**Teaching XBRL**

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**ABSTRACT**

eXtensible Business Reporting Language (XBRL) is a language used for the electronic communication of financial information. In 2009, the U.S. Securities and Exchange Commission (SEC) recognized the importance of this language when it mandated XBRL financial reporting of U.S. publically traded companies to be phased in during a three-year period. Today, all publically traded companies have to file with the SEC using XBRL. We believe that graduating accounting majors who are familiar with XBRL will be at a competitive advantage when they seek employment.

The purpose of this research was to determine to what extent, if any, undergraduate AIS students were exposed to XBRL. XBRL primarily has been taught in AIS courses and AIS is typically a required course of undergraduate accounting majors. We reviewed AIS textbooks and course syllabi. We found that faculty who used textbooks with significant to moderate coverage of XBRL were more likely to assign this topic to their students. Faculty who used textbooks with very limited coverage of XBRL did not expose their students to this topic. Most importantly, based upon the syllabi review, only approximately one third of the faculty included XBRL in their courses as an objective, a topic or an assignment.

**INTRODUCTION**

eXtensible Business Reporting Language (XBRL) is a language used for the electronic communication of financial information. It is a standardized way to translate financial data into a format that computers can read and understand. Typically, financial information is treated as a block of text in a document or a webpage. XBRL provides identifying tags for individual items of data and these tags enable automated processing of financial information. Software is able to recognize data formatted with XBRL tags and this allows for storage and exchange of information. This process enables users to manipulate tagged data into a variety of formats that provide better information for analysis. Sheridan and Drew state, “The technology’s promised benefits – greater company control of data definitions, exponentially improved efficiency for analysts and investors - are just beginning to be realized. Improvements in XBRL creation and validation software are making it possible to exact information that allow analysts, investors, and others to extract key information from public company data far faster than they could ever before.” (124)

The standardization of XBRL supports its use in financial reporting throughout the world. Tittel states, “XBRL is undeniably a global standard for business reporting, and it’s here to stay.” (4) XBRL is used in a variety of internal and external business reporting purposes in the United States and is officially accepted by the European Parliament as well as many other governments. In 2009, the U.S. Securities and Exchange Commission (SEC) recognized the importance of this language when it mandated XBRL financial reporting of U.S. publically traded companies to be phased in during a three-year period. Today, all publically traded companies are required to file with the SEC using XBRL.

External users of financial statements use XBRL throughout the world. They include, among others, stock exchanges, companies, governmental and regulatory agencies, banks and bank regulators, investment analysts and accountants. These groups use XBRL to be able to review a greater number of SEC filings, both faster and in greater detail. Specifically, investment analysts can use XBRL can conduct financial analysis faster and with greater accuracy.

Bankers have found XBRL useful in standardizing some of its work. The U.S. Federal Deposit Insurance Corporation has used XBRL to help streamline and expand the collection and sharing of data from banks. Unisys was contracted to build a platform that enabled the delivery of data in the XBRL format. The contract represents what the Federal Financial Institutions Examination Council (FFIEC) called, “the first step in an interagency effort of modernize and streamline how federal bank regulators collect, process and distribute quarterly bank reports.” (Joyce 1) Some companies also have used XBRL internally to generate better information for decision-making. This includes Japanese companies such as Wacoal and Fujitsu. (Kernan 2008)

WHERE IS XBRL USED?

In Asia, XBRL is mandated by the stock exchanges in China, Japan, Singapore and South Korea. China was the first capital market in the world to adopt. XBRL. It adopted it in 2004. Bai Shuo from the Shanghai Stock exchanged stated, “The stock exchanges were interested in XBRL for better regulatory reporting. But the dramatic change in the quality, granularity, and timeliness of the data has had the effect of changing the Western world view of the Chinese market.” (Kerman 2008). In addition to public reporting, the stock exchanges are using XBRL for mutual funds and IPOs.

Interestingly, China was able to move so fast because the companies didn’t actually switch to XBRL reporting of data. Instead, the companies continued to fill out the same forms, but behind the scenes. Software was used to translate items into XBRL data. Therefore there was no cost of compliance for the reporting companies. As a result the template based report forms required less financial data than required by the U.S. SEC. As a result, at this point in time, the Chinese financial data is a more generic, standardized data set. However, the Chinese taxonomy and data collection is expanding in part due to knowledge sharing with other companies. Kerman stated, “China, in turn, is adding to the international dialogue in other ways, such as its efforts to incorporate key information that is not captured by U.S. GAAP or IFRS, for example, key performance indicators and sustainability reporting.” (3)

XBRL is used in 17 countries in Europe. This includes Belgium, Denmark, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Spain, Sweden and the United Kingdom. This was because, in part, Europe was faced with regulating over 20 different central banks with different regulations and in different languages. XBRL was adopted to standardize and streamline the work of European regulators.

The European adoption came in three distinct waves. In the first wave, various countries were interested in the promise of XBRL, each for a different reason. For example, tax regulators drove its development in Ireland, the municipalities in Germany, the banking sector in Spain, the Water Board in the Netherlands and the Companies House in Denmark. The second wave came in 2004. This is when XBRL International’s specification was made available for commercial use. Spain’s central bank’s work on XBRL influenced the Committee of European Bank Supervisors to start using XBRL for its reporting across all member states. However, the usage was mandatory or optional depending upon the regulations of the individual country. Unfortunately, there was a disparity of taxonomies being developed and standards used by the member states. As a result, in the third wave, the European Commission urged its member states to register its taxonomies with XBRL International and to work together to develop and use an open standard. XBRL Europe was formed to accomplish this. Connor O’Kelly, who chairs XBRL Europe’s executive committee stated, “The big challenge is not to have 27 flavors of XBRL that can’t be aggregated across a very diverse region.” (Kerman, 2)

Spain is one of Europe’s leaders in the adoption of XBRL. Kay and Ovlia stated, “Spain’s banking industry was the first in Europe to adopt XBRL to make banking more efficient with plans to expand XBRL to government-wide use.” (255) Spain’s central bank as well as its market regulators, representatives of government agencies and private industry began studying XBRL. They developed national taxonomies for financial reporting and data exchange between financial institutions. This includes COREP (the common reporting framework for credit institutions and investment firms in the European Union), FINREP (the financial reporting for credit institutions that use IAS/IFRS for their published financial statements, and SEPLAC (a system for the prevention of money laundering). As Kerman stated, “Since the Spanish central bank knew it could not compete as Europe’s largest player, it was determined to become Europe’s most efficient.” (5)

South American countries have been moving ahead with XBRL. The three countries with the leading economies, Brazil, Argentina and Chile, are all involved in projects. The convergence of IFRS as well at the U.S. SEC mandate has played important roles in spurring on some of these projects. In 2008, the Central Bank of Argentina began to use XBRL. Under the Balance Sheet Registry Project (BCRA), XBRL has been introduced for financial reporting in stages according the company’s size and market prominence. Diaz stated, “When the entire system is in place, XBRLized financial information will be received from about one million Argentine companies.” (1) The BCRA’s main goal is to obtain clear credit rankings for Argentine companies. Argentina’s professional accounting association (FACPCE) and its stock exchange (CNV) have become key players in the XBRL initiative as well as leading the convergence between Argentina GAAP and IFRS.

In Brazil, both the Tax Office of Brazil and the Central Bank of Brazil have studied the implementation of XBRL as part of the Balance Sheet Registry Project. In 2008, Chile began its process for incorporating XBRL reporting. The stock exchange developed electronic reporting with XBRL for listed companies. The companies began reporting data using XBRL in 2009. There are initiatives being explored in other South American countries, such as Uruguay, with an ultimate aim of using XBRL reporting throughout the South American continent.

As mentioned above, the U.S. SEC mandated a three-year phase in of XBRL of all U.S. companies in 2009. Since 2007, Canada has adopted a voluntary XBRL filing program that allows preparers to submit their tagged financial statements to the System for Electronic Document Analysis and Retrieval (SEDAR). Currently, few Canadian firms have adopted such voluntary filings. However, Canada is actively promoting the adoption of XBRL. Both the Canadian Securities Administrator (CSA) and the Ontario Securities Commission (OSC) have endorsed adoption of XBRL. James Turner, vice-chairman of the CSA, stated, “The CSA believes that XBRL has the power to reduce current inequities in our capital markets. It has the potential to foster a level playing field of information and make a huge volume of information more manageable for investors and analysts. The CSA is committed to moving forward in the XBRL world alongside other international regulators such as the SEC.” (Dzinkowski, 1) Canada may continue to keep the adoption of XBRL voluntary until after IFRS is fully implemented.

WHERE IS XBRL IN THE CURRICULUM?

 Some U.S. businesses are outsourcing the task of XBRL reporting to an external provider while others are deploying integrated in-house solutions. Magolis states, “Potential employers will be looking for new accounting graduates that have this skill set to replace external providers that format and submit their information in XBRL. Graduating accounting majors having the skills necessary to structure accounting information in XBRL will be at an advantage in seeking employment.” (8) We believe a quality undergraduate accounting education includes the integration of XBRL into the curriculum.

In recognition of the importance of the need for additional training for accountants in XBRL skills, the AICPA and XBRL US recently announced the development of the XBRL US GAAP Certificate program. This program will launch in 2013 with content developed by XBRL US, the AICPA, the FASB, accounting firms and XBRL service providers. The program was developed in response to a demand from accountants for training in XBRL and consists of thirty hours of online training courses.

 Where is XBRL in the current university accounting curriculum? Debreceny (2010) surveyed the curriculum at a limited number of schools to determine how best to integrate XBRL into the accounting curriculum. They found that in the 2002-2003 academic year, there were less than a dozen programs that included XBRL in the accounting curriculum. They found that where it was included, the most common place was in the accounting information course. Accounting Information System (AIS) is a required course in most undergraduate accounting programs. We chose this course for our study because XBRL primarily has been taught in AIS courses (Deshmukh, et al. 2006 and Fedorowicz 2002). This is because most AIS undergraduate courses focus on the knowledge and skills needed to function on the cutting edge of accounting information systems and information technology. Educators who have included XBRL in their curriculum see it as “a real global opportunity for students to learn some skills that will be valued around the world” (Sheridan1)

The purpose of this research was to determine to what extent, if any, undergraduate AIS students were exposed to XBRL. Deshmukh (2006) surveyed AIS instructors to determine whether XBRL should be covered in the curriculum and the current need for instructional materials. Deshmukh says, “A general consensus among the responding (AIS) faculty members was that there was a severe lack of instructional materials on the XBRL topic. The most important teaching aids needed are XBRL tutorials, case materials and coverage in textbooks. (86) Moreover, he says that, “most textbooks mention XBRL in only a cursory fashion”. (86)

We chose to review AIS textbooks to obtain “first hand” information rather than surveying AIS faculty as done in the Deshukh (2006) study. We wanted to learn the extent of textbook coverage of XBRL and to determine if textbook coverage has improved since Deshmukh’s (2006) study. Recent editions of ten popular AIS textbooks were reviewed. In addition, course syllabi of college faculty who taught AIS were obtained and analyzed. Deshmush (2006) surveyed AIS instructors to determine AIS faculty preparation and perceptions regarding XBRL. We believed that examining AIS course syllabi provided yet another perspective. This determined whether, and to what extent, XBRL was taught to AIS undergraduate students.

**TEXTBOOK REVIEWS**

**DESIGN OF THE REVIEW PROCESS**

We designed our review process of the textbooks by asking the following questions:

1. What was the total number of pages in the textbook, and how many pages specifically were devoted to XBRL? This provided us with general information about how the authors weighted XBRL relative to other topics in their textbooks.

2. What was the total number of chapters in each textbook, and how many chapters covered XBRL? This question followed the first step, clearly identifying where XBRL appeared.

3. Was XBRL a standalone chapter or a major topic in a chapter? Question 2 presented a partial picture about XBRL coverage. Different authors had different approaches in discussing a topic. For example, there were some textbook authors that only briefly mentioned XBRL whereas others chose to discuss XBRL in a separate chapter, or put it as a major topic in a chapter. We examined these different types of arrangements.

4. How many questions, problems and cases were related to XBRL? This told us if students had a chance to apply XBRL theory to practice.

**RESULTS OF THE REVIEW**

We reviewed ten college textbooks used in AIS courses and summarized the results in Table 1 and 2. We found that all textbooks discussed XBRL. However, the amount of discussion varied greatly. The number of pages devoted to XBRL ranged from 1 to 18, and the percentage of pages ranged from 0.00% to 4.31%. The number of chapters devoted solely to XBRL ranged from 0 to 1. XBRL was a standalone chapter in only one textbook. In 5 of the 10 textbooks, the authors put XBRL as a section topic in a chapter. The number of problems ranged from 0 to 13 and the number of cases ranged from 0 to 1. XBRL was in the glossary and index of all ten textbooks. Finally, it appeared in the chapter summary and key terms at the end of the chapters of eight textbooks and in the learning objectives of six textbooks.

**Table 1: Textbooks Topic Review: Pages**

|  |  |  |  |
| --- | --- | --- | --- |
| **Textbook** | **Total # of pages** | **# of pages of XBRL** | **% of pages** |
| Bodar | 512 | 1 | 0.00% |
| Considine | 742 | 3 | 0.00% |
| Gelinas | 666 | 5 | 0.01% |
| Hall | 762 | 10 | 0.01% |
| Heagy | 484 | 4 | 0.01 |
| Ovlia  | 417 | 18 | 0.04% |
| Romney | 742 | 6 | 0.01% |
| Simkin | 508 | 5 | 0.01% |
| Turner | 627 | 7 | 0.01% |
| Vaassen | 361 | 1 | 0.00% |

**Table 2: Textbooks Topic Review: Chapters and Questions**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Textbook** | **Total # of chapters** | **Is XBRL a stand-alone chapter?** | **Is XLBR a major or/ sub topic?** | **# of questions on XLBR** | **# of cases on XLBR** |
| Bodar | 14 | No | No | 0 | 0 |
| Considine | 16 | No  | Yes | 0 | 0 |
| Gelinas | 17 | No | Yes | 3 | 0 |
| Hall | 17 | No  | Yes | 7 | 0 |
| Heagy | 15 | No | Yes | 2 | 0 |
| Ovlia  | 14 | Yes, 1 | No | 26 | 1 |
| Romney | 22 | No  | Yes | 7 | 1 |
| Simkin | 15 | No | Yes | 8 | 1 |
| Turner | 15 | No  | Yes | 2 | 1 |
| Vaassen | 18 | No | No | n/a | n/a |

By far, the textbook with the most extensive coverage was Kay and Ovlia, *Accounting Information Systems: The Crossroads of Accounting and IT*, 1st Edition, 2012. This was the only textbook with a standalone XBRL chapter that was 18 pages long. The chapter included 13 questions, 13 problems and 1 case relating to XBRL. Four textbooks had moderate coverage of XBRL. They included: Hall, *Accounting Information Systems*, 8th Edition, 2011 with 10 pages devoted to XBRL, 6 questions and 1 problem; Turner and Weickgenannt, *Accounting Information Systems Controls and Processes*, 1st Edition, 2009 with 7 pages devoted to XBRL, 1 question, 1 problem and 1 case; Romney and Steinbart, *Accounting Information Systems*, 12th Edition, 2011 with 6 pages devoted to XBRL, 4 questions, 3 problems and 1 case; and Simkin and Norman, *Core Concepts of Accounting Information Systems*, 12th Edition 2012 with 5 pages devoted to XBRL, 5 questions, 3 problems and 1 case.

The remaining five textbooks had very limited coverage of XBRL.

All ten AIS textbooks mentioned XBRL. However, coverage varied from a standalone chapter to a topic in a chapter to less than a full page of discussion. However, as college faculty, we realized that textbooks are tools. As a result, whether or not students were taught XBRL could be different from actual textbook coverage. Therefore, we reviewed syllabi from faculty who taught AIS course to supplement these textbook reviews.

**COURSE SYLLABI**

**Design of the Review Process**

We obtained AIS undergraduate syllabi from 31 universities/colleges. These schools were chosen because their Accounting Departments achieved AACSB accreditation. “AACSB provides internationally recognized, specialized accreditation for business and accounting programs at the bachelor's, master's, and doctoral level. AACSB Accreditation is known, worldwide, as the longest standing, most recognized form of specialized/professional accreditation an institution and its business programs can earn.” (AACSB International, 1)

We examined the syllabi to determine which textbooks were used and whether XBRL was covered in the course. The results of the textbook used are presented in Table 3. Next, we determined if XBRL was mentioned in the syllabi as a course topic, course objective, and assigned as a chapter reading, specific homework problems and/ or supplementary articles. If XBRL appeared as a separate topic, objective, assigned chapter reading, assigned homework problems and assigned supplementary materials, we coded it as a “yes”. If not, we coded it as a “no”. (We recognized that XBRL still could be taught at the schools we coded as "no". Syllabi do not always provide enough detail.) The results of the review are presented in Table 4.

**Table 3: Textbooks Assigned**

|  |  |  |
| --- | --- | --- |
| *Accounting Information Systems,* Romney, Steinbart 12th ed. | 10 |  32.26% |
| *Accounting Information Systems,* Hall 8th ed. | 5 |  16.12% |
| *Accounting Information Systems,* Kay, Ovlia 1st ed. | 1 |  3.23% |
| Other | 15 |  48.39% |
| Total | 31 | 100.00% |

**Table 4: Syllabi Content**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Content | Yes | Percentage | No | Percentage | Total |
| Topic | 7 |  22.58% | 24 | 77.42% | 31 |
| Course Objective | 5 |  16.13% | 26 | 83.87% | 31 |
| Chapter Reading | 11 |  35.48% | 20 | 64.52% | 31 |
| Homework Problems | 5 |  16.13% | 26 | 90.32% | 31 |
| Supplementary Materials | 3 |  9.68% | 28 | 90.32% | 31 |

**RESULTS OF THE REVIEW**

The Romney textbook accounted for almost a third of the syllabi we reviewed. Ten instructors or 32.26% of our sample used this textbook. Also, the instructors who used Romney were more likely to incorporate XBRL as a topic and an assignment in their courses. Eight of the ten instructors who used Romney included XBRL assignments in their syllabi. Also, the one faculty member who used Kay and Ovlia incorporated XBRL as an objective, topic and assignment in the course.

It appears that faculty who used textbooks with significant to moderate coverage of XBRL were more likely to assign this topic to their students. Faculty who used textbooks with very limited coverage of XBRL did not expose their students to this topic. Most importantly, based upon the syllabi review, only approximately one third of the faculty included XBRL in their courses as an objective, a topic or an assignment.

**LIMITATIONS**

We recognize three limitations of this study. First, only one course, AIS, was studied. AIS textbooks and syllabi were examined. Accounting students may have been exposed to XBRL in other undergraduate courses such as Intermediate Accounting, Auditing or International Accounting. XBRL might also be included in general IS or other computer classes as well. Second, we assumed XBRL was not taught if it did not appear in the syllabi. As mentioned above, some syllabi may not provide enough detail to describe all topics that are covered in the courses. Third, this study was limited to U.S. based universities. XBRL is a worldwide standard and further research is needed into how or if it is incorporated into the accounting curriculum in universities worldwide.

**CONCLUSION**

In their article, Pfeffer and Fong state, "A large body of evidence suggests that the curriculum taught in business schools has only a small relationship to what is important for succeeding in business" (84) Further, Debreceny and Farewell state, “The undergraduate curriculum is stubbornly resistant to change. Alumni that graduated from a given institution decades previously can often see exactly the same curriculum today down to and including course codes.” (4) XBRL is important in business and is a relatively new topic that should be integrated into the accounting undergraduate curriculum. XBRL has been adopted in the U.S. and elsewhere. Magolis states, “XBRL is likely to become the lingua franca of business-to-business transactions or simply how financial information is shared among trading partners.” (1)

Said (2011) sees XBRL as an important tool to improve the transparency of the financial systems. He cites a national survey of senior financial officers showing that many of them are still not familiar with XBRL. Accounting educators must adapt to incorporate constantly changing technologies such as XBRL into the curriculum. Students graduating today need these skills in order to succeed in the workplace.

In this study, we learned that the AIS textbook coverage of XBRL ranged from one chapter to moderate coverage to less than a full page of discussion. Faculty who assigned students textbooks with more exposure of XBRL were more likely to cover this topic. And, based upon the syllabi obtained, we determined that only approximately one third of AIS faculty included XBRL in their courses.

We believe that accounting students should understand XBRL and be exposed to topics such as the strategic uses of XBRL, the concept of markups and tags, preparing and validating XBRL reports, XBRL components and XBRL software in their AIS courses. It is logical to expect that topics such as these would be taught in AIS as this course typically deals with accounting information and technology. However, some AIS faculty lag in integrating XBRL in their courses even though this language is used throughout the world and XBRL filings are now mandated in the U.S. by the SEC. This could be, in part, because of a lack of teaching materials, including textbooks.

XBRL ranks high in importance as an AIS topic in the Deshmukh study (2006). However, we found the current coverage of this topic is not in proportion with its perceived importance. We believe that a lack of instructional materials, including textbooks, is partly responsible for this discrepancy. There is a significant need for new instructional materials that provide more coverage of XBRL.

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