DEVELOPING 21ST CENTURY LEARNING SKILLS IN STUDENTS USING A BLENDED LEARNING PROGRAM IN A LEARNING MANAGEMENT SYSTEM

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Abstract

Within the last year, the Canadian Foreign Service Institute (CFSI) within Global Affairs Canada (GAC) piloted a blended learning program to departmental employees using a learning management system (LMS). One of the goals of the blended learning program was to develop within program participants 21st century learning and employability competency skills of communication, participation, networking and sharing. This paper presents some of the learning activities that were designed and delivered in the LMS in order to promote the acquisition among program participants of these 21st century learning and employability skills. Results achieved through the design and delivery of this blended learning program can inform the design and implementation of future blended learning programs using a LMS.

Keywords: Learning blended learning, learning management system, corporate training, government, 21st century skills, learning competency, technology, Canada.

1 INTRODUCTION

The Canadian Foreign Service Institute (CFSI) is the primary training provider for Global Affairs Canada (GAC) and offers more than 250 learning activities serving around 20,000 participants every year. CFSI's mandate encompasses providing training to all employees, managers and senior executives within GAC on a wide variety of topics e.g. foreign languages, intercultural effectiveness, leadership and management development, international affairs, corporate systems, HR and Finance.

Within the last year, CFSI piloted a blended learning program on the topic of Human Rights to departmental employees using a learning management system (LMS). One of the goals of the blended learning program was to develop within program participants 21st century learning and employability skills of communication skills, participation and networking and sharing. McLoughlin and Lee state that “…digital-age students want an active learning experience that is social, participatory and supported by rich media. Current research also points to a growing appreciation of the need to support and encourage learner control over the whole/entire learning process…” [1]

In addition, students have reported their experience with a LMS positively, when they “…experienced a unit rich with interesting and relevant resources that reflected sound educational design, including opportunities for timely feedback and, importantly, interaction with their teachers…” [2]. Some of the blended learning activities that were designed and delivered in the LMS in order to promote the acquisition among program participants of these 21st century learning and employability skills will be discussed further in this paper.

1.1 Context of Blended Learning within a LMS

Many educators and students assume that any learning management system will support blended learning. Before taking the time to design a blended learning program for delivery through a LMS, it is important to initially assess whether or not the LMS that you plan to use for the delivery of the program will support blended learning program delivery. Johnson [3] identified several questions to consider when assessing if an LMS supports a blended learning program:

- Are synchronous and asynchronous learning modes supported?
- Can the blended learning program facilitator easily monitor and guide students as they move through structured learning events?
- Does the LMS integrate web conferencing tools? Instant messaging and live chat functions?
- Does the LMS have options available for students when they want to go beyond the activities planned for in the blended learning program?
• Is the LMS designed first to support the student’s interests versus student registration and reporting?

• How does the LMS support inquiry, reflections and discovery? How does the LMS support the acquisition of the 21st century learning and employability skills?

Thanekar [4] identified ten advantages for administrators and learners of leveraging a LMS for blended learning (Table 1):

<table>
<thead>
<tr>
<th>For Administrators</th>
<th>For Learners</th>
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<tbody>
<tr>
<td>• Streamlined training process – centralizes training function and reduces costs.</td>
<td>• Flexible access to training resources – training is a continuous process, available as and when needed by the learner.</td>
</tr>
<tr>
<td>• Ability to deliver engaging and motivating training – a variety of learning approaches leads to greater success rates.</td>
<td>• Multiple learning channels and multiple media formats – caters to the different learning needs and demands of adult learners.</td>
</tr>
<tr>
<td>• Scalability and wider reach – training can go beyond traditional classroom setting to a greater number of learners.</td>
<td>• Reduced dependency – content from classroom or virtual training sessions can be easily posted and stored in a LMS allowing reduced dependency on one source of information.</td>
</tr>
<tr>
<td>• Easy and secure exchange of learning data – serves sharing and easy storage of learning resources available any time.</td>
<td>• Increased interaction between learners and trainers/instructors – collaboration and social learning tools facilitate interaction between learners and trainers.</td>
</tr>
<tr>
<td>• Technology leverage – leverage technology to take advantage of offering mobile and social learning and make learning interesting for learners.</td>
<td>• Twin benefits – traditional and innovative tools – allows learners to benefit from personal interaction in classroom and virtual training, while at the same time taking advantage of knowledge sharing through collaboration and social learning.</td>
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Hoic-Bozic et al. reported that for students who used a proprietary learning management system, the students stated that the advantages of the system included:

• “the freedom to access tasks and forum at any time;

• the guided forum;

• the opportunity to learn at one’s own pace and following one’s own inclination;

• the opportunity to communicate with the instructor in a more efficient manner (if a question is answered on the forum, everyone can read the answer);

• the opportunity to self-evaluate one’s knowledge before the official test;

• the opportunity to view and evaluate the assignments;

• the equally distributed modules for learning and access to the subject matter at any time;

• the participation in the group work as completely new experience;

• the practical work on the courseware.” [5]

Delivery of effective blended learning through a LMS occurs when the process of learning is the focus versus the management of learning [6]. Many training teams in organizations only look to their LMS as a means to provide information on number of students registered, number of courses delivered etc. It is of course very important for training teams within organizations to have this information at their
fingertips when having to report on results achieved and request funding for future training programs. But, many learning management systems have learning related functionalities that go beyond these basic management of learning functions which allow for the delivery of blended learning programs that provide effective, integrated active learning experiences to learners. This supports of course, as indicated by much research in learning, the need for adult learners to be actively engaged in their learning.

Shinde [6] identified five tips for managing blended learning effectively through a LMS:

1. Managing resources for Instructor Led Training (ILT) – a LMS can be used to deliver pre-course and post-course materials allowing classroom time to be focused on instruction.
2. Managing learner interaction after conclusion of the training program – through the collaborative capabilities of a LMS, learning can continue long after the end of an ILT session.
3. Managing training effectively – a LMS can help a trainer manage courses and learners which assists in streamlining and centralizing the training management process.
4. Managing virtual classroom sessions – virtual classroom sessions can be delivered as part of a blended learning program eliminating the need for the trainer and learners to travel thereby reducing costs and time. [7]
5. Managing administration – a strength of any LMS is its ability to manage learners’ and courses’ registrations, cancellations etc. – automation of previously resource intensive functions.

There has been a great deal of research devoted to the principles of andragogy and adult learners. It is generally accepted though among learning theorists that adults like to be in control of their own learning and learn at their own pace. Delivery of a blended learning program through a LMS enables learners to exercise control over their own learning and gives them freedom to proceed at their own pace, particularly if the learners are using mobile devices or laptops for the learning. [7] It has been noted in the literature however that technology awareness is very important for the success of blended learning. [8] [9]. Certainly, a critical first step prior to delivering a blended learning program would be to ensure that the adult learners and teachers have a good level of awareness with the technology. [9] Providing training workshops or having a LMS administrator ready to provide on demand help could be actions taken to increase level of awareness with the technology. [9] Once it has been determined that a LMS is appropriate for the delivery of a blended learning program, the literature indicates that by using the LMS for the delivery of the program, one can deliver the blended learning program in a more effective manner.

2 METHODOLOGY

Today, there is an ever-increasing demand by organizations of their employees for the development of 21st century competencies such as: self-directed learning capacity, critical thinking and communications skills, and the ability to use software and the Internet. To develop these competencies, learning courses and programs must be designed to offer learners active learning opportunities in complex and enriched environments to practice and evaluate the acquisition of these competencies. [10] [11] This has implications for the type of technologies chosen to support the delivery of these learning programs and the learning strategies used with these technologies. Hoic-Bozic et al. noted that “...students’ satisfaction with online courses increase only in the presence of both quality online materials, and well-prepared tutors leading the course in a collaborative environment.” [5]

With this in mind, a senior eLearning instructional designer within CFSI designed and developed a 4 week blended learning program on the topic of Human Rights. One of the goals of the blended learning program that was developed was to ensure that program participants had numerous occasions to complete learning activities in the Community of Practice (CoP) feature of a learning management system. The various online learning activities were designed to support the development of the following 21st century learning and employability skills: communication skills, participation and networking and sharing. The senior eLearning instructional designer acted as the online facilitator in the CoP and the whole blended learning program was delivered virtually through the LMS. Six participants participated in the program. A post program evaluation questionnaire was distributed to program participants in order to gather feedback on the program.
2.1 Developing 21st Century Learning Skills Through a LMS

The objectives of the program were:

- describe the core values and principles that inform universal human rights and basic human rights concepts as well as the architecture and operation of the United Nations Human Rights system, and regional human rights systems self-directed online course;
- recognize the contents of the Universal Declaration of Human Rights and international human rights treaties post-activity discussion;
- recognize the scope of the Canadian Charter of Rights and Freedoms and the Canadian human rights framework self-directed learning assignments; and peer feedback and discussion.
- explain the roles and responsibilities of various actors within GAC on human rights.

The blended learning program consisted of the following learning activities:

- self-directed online course;
- post-activity discussion;
- self-directed learning assignments; and
- peer feedback and discussion.

2.2 Communication Skills

Pappas notes that the “…importance of employees being able to communicate clearly, concisely, and effectively with their colleagues, clients, and customers goes without saying. However, traditional corporate training cannot really cover the development of all communication skills that your workforce needs. Blended learning for corporate training will allow [sic] you to help your employees develop their virtual communications skills, as you can follow a social learning approach, by which your staff can connect, interact, and share ideas with each other in a virtual environment,….". [7] Using a LMS to deliver a blended learning program supported the development of these communication skills in learners.

Some of the activities that were conducted in the blended learning program to support the development of communication skills were:

- Ongoing virtual discussions
- Peer to peer feedback
- Moderated discussion
- Weekly reading assignment and post activity virtual discussions
- Weekly online course assignment and post activity virtual discussions
- Weekly learning activity and post activity virtual discussions
- Ongoing virtual Q and A discussions

2.3 Participation

By encouraging learners to participate and support one another through collaborative and project-oriented activities, a learning management system can promote their motivation for learning. The LMS establishes learning as an active and interactive process [5]. Through a LMS, learners have flexible access to training resources on an as and when needed basis. Learners can continue to acquire and exchange additional knowledge over a LMS through social learning and knowledge collaboration [4]. Participation can also be supported through the use of open educational resources such as brief online courses, animations, simulations and virtual worlds. Learners can annotate, add or modify these resources (while ensuring that intellectual property rights are respected) and can include interactive evaluation questions and feedback. [11][12]

Some of the activities that were conducted in the blended learning program to support the development of participation skills were:

- Sharing of open educational resources with program participants
• Learners creating new content through a case study where they applied what they had learned in previous weeks to a current world-wide event involving the present day abuse of human rights
• Learners were asked to provide written feedback to a post from the facilitator in the closed group in the CoP in the LMS
• Group project work
• Completion of a post-program evaluation

2.4 Networking and Sharing

Networking and sharing of information among learners is certainly enabled due to the very nature of a learning management system. The increased interaction between learners and trainers/instructors is an advantage of leveraging a LMS for blended learning [4]. Collaborative and social learning tools and online help encourage interaction between learners and learners and trainers. When blended learning programs are delivered through a LMS, the benefits of both traditional and contemporary learning methodologies are absorbed by the learners. Thanekar notes that “…the collaborative environment provided by knowledge collaboration and social learning tools ensures that knowledge is no longer contained in silos defined by geography, function or domain, and can be shared and viewed transparently.” [4]

Creating a community of practice among learners to share information and network is not a new concept within the educational and training world. What is new is how a LMS can facilitate this sharing of information and networking through online communities of practice that are self-directed or managed by the learners themselves. These online communities of practice can be viewed as supporting continuous learning or life-long learning. [11]

Some of the activities that were conducted in the blended learning program to support the development of networking and sharing skills were:
• Construction of knowledge through other online collaboration tools available to GAC
• Asynchronous and dynamic synchronous discussions and interactions of colleagues online
• Peer to peer feedback on online comments posted in discussions
• “Legacy of Learning” being built through the online blended program which was further shared on the job and through the LMS
• File sharing through the LMS
• Construction of a CoP within the LMS

3 RESULTS

The post program evaluation questionnaire was distributed to program participants at the end of the blended learning program (Table. 2).

Table 2. Post Program Evaluation Questionnaire.

<table>
<thead>
<tr>
<th>I have taken an online course before</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have participated in an online community of practice discussion group before</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

1. How much did you know about Human Rights,
   1a. Before taking the online course and participating in the online community of practice discussion group?
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing at all</td>
<td>Some</td>
<td>A lot</td>
<td></td>
<td></td>
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</table>

   1b. After taking the online course and participating in the online community of practice discussion group?
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing at all</td>
<td>Some</td>
<td>A lot</td>
<td></td>
<td></td>
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</tbody>
</table>
2. How likely are you to use the information taught in this pilot on the job?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>Not sure</td>
<td>Very likely</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Use the ratings to provide feedback on the online course:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>I had a clear idea of what content to expect just by reading the title of each module.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media such as audio, graphics, animation, supported the presentation of the content.</td>
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<td></td>
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<tr>
<td>Examples and/or case studies were relevant to my work.</td>
<td></td>
<td></td>
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<tr>
<td>Scenarios were representative of real-life situations.</td>
<td></td>
<td></td>
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<tr>
<td>The exercises were applicable to my workplace.</td>
<td></td>
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<tr>
<td>When submitting an answer to a question, the feedback offered further explanation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Messages prompting me to reflect on my learning were an added value.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Links to additional resources and material will be useful back in the workplace.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I have acquired new knowledge and skills from this online course.</td>
<td></td>
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<td></td>
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</table>

4. Use the ratings to provide feedback on the online community of practice discussion group:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>I had a clear idea of what content to expect just by reading the title of each discussion topic.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examples and/or case studies were relevant to my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When contributing to a discussion topic, the feedback offered from others in the group provided further explanation.</td>
<td></td>
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<td></td>
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<tr>
<td>Messages from the online facilitator prompting me to reflect on my learning were an added value.</td>
<td></td>
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<tr>
<td>The overall navigation in the discussion group worked well.</td>
<td></td>
<td></td>
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<tr>
<td>Links to additional resources and material in the Attachments tab will be useful back in the workplace.</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>I have acquired new knowledge and skills from this online community of practice discussion group.</td>
<td></td>
<td></td>
<td></td>
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</table>

5. Comments/Suggestions for improvement:

6. Number of hours per week I use the internet:

<table>
<thead>
<tr>
<th></th>
<th>Less than 5 hours</th>
<th>5 to 10 hours</th>
<th>More than 10 hours</th>
</tr>
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</table>

THANK YOU!
Four participants completed the evaluation questionnaire. All had taken an online course before and two of the four respondents had participated in an online community of practice discussion. For the questions that inquired about participants’ knowledge of human rights before participating in the program and after participation, all respondents increased their rating by at least one point on the scoring scale. Two respondents were “Not Sure” if they would be likely to use the information taught in this pilot on the job. One of the other respondents was “Very Likely” to use the information taught in this pilot on the job.

32 of the 36 answers (9 questions X 4 participants) to all of the questions concerning feedback on the online course were in the “Agree/Strongly Agree” ratings, with three of the remaining answers “Neither agree nor disagree” and one answer of “Not applicable”. 25 of the 28 answers (7 questions X 4 participants) to all of the questions concerning feedback on the online community of practice discussion group were in the “Agree/Strongly Agree” ratings with two of the remaining answers “Neither agree nor disagree” and one answer of “Not applicable”. These results support the conclusion that for those participants who completed the evaluation questionnaire, they all had a very highly favourable reaction to both the online course and the online community of practice discussion group. This is further supported by the comments that were provided by participants (Table 3).

Table 3. Comments Provided by Participants who Responded to the Evaluation Questionnaire.

<table>
<thead>
<tr>
<th>Comments on the Online Course:</th>
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<tbody>
<tr>
<td>Comment #1</td>
</tr>
<tr>
<td>Comment #2</td>
</tr>
<tr>
<td>Comment #3</td>
</tr>
<tr>
<td>Comment #4</td>
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</table>

<table>
<thead>
<tr>
<th>Comments on the Online Community of Practice Discussion Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment #5</td>
</tr>
<tr>
<td>Comment #6</td>
</tr>
</tbody>
</table>
### Comments/Suggestions for Improvement

| Comment #7 | I think it is a great initiative to have more interactive online courses for GAC employees. I have found that training can be a way for people to make connections and learn about other areas of the department. Discussion questions could have been harder or demanded more of the course participants. Participants could perhaps be asked to search for additional material to share with other participants. |

3.1 Lessons Learned

Some lessons learned as a result of conducting the online facilitation of this blended learning program in a virtual environment are (Note: These lessons learned have been cross-walked with comments provided by respondents that are listed in Figure 3):

- Importance of the role of the online facilitator to initiate and moderate discussions especially in the early stages of the program (Comment #4).
- Importance of the role of the online facilitator to keep participants on track and reminders to check the CoP regularly if there is no email notification (Comments #3, #4, #5, #6, #7).
- Choose subject matter carefully so that participants are well engaged (Comments #1, #3, #6, #7).
- Ensure that effective instructions are provided early in the use of the LMS (Comments #4, #5).
- Size matters – there will always be some participants that are more active than others, if the group is too small, there will not be enough people for engaging discussions. (Comments #2, #3, #4, #7)
- Ensure the LMS used has the functionality necessary to easily facilitate the assigned learning activities. Frustration with software and technology can have a negative impact on the learning experience. (Comments #2, #3, #4, #5).
- With a content area such as Human Rights, subject matter experts can enrich the discussion and keep discussions flowing. Consider asking a subject matter expert to be a guest online facilitator for a portion of the program. (Comment #7).
- Convenience of and the positive benefit to participants of the training being available 24/7 (Comment #3).

4 CONCLUSIONS

Hoic-Bozic et al. concluded that the “…new generation of LMSs will focus not only on learning content creation, delivery and assessment, but will try to include constructivist and collaborative learning and teaching methods as well. This new approach is expected to increase student motivation for learning and lead to better results.” [5] By increasing motivation for learning, students will be more interested in independent learning and will be better prepared for lifelong learning, a necessary skill for successful participation in the knowledge society. [5]

This paper presents some of the learning activities that were conducted during the delivery of a blended learning program through an LMS in order to develop 21st century learning skills in students. McGill and Klobas noted that “much of the research on LMSs has had a technology focus or has been limited to studies of adoption. In order to take advantage of the potential associated with LMSs, research that addresses the role of LMSs in learning success is needed.” [13] Moving forward, GAC will continue the research in designing and developing blended learning programs through a learning management system by focusing on various learning approaches such as problem based learning, mobile learning etc. in order to help GAC employees further improve their knowledge of and performance with key 21st century learning skills and competencies.
REFERENCES


