. In Table 9, the mean score (413.7330) of the group that watched the interviews is larger than the mean score (366.6899) of the group that did not. It suggests that the students who watched the surprise interviews achieved better performance than the students who did not in terms of overall performance in the course.
Table 7  Group statistics for the examination scores

<table>
<thead>
<tr>
<th>Watched interviews</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (Yes)</td>
<td>92</td>
<td>82.3242</td>
<td>7.53601</td>
<td>0.78568</td>
</tr>
<tr>
<td>2 (No)</td>
<td>126</td>
<td>73.5498</td>
<td>24.47455</td>
<td>2.18037</td>
</tr>
</tbody>
</table>

Table 8  Independent samples test for the examination scores

<table>
<thead>
<tr>
<th></th>
<th>Levene’s test for equality of variances</th>
<th>t-test for equality of means</th>
<th>95% confidence interval of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Exam</td>
<td>Equal variances assumed</td>
<td>29.336</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>3.786</td>
<td>155.958</td>
</tr>
</tbody>
</table>

Table 9  Group statistics for the final total scores

<table>
<thead>
<tr>
<th>Watched interviews</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (Yes)</td>
<td>92</td>
<td>413.7330</td>
<td>37.65148</td>
<td>3.92544</td>
</tr>
<tr>
<td>2 (No)</td>
<td>126</td>
<td>366.6899</td>
<td>123.57809</td>
<td>11.00921</td>
</tr>
</tbody>
</table>

Table 10  Independent samples test for the final total scores

<table>
<thead>
<tr>
<th></th>
<th>Levene’s test for equality of variances</th>
<th>t-test for equality of means</th>
<th>95% confidence interval of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Overall</td>
<td>Equal variances assumed</td>
<td>33.205</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>4.025</td>
<td>155.355</td>
</tr>
</tbody>
</table>

An exploratory investigation of the impact of surprise interviews
4 Conclusion

As Internet becomes increasingly important to society and individuals, effective online education becomes particularly critical for today’s universities and business organisations alike. While previous research suggested the importance of properly motivating students to effective learning, no prior study was found that investigated the impact of interviews with former graduates on online students learning in introductory IT courses.

Through two school years and four consecutive semesters of exploratory investigation, utilising a mixed research methodology which included both a qualitative research method (interviews) and a quantitative research method (T-tests), this study discovered that watching interviews with former graduates about their college experience in their IT courses and later professional experience in various fields has a significant impact on online students learning in an introductory IT course. It was found that students who watched the interviews achieved significantly better performance than students who did not in all aspects of learning outcome assessment: project assignments, quizzes, examinations, and overall accomplishment.

With the findings of this study, IT professors teaching online IT courses could consider conducting similar interviews with former graduates of their own academic programs who are current business professionals and offering those interviews to their current students, thereby motivating the current students to a higher level of learning.

Future research projects may include, but are not limited to, a controlled study of the impact of interviews with former graduates on online students in non-IT courses, a controlled study of the impact of interviews with well-known IT professionals on current IT students, and a controlled study of gender differences in student responsiveness to motivational designs.

References


