Maximizing the Blended Learning Curriculum by using the “Flipped Classroom” Approach in the Workplace

Charlotte LV Thoms

1 Rochester Institute of Technology/National Technical Institute for the Deaf/Business Studies Department
Rochester, NY, USA

Abstract—E-learners in the workplace find returning to the synchronous classroom method of instruction inconvenient with their everyday work schedules. In the past, employees would sacrifice a day to a week of on-the-job productivity to provide themselves with knowledge and skills needed to perform their tasks effectively. However, the practice in the 21st century has modified retraining. Around the world, teachers have flipped the traditional classroom and are successfully maximizing the virtual environment. By providing students with a blended learning curriculum using the flipped classroom approach, instructors are not only preparing the students for the short-term goal of acquisition and retention of course content but also preparing them for the workforce where e-learning is becoming the norm. A carefully crafted blended learning curriculum integrates e-learning with traditional face-to-face class activities.

The flipped classroom approach presents “instructional content delivered outside class, while engagement with the content—skill development and practice—is done in class, under teacher guidance and in collaboration with peers,” [1]. Students gain valuable experience maximizing the blended learning curriculum by using the flipped classroom approach in a simulated work environment.

In this fast-paced, ever changing knowledge age, time and energy spent through e-learning is time well spent. Therefore, transferring the approach from off-site retraining, blended learning and the flipped classroom approaches brings flexibility and cost effectiveness into the classroom/workplace and thereby facilitating the process of currency in the discipline. The learner no longer has to exchange productivity on the job for learning or upgrading skills. The learner does not have to attend a class where the knowledge presented is already known to him or her and practiced on a daily basis or where a slower pace would be more beneficial to the learner.

This paper will demonstrate through responses from deaf and hard-of-hearing students in General Business courses the impact of e-learning with the blended learning curriculum using the flipped classroom approach. Their responses will show how to flip your classroom and not leave the curriculum upside down.

Index Terms—Blended learning, deaf and hard-of-hearing students, e-learning, flipped classroom approach.

INTRODUCTION

As one of the nine colleges of Rochester Institute of Technology (RIT), the National Technical Institute for the Deaf (NTID) provides over 1,547 deaf and hard-of-hearing students with cutting-edge, state-of-the-art technical and professional programs complemented by strong liberal arts and science curricula “to prepare them to live and work in the mainstream of a rapidly changing global community and enhance their lifelong learning.” [2]. Through the Business Studies Department (BSD), students earn associate degrees in Accounting Technology, Administrative Support Technology, or Business Technology. Students from BSD and students from other majors are required or elect to enroll in the General Business courses (Orientation to Business [OTB], Fundamentals of Management [FOMNT], and Fundamentals of Marketing [FOMKT]).

The modes of communication used at NTID are as diverse as the demographics. Therefore, NTID’s instructors employ a variety of communication strategies to teach course content. Since English is a second language for many deaf students, instructors use American Sign Language (ASL) for direct instruction as well as speech, writing, and visual aids [3]. Sign language interpreters, C-Print, real-time captioning, and note takers are support services for deaf and hard-of-hearing students who are cross-registered in one of the other colleges on the RIT campus. These services are not used in the NTID classroom.

In this rich diverse environment of learning styles and communication strategies, maximizing the blended learning curriculum using the flipped classroom approach is effective in the classroom and is preparatory for job readiness in the 21st century workplace. Students entering the workforce should be familiar with blended learning, e-learning, and the flipped classroom approaches. As the blended learning curriculum has emerged as sound pedagogy, the flipped classroom should be a comprehensive learning model exemplifying the goals of traditional and technology-based learning [4]. If the perception of Penn State University’s President was accurate in 2004, that the convergence of classroom and online education was “the single greatest unrecognized trend in higher education today” [5], then the acceptance of internet-based pedagogical approaches by institutions of higher learning is more plausible and compelling in 2013. “Online learning is allowing learning to be tailored
to an individual’s need. Skills and knowledge can be developed faster and when they are needed, just-in-time learning.” [6].

To begin, there will be a brief discussion about the blended learning curriculum and the flipped classroom approach. The scope of this paper will reveal the findings of integrating the blended learning curriculum with the flipped classroom approach in the General Business courses with deaf and hard-of-hearing students. In the courses mentioned above, the flipped classroom is a natural emergence from low-risk strategies implemented in the blended learning curriculum to more complicated formats using Panopto© software. It is from these courses a grounded theory method was used to collect qualitative data.

Following will be the results of the data collected and how integrating e-learning in the simulated workplace is a natural progression to the world of work. The data are used to inform the decision that maximizing the blended learning curriculum by using the flipped classroom is a viable strategy that can be transitioned to the workplace. From the classroom to the workplace, learning opportunities are rapidly changing; therefore, the classroom instructor must deliver content that, first and foremost, equips the 21st century learner to become an independent, critical thinker with excellent communication skills [7], exposes adaptation to changing technology with ease and flexibility, allows development of an openness to diversity in a global market, and connects an awareness of and an active engagement in environmental issues.

PHILOSOPHICAL RATIONALE

A. Blended Learning Curriculum

The pedagogical philosophy supporting the implementation of the blended learning curriculum is found within its practice. Blended learning within a course curriculum is one

- that integrates online instruction (asynchronous) with traditional face-to-face class activities (synchronous) in a planned, pedagogically-sound manner.

- that replaces a portion (any appropriate percentage deemed so by the instructor) of face-to-face time with online activities, [3].

For the General Business (GenB) courses, a 60/40 split is used; however, the percentage is at the instructor’s discretion. Learning activities that otherwise would take place during classroom time are moved online in the blended learning curriculum. The GenB courses have been taught successfully in a blended-learning format for over six years. The expected outcomes are critical thinking, independent learning, and transition of skills learned to other business courses. Since the blended learning curriculum has emerged as sound pedagogy, the flipped classroom must also be a comprehensive instructional model that includes direct instruction, inquiry, practice, formative and summative assessment allowing students the opportunity through critical thinking to merge “content into context,” [8] in a virtual environment.

For clarification, the term traditional refers primarily to in-class, face-to-face interactions, lectures, or activities. Although this paper is not seeking to simplify the definition of blended learning without being aware that there are educators who define traditional as users of the internet because pedagogy has always included online instruction, [9]; and for that group of educators, traditional and blended overlap. However, the term blended learning in this paper refers to online activities and work outside the classroom that is traditionally completed in class. This clarification will hopefully eliminate controversy that will taint the topic of maximizing the blended learning curriculum by using the flipped classroom in the workplace.

B. Flipped Classroom Approach

The teaching philosophy informing the unconventional flipped classroom is simply to motivate the students into doing what individuals were born to do—move: intellectually, physically, and emotionally. When a student is challenged mentally and inspired emotionally to learn the content of a discipline, applications within content of that context are natural occurrences. An examination of the educational philosophies of Plato, Jean Jacques Rousseau, Michel de Montaigne, and Einstein shaped by the technological genius of J.H. Muller, Charles Babbage, and Steve Jobs bring the 21st century teacher of the deaf and hard of hearing to the challenge of how best to move students to critical thinking and independence so they will accept responsibility for their own learning while developing a love for what John Dewey would say is life itself, [4].

The teaching practices that guide a philosophy of using synchronous and asynchronous methods are based in part on Nobel Prize winner, Roger Sperry’s statement, “There appears to be two modes of thinking, verbal and nonverbal, represented rather separately in left and right hemispheres respectively and that our education system, as well as science in general, tends to neglect the nonverbal form of intellect,” [10]. Secondly, for many deaf and hard-of-hearing students, English is a second language. Because the GenB courses are reading intensive, the challenge continues to be to learn, comprehend, and adapt for practical use over 600 vocabulary words in the three-course offerings mentioned previously. Within the 10-week quarter for each course, retention becomes critical. The retention rate using the various methods of instruction has been the most successful when minimal lecturing is coupled with strategies for tactile/visual learners. Deaf and hard-of-hearing students seem to “enjoy visual stimulation…and may think in pictures, and learn best from visual display,” [11].
Therefore, the Learning Pyramid (Fig. 1) with its controversial origin and possible modifications through the years makes its credibility tenuous; however, it serves the purpose of instruction for the visual learner [12].

![The Learning Pyramid](image)

**Fig. 1 The Learning Pyramid**

As Net Generation (NetG) students, the deaf and hard-of-hearing students in the GenB classes are “intuitive visual communicators, have visual-spatial skills, and prefer to learn by doing rather than by being told what to do,” [4, 13, 14]. Furthermore, assignments void of human interaction are not appealing for today’s students. Pedagogy is lost when the learner is not understood. Any approach that does not prompt the student toward critical thinking is an approach that will lead to disinterested, unengaged students. Visualization (YouTube clips, videos, or Power Point presentations) coupled with tactical devices (i>Clickers, iPads, or iPhones) with course management systems (Desire 2 Learn/myCourses or Moodle) bring educational methodology to the pinnacle of the flipped classroom’s goal—students view learning as part of their culture, their way of thinking, their mode of living [4].

C. E-Learning

According to David, Salleh, and Iahad, “a definition for e-learning has not yet been found,” [15]; however, a long menu of names and titles are attributed to providing clarity to e-learning. Some include, but not limited to, virtual learning, web-based learning, distance learning, or most online forms of digital or mobile-device approaches to the acquisition of course content.

E-learners are no longer looking for instructional methods for the 21st century but desire visionaries who think for the 22nd century. While the expected outcomes are critical thinking and independent learning, the instructor should look for methods of helping the student to transition skills learned in other business courses. Unlike blended learning and the flipped classroom, e-learning separates the learner from the teacher as course content is accessed via technology (mobile device, computer, DVD, telephones or televisions, e-mail, or one of the “i” devices). Although some of the technology listed may appear redundant, the bottom line is the instructor could be teaching in the country of Chili while the student is living in the Town of Chili (pronounced Chi II), NY. Regardless of the location, each (the student and the instructor) must connect seamlessly through e-learning as effectively as they would in the synchronous classroom or in a combination of synchronous and asynchronous environments.

Despite the pedagogical methods used in the classroom, these methods will transport to the work environment. Strayer (2007) believed the “professor must offer something in the classroom that students cannot get elsewhere,” [16]. In a day when little is surprising, the “something students cannot get elsewhere” is still the instructor. “Learning is based on motivation, and without teachers that motivation would cease to exist,” [7]. The constant challenge of education appears to indicate that instructors continue to go through a metamorphosis.

This metamorphosis started from the day the pedagogue walked hand in hand with the pupil to deliver him to the instructor, to the day the student made her or his way to sit at the feet of the one with knowledge. Therefore, teaching and learning continue to be a constant challenge. Today, the NetG student uses mobile devices as readily as the Baby Boomer used typewriter and carbon paper nestled between the original manuscript and the copy. In the lecture halls we are apt to view a lecture from around the world with closed captioning while a teaching assistant hands the viewer the lecture on some device upon departure. We talk to our computer using voice recognition software that identifies dialects and types our thoughts with fewer errors than the originator can keyboard the same. As educators we will experience more e-learning forced by demand and learning styles. Therefore, the workplace is not exempt from the technological, philosophical, and pedagogical changes that challenge teaching and learning.

CAPTURING THE WORKPLACE ENVIRONMENT

IN THE CLASSROOM

A. Student Responses

Grounded theory method was used to analyze qualitative data collected in a survey given to students in the GenB courses. One of the survey questions asked (What do you like about the blended approach?) revealed the following unpredictable yet informative and encouraging responses:

“I like the blended learning approach because it is like taking online class in real life. It helps to prepare for the future.”

“I like the group work in the class. It makes me learn better.”

“Well, I like it [blended learning] because it is about learning to balance…between instructions and online, outside class.”

“I like to be independent…”

[www.icelw.org]
“I like receiving instruction through mycourses because it gives me space to learn on my own time. It’s a responsibility.”

Student comments verify the validity of e-learning and guide the instructor to adopt this approach while preparing students for the work environment. While lecturing is necessary, it should be minimized. Visual learners “enjoy visual stimulation… and are not pleased with lectures” [11] only. They think in pictures. Therefore, effective teaching is demonstrated by the ability to put into pictures the practical and move the principles of what has been learned, whether it is the use of a vocabulary word or role-playing as supervisor of the mock Human Relations Department, to effective learning.

When one analyzes the work environment, “the significance of e-learning and knowledge management at the workplace cannot be overemphasized,” [6]. The students in the classroom express the same need as those in the workplace. They understand the use of mobile devices, online learning is how they access new technology, and distance learning is a natural part of their acquisition of new information. Therefore, when a student is challenged mentally and inspired to learn the content of a discipline, applications within the content of that context are natural occurrences.

The employee in the fast-paced work environment has the same challenge, and employers have an equal responsibility to ensure currency of technology. There is little difference in the life of the student of the 21st century and the employee trying to remain current.

B. Dynamic Environment

Environmental, attitudinal, and motivational barriers to learning must be removed. The learner should not only be comfortable in the environment but also believe he or she is learning the most current information for the task to be completed. A non-threatening environment is conducive to the acquisition of knowledge because learning is the first expectation for success in the 21st century. The “individual, the organization, and even a nation” [6] must thrive in learning by simple steps that lead to successful, fast-paced, online learning.

In the past, instructors in Administrative Support would take a day out of the work week to attend a workshop to learn new software or more efficient ways to implement a program. Today, e-learning facilitates saving time, money, and travel; and because it is self-paced, employees can focus on areas of weakness through repetition and target areas of interest all at their own convenience. With current budget cuts, e-learning allows employees to satisfy the necessity of currency while remaining productive on the job.

For every proponent of e-learning, there is also opposition. Much like the flipped classroom approach, e-learning has opponents. The common disadvantage given by students who participated in the survey was they felt frustrated with the level of activity. However, students who are equipped to use e-learning will adapt in the workplace to new technology, updating and upgrading of work-related knowledge, and will become more comfortable with access to global changes in the market place. Other opponents believe there are “significant gaps between corporate interests and learner needs when it comes to e-learning. For the individual, the learner “does not think e-learning is helpful since the knowledge learned cannot help improve their work performance…or meet the organizations vision and mission,” [19].

C. Simulation of Work Environment

With rapid changes in technology, procedures, and the endless access to knowledge available, the click of a key, e-learning and knowledge management are essential. Employees need information now. “The ability to obtain, assimilate, and apply the right knowledge effectively,” [6] is imperative now. Students are equipped to find the right answer, categorize, and store the information, and later retrieve the data now. Now is the essential key that makes the difference between success and failure in the classroom and on the job. E-learning is now and has been identified as the answer to rectify one countries inability to keep pace with sweeping global changes [15].

C.1 Preparation

An instructor finds the textbook a helpful guide when preparing students for the simulation learning process. For example, instead of starting with Chapter 1 of the textbook, Chapters 12 – 14 are used for weeks 1 and 2. In Table 1, an outline of the topics is covered so the students will be prepared to begin the simulation after the third week of school. The unit topic is Leadership in Management with the subjects Leading and Motivating Others, Managing Teams, and Managing Communication respectively [17]. The Managerial (Leadership) Grid, Maslow’s Hierarchy of Needs Theory, and people’s perceptions help students to distinguish between power and leadership. Effective methods needed to simulate the role of team leader sets the tone for how the leader implements new knowledge when students are able to understand successful leadership styles. Team performance problems are easier to identify when explanations of threats to team performance, intensity of conflict, and organizational outcomes are studied prior to the simulation. Students show amazement when they learn the importance of upward, downward, horizontal, and external communication and understand how communication impacts on leadership. Communication skills cannot be minimized if the simulation is to be a meaningful experience. Within the subjects listed above, the students cover the following broad topics in Table 1.

---

**TABLE 1**
### LEADERSHIP IN MANAGEMENT

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Subject</th>
<th>Subtopics</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Leading and Motivating</td>
<td>• What Makes an Effective Leader?</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>• Why a Person Becomes a Leader: Traditional Explanations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contemporary Leadership Issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motivation</td>
</tr>
<tr>
<td>13</td>
<td>Managing Teams</td>
<td>• The Benefits of Teams</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Types of Teams</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Managing Team Performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Team Performance Problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Team Management Skills</td>
</tr>
<tr>
<td>14</td>
<td>Managing Communication</td>
<td>• The Process of Communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Patterns of Organizational Communications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Managing Organizational Communications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Communication Skills</td>
</tr>
</tbody>
</table>

### C.2 Beginning Simulation

On the first day of class, the students are given the Supervisor’s Schedule that stimulates the workplace monthly schedule. The Supervisor’s Schedule is actually the homework assignments for the quarter. It is important that all the activities of the class model the workplace. This is basic to the blended learning model. In the blended learning curriculum, effective teaching is demonstrated by the ability to put into practice theoretical knowledge whether it is the use of a vocabulary word or role playing as supervisor of the fictitious Sustainability Department. The Learning Pyramid percentages help the instructor with methodology so the students learn “to inform themselves, to integrate their new knowledge, to engage in critical reflection, evaluation and dialogue,” [18]. Therefore the simulation is beneficial when it is engaging and provides a real-world lens for the students to evaluate the principle based in the practical.

### C.3 Chain of Command

Students rotate serving as vice president, project manager, or functional employees. The instructor is the president. As in any organization, strategic plans come from the top to the vice president, who gives tactical plans to the project manager who, in turn, leaves the day-to-day operational functions to the employees as indicated in Fig. 2. The student can self-nominate or vote on the officers of the organization. Many students benefit from the chain of command when situations emerge and those on the functional employee level must face the consequences for not reporting to his or her immediate supervisor. Although some of the issues related to failure to follow the chain of command may appear to be transparent to those in the workplace, students learn through the simulation its importance. Observation of their responses to analogies related to the education environment is a strong indicator that this is a lesson best learned in the classroom environment instead of on the job. For example, an issue arises between the student and the instructor. The chairperson is not the first contact the student makes to solve the issue.

![Fig. 2 Sample of Simulated Chain of Command for General Business Course](image)

### C.4 Evaluation

After the students are given their roles and responsibilities for each job title, they are also given an evaluation form to complete. The questions on the evaluation form should match the objectives of the instructor’s learning outcomes for the simulation. The blank evaluation forms are received from the immediate supervisor while the completed evaluations are given directly to the president (instructor).

The evaluations are a series of upward, downward, and horizontal assessments as the vice president evaluates the project manager (downward appraisal), the project manager evaluates the vice president (upward appraisal), the project manager evaluates each functional employee (downward appraisal); the functional employee evaluates the project manager (upward appraisal), and the functional employee evaluates each functional employee in the team (horizontal appraisal). Therefore, when a student tries to question anyone who is not his or her direct supervisor, they have points deducted from the final simulation grade.

The students receive points once the simulation is completed, and their grades are a combination of their successfully participating in their roles as viewed by their peers, the instructor’s assessment of the overall team’s presentation, and the student’s ability to be a team player. The ability by students to make these assessments of their...
peers in the various roles is a more productive process and avoids giving higher points to friends. Therefore, studying chapter 12 – 14 (See Table 1) at the beginning of the quarter helps the students to be aware of the responsibilities of leadership. After the experience students are also aware that being an efficient follower is necessary to becoming an effective leader.

**E-LEARNING IN THE CLASSROOM SUPPORTS THE WORKPLACE**

Students who have practiced learning skills in the classroom will be assets in the workplace. Imagine a workplace that is comfortable with e-learning and understands experientially the three key outcomes: “improved and consistent rates of lifelong learning, improved productivity, and improved innovation and competitiveness,” [15]. When students become employees, they are accustomed to highly challenging, yet low-threatening work environments. Because “a third of e-learners do most of their e-learning in the comfort of their homes,” [6] the classroom is arranged so the students enter and immediately go to the computer to work on the assignment. They are allowed to use their mobile devices, bring their own laptops, listen (if they have residual hearing) to music, chat with other students, and interact with the professor.

Since the competitive advantage of any organization or business is the employee, a student who understands rapidly changing learning opportunities views e-learning as a tool for success. Also, a student who transfers to the work environment the skill of adaptability undergirded by the equally potent skill of learning to learn simply for the benefit of learning is an asset. These types of employees do not have to leave work to learn new knowledge because they learn as they work and can, through observation in the classroom, maximize the blended learning curriculum by using the flipped classroom approach in the workplace. They work at their own pace; collaborate with peers, access knowledge online as easily as their instructors using the Dewey Decimal System to research a topic in the library. These NetG workers “learn best when they can learn exactly what they need at exactly the moment they need it...More importantly, immediate application cements the knowledge gained and makes it far more likely that the knowledge will be retained and used in future on-the-job situations,” [6].

**CONCLUSION**

The workplace of tomorrow is the classroom of today. As educators equip students with the skills that require them to learn organizational goals and expectations as employees of tomorrow, the students will bring to the workplace learning activities that embrace change and not challenge the inevitable. “E-learning has the potential to transform how and when employees learn,” [15]. E-learning in the workplace delivers content into context immediately through technology.

Technology is simply the tool as the competitive advantage is the workforce that knows how to find the appropriate knowledge, share, disseminate, and apply that knowledge to ensure the success of the firm. To be successful in the 21st century, maximizing the blended learning curriculum by using the flipped classroom approach must target e-learning in the workplace for the future. Therefore, simulations that allow students to practice real-work experiences using e-learning are flipping the class without leaving the curriculum upside down.

**REFERENCES**


**AUTHOR**

Charlotte LV Thoms is an associate professor at the Rochester Institute of Technology/National Technical Institute for the Deaf, Rochester, NY 14623 USA (e-mail: cltnbt@rit.edu).

Manuscript received 29 March 2013.

Published as submitted by the author(s).