

# **Using Gamification in Developing LBS Curriculum and Beyond**

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**March 2017**

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## Executive Summary

A growing trend in learning communities is to integrate gamification – the concept of applying game mechanics and game design techniques to engage and motivate people to achieve their learning goals. What would an adult literacy program be hoping to achieve via gamification? The answer: increased learner engagement. Gamification is about applying game mechanics and game design techniques to engage and motivate people. This paper reviews aspects of gamification to be used, when possible and appropriate, for curriculum development, and to enhance Literacy and Basic Skills (LBS) service delivery by its incorporation into other program elements.

The paper examines two basic components that are essential for understanding and applying gamification. The first is game mechanics, which are rules-based systems, such as points, levels, badges, and leaderboards, designed to encourage users to explore their learning space. The second is game dynamics. Game dynamics are the behaviours that users exhibit as a result of the game mechanics and can include the seeking of rewards, status, achievement, self-expression and competition. The paper defines both and illustrates how both are used to appeal to the different personalities exhibited by adult learners.

Gamification engages learners because it fosters individualization and enables learners to personalize their learning experience. This paper explores the connection between gamification, learner motivation and learning/gaming styles and encourages LBS providers to consider learning styles through a gamification lens.

The playing of games can be viewed as a solitary endeavour and potentially one, with its emphasis on pictures and images that can detract from the building of literacy skills. Two ways in which gamification has been linked to the building of social and literacy skills are discussed.

Respecting that LBS programs have varying levels of familiarity with gamification, different resources levels, and different priorities, the paper reviews levels of gamification that can be applied in adult literacy programs. The first level explores strategies for applying gamification theory to existing curricula without the use of gamification, and includes an example of using basic gamification with a short-term, targeted program.

The paper points out that another way for LBS programs to apply gamification is to use existing learning management systems that incorporate gamification strategies or to take existing curricula and recast the activities using learning management systems with built-in gamification options.

The paper goes on to present gamification information on each of the following learning management systems: PLATO, Desire2Learn (D2L)/Brightspace, Moodle and Saba, about which LBS providers are generally already aware of or may now use.

While LBS is quite new to understanding and applying gamification, research and projects that are LBS-specific have been conducted, both in the academic and the non-academic realms. The report identifies LBS-specific gamification efforts and highlights a gamification/literacy research project that studied post-secondary students. It concludes with descriptions of two projects – XPRIZE and Literacy Uplift – that are

large-scale and in progress and may incorporate gamification as a means to engage adult literacy learners.

Gamification can lead to increased learner engagement. A careful review of the resources highlighted in this paper demonstrates that a casual use of gamification strategies may not result in the intended benefits. Rather, Literacy and Basic Skills programs that wish to move in the direction of gamification should do so with some degree of planning and strategy. The pursuit of gamification, with its emphasis on individualization and motivation, aligns well with some of the principles upon which the learner-centred LBS Program is founded.

## Introduction

The world around us is changing, increasingly integrating and relying on technology. Gaming – that is the action and practice of playing video games – is on the rise. According to the [2015 Essential Facts about the Canadian Video Game Industry](#), an incredible 19 million (or 54%) of the Canadian population are gamers. And they're not all young men. This report shows that 52% of Canadian gamers are male and 48% are female – almost an even split.

Learning, too, is constantly evolving, both in terms of content and in the way it is delivered to its intended audiences. A growing trend in learning communities is to integrate gamification - the concept of applying game mechanics and game design techniques to engage and motivate people to achieve their learning goals.

Why gamify? It's a good question. What would an adult literacy program be hoping to achieve via gamification? The answer: increased learner engagement. The expectations of adult learners change with the times. As our society continues to integrate technology, from banking to recreation to learning, gamification may be an emerging means to attracting and retaining adult learners.

Some may think that gamification is a concept and a practice that only successful video game companies can afford – a practice that can only be successfully applied with high tech animation and with young adults. But in Literacy and Basic Skills (LBS) programs, where the goal is to develop engaging curriculum and learning activities, there are ways in which gamification techniques can be applied no matter what a program's budget, comfort level or technology may be.

On the surface, defining gamification seems simple. It's about applying game mechanics and game design techniques to engage and motivate people. Yes – it sounds simple, but the reality is quite different. The extent to which learning materials are gamified depends on many factors:

- Who is doing the learning?
- What motivates your audience(s)?
- What is staff's comfort level with gamification? With technology? With gamification and technology?
- How much money do you have, if any, for development?
- How compatible is your existing technology with your desired technology?

The purpose of this paper is to review aspects of gamification to be used when possible and appropriate, for curriculum development, and to enhance LBS service delivery by its incorporation in other program elements.

## Curriculum Development in Literacy and Basic Skills (LBS)

Literacy and Basic Skills (LBS) programs have a rich history of developing curriculum to meet the needs of adult literacy learners. A review of that history shows significant change and growth. The LBS field has moved from a focus on skills acquisition to the use of learning outcomes, then on to demonstrations and authentic learning materials. Subsequent years introduced occupational-specific curriculum – to better prepare learners for specific types of employment.

More recently, there has been a rise in the development and use of targeted short-term programming within LBS programs. Arguably, these programs have been developed as a result of collaboration with other stakeholders (Ontario Works, employment services, etc.).

LBS programs have also sought to develop programming that is specific to certain learner demographics. The field has seen, for example, programming that is specific to young mothers, to individuals with a manufacturing background, older workers, and youth.

It is the demographic of youth that has perhaps caught LBS organizations' greatest attention, given the Ministry of Advanced Education and Skills Development's (MAESD's) focus on youth and youth employment in recent history. Increasing numbers of youth (between the ages of 19-29) are entering LBS programs such that youth now comprise almost half of all learners in LBS programs. Yet youth are also notoriously difficult to engage. Ontario Works client caseloads show marked changes: A decade ago, young mothers would have made up a significant portion of the Ontario Works client caseload. A notable trend has been the rising number of young males with no dependents on Ontario Works – young males who are not involved in employment, education or training.

The rising interest in gamification in the LBS field is due, in large part, to the increase in young males with low levels of literacy skills and the perceived need to develop curriculum that will be engaging to this population group. However, as other research has demonstrated, the introduction of gamification may have benefits that extend beyond young males.

## Potential Benefits of Gamification to Learning

Is gamification all that it is purported to be? Should adult literacy programs implement gamification? If so, should it only be applied to curriculum that is of interest to young learners?

These are all important questions, and the following infographic titled "[Gamification in Education](#)" provides some interesting statistics for readers to consider. The article which contains the infographic suggests that gamification not only helps learners effectively acquire new knowledge, but it is also

helpful in reinforcing learners' capacity to retain the information – that is, gamification assists learners in committing information to long-term memory.

Another online document - [7 things you should know about gamification](#) – provides a good orientation to the topic of gamification, and further information on:

- What is it?
- How does it work?
- Who's doing it?
- Why is it significant?
- What are the downsides?
- Where is it going?
- What are the implications for teaching and learning?

For more information on how to use gamification advantageously, review this [20-minute video](#) by Kevin Werbach on Teaching Gamification at Coursera, which explores:

- Opportunities and dangers in the gamification of learning.
- Techniques for effective gamification in educational settings.
- How game thinking produced the highest engagement rates of any course on the Coursera massive online platform. (It's not what you think!)



## Definitions

To review gamification and adult literacy, this paper begins by clarifying some definitions. Like any emerging field of work, the field of gamification is growing and, with it, new terms to describe what is and what is not *gamification*.

**Gamification** – Gamification is the concept of applying game mechanics and game design techniques to engage and motivate people to achieve their goals. Gamification taps into the user’s basic desires, needs and impulses which revolve around the idea of Status and Achievement.

Source: <https://badgeville.com/wiki/Gamification>

**Serious gaming** – A serious game or applied game is a game designed for a primary purpose other than pure entertainment. The "serious" adjective is generally prepended to refer to video games used by industries like defense, education, scientific exploration, health care, emergency management, city planning, engineering, and politics.

Source: [https://en.wikipedia.org/wiki/Serious\\_game](https://en.wikipedia.org/wiki/Serious_game)

**Learning game/educational games** – Educational games are games explicitly designed with educational purposes, or which have incidental or secondary educational value. All types of games may be used in an educational environment. Educational games are games that are designed to help people to learn about certain subjects, expand concepts, reinforce development, understand a historical event or culture, or assist them in learning a skill as they play.

Source: [https://en.wikipedia.org/wiki/Educational\\_game](https://en.wikipedia.org/wiki/Educational_game)

	Learning game	Gamified application
Design process	Designed as a game from the beginning	Adding game mechanics to an existing application
Resulting application	A game with educational elements	A learning application enriched by game mechanics

Source:

[https://www.researchgate.net/publication/261376813\\_Motivation\\_for\\_Learning\\_Adaptive\\_Gamification\\_for\\_Web-based\\_Learning\\_Environments](https://www.researchgate.net/publication/261376813_Motivation_for_Learning_Adaptive_Gamification_for_Web-based_Learning_Environments)

**Game-Based Learning** – relates to the use of games to enhance the learning experience. Commercial games, such as Sim City, Civilization, Minecraft and World of Warcraft can be tied to curriculum.

Source: <http://inservice.ascd.org/the-difference-between-gamification-and-game-based-learning/>





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## Games and Learning

Gamification and learning is a broad topic. There are many types of games and many types of learning environments. A good visual that demonstrates the broader intersection of gaming and learning has been developed by Allen Interaction. Based on Bloom’s Taxonomy, Allen Interaction has developed the [Taxonomy Alignment for Gaming \(TAG\)](#), featured below:

# Taxonomy Alignment for Gaming (TAG)



Readers who are newer to the topic of gamification may wish to familiarize themselves with the Taxonomy Alignment for Gaming and consider where and how in their existing Literacy and Basic Skills Programming they have already begun to use games to facilitate learning.

## Gamification Theory

Gamification operates on a number of levels – both in video game development and in learning. It can be a complex concept. There are two basic components that are essential for understanding and applying gamification. The first is game mechanics, and the second is game dynamics.

Game mechanics have been [defined](#) as “rule based systems / simulations that facilitate and encourage a user to explore and learn the properties of their possibility space through the use of feedback mechanisms.” Put more simply, game mechanics involve sets of rules and scenarios that help and encourage a user to engage in exploring and receiving feedback while they explore. What is important to remember here is that game mechanics refer to systems or simulations that provide feedback to users, or, in the case of Literacy and Basic Skills Programs, to learners.

The following are some examples of game mechanics:

Points
Levels
Badges
Challenges
Virtual goods and spaces
Leaderboards
Gifts and charity

Game dynamics have been [described](#) as “the emergent behaviors that arise from gameplay, when the mechanics are put into use.” Examples of game dynamics include:

Rewards
Status
Achievement
Self-expression
Competition
Altruism

[Gamification 101: An Introduction to Game Dynamics](#) does an excellent job of showing the interplay between game mechanics and dynamics. See chart below.

Game Mechanics	Human Desires					
	Reward	Status	Achievement	Self-Expression	Competition	Altruism
Points	√	√	√		√	√
Levels		√	√		√	
Challenges	√	√	√	√	√	√
Virtual Goods	√	√	√	√	√	
Leaderboards		√	√		√	√
Gifting and Charity		√	√		√	√

This chart shows how different game mechanics can be used to promote certain types of behaviour in players/learners.

Another overview of gamification can be found in the publication [The Gamification Spectrum](#), which provides insight into gamification behaviours and the concepts that support gamification.

## Motivation, Learning Styles and Gamification

As was mentioned earlier in this report, motivation is a key factor in adopting, designing and implementing gamification strategies. All LBS programs understand the importance of learner engagement – not just initial engagement, but ongoing engagement as well. The 10-page research paper, [Motivation for Learning: Adaptive Gamification for Web-based Learning Environments](#), reviews how gamification and motivation meet and presents a “generic and adaptive gamification system that can be plugged on various learning environments”.

Part of what is so motivating about gamification, according to the authors of this paper and many others, is that gamification offers the opportunity to personalize learning. How? By recognizing that people have different personalities and, therefore, different motivations. There are some generalizations that are often associated with gaming personalities. For example, older adults need games without pressing time constraints. Another generalization is that women prefer role-playing games while men prefer action, adventure simulation and sport games. As games and gamification gain traction in learning and other environments, classifications of gaming personalities have become more specific, and there are multiple classifications of learning personalities.

The types of personalities associated with a game often depend on the type of game itself. GamerNexus encourages individuals to identify their gaming personality with its [“Gamer Personalities: What Type of Gamer Are You?”](#) page.

Regardless of the classification system used, gamers or online learners are classified or sorted by the types of things that will motivate them in a gaming context.

This paper classified learners as belonging in one of five categories: dominant, objectivist, humanist, inquisitive, or creative. The chart below shows the types of game elements that are most likely to appeal to or motivate each classification of learner:

Classification	Examples of game elements
Dominant	Characters, conflicts
Objectivist	Objectives, challenge
Humanist	Story/Narrative, dramatic art
Inquisitive	Aesthetics, boundaries
Creative	Resources, world building

The paper concludes with the suggestion that this type of adaptive gamification system may best be applied to tasks and learning that may not traditionally be considered motivating by learners, such as memorization (math rules or vocabulary).

All Literacy and Basic Skills programs work with adult learners to identify learners’ dominant learning style(s). Could LBS programs expand this self-exploration to assist adult learners in understanding what motivates them in a gamified environment?

## Gamification and Social Skills

When first learning about gamification, many people may not believe that gamification can promote social skills. After all, it seems as though gaming or the use of games may actually do the opposite, resulting in individuals engaging with computer screens instead of human beings. The article, [Building Social Skills and Literacy Through Gaming](#), looks at video games as a means of storytelling.

The article suggests that “games provide the same rich and extremely flexible learning experience for engaging learners/players/readers in developing the types of understanding and perspective that literature similarly helps its readers develop social, emotional and interpersonal literacies.” It compares video gaming to reading and concludes with the provocative question: Can games be an effective tool for teaching social skills and literacy? Gamification can drive participation and engagement of every kind, including

Watching instructional videos	Listening to TedTalks
Viewing photos	Sending and crafting emails
Creating content	Answering questions
Doing online searches	Taking quizzes
Rating grocery store products	Sharing personal information
Voting on instructional content	Reading current event articles
Writing comments on peers' work	Filling out program forms
Writing and posting to blogs	Participating in group discussions
Recommending other learning sites	Taking opinion polls
Visiting other learning sites	

Literacy and Basic Skills have a very long and rich history of using texts and teaching reading. The question posed by this article might be an interesting one to have at a staff meeting to assess if all staff at an LBS program have the same thoughts towards video games. Do they assist with learning? Hinder learning? It would be difficult to move towards gamification to any degree if staff are not on board.

The concept of being social extends beyond individuals and can be applied to the community at large, however one describes their community. In the article titled [Gamification – creating engaging learning communities](#), author, Oliver Simko, suggests that gamification and communities share some similarities.

Both games and communities are made up on different personalities. And those personalities often need to find ways to work together. In addition, both games and communities have sets of rules that gamers or residents of that community must live by.

Literacy and Basic Skills programs may wish to review the Engage with Others competency through the Ontario Adult Literacy Curriculum Framework to see to what extent some of the defined skills could be applied in a game-like or gamified setting.

## When Are Learners Ready for Gamification?

Literacy and Basic Skills (LBS) programs have been moving towards the integrated use of technology for several years. Most LBS programs have learners who are working both online and in a face-to-face setting with practitioners, instructors or volunteer tutors. But how do you know if online learners are ready to embrace gamification? This aptly named article - [5 Tell-Tale Signs That Your Online Learners Are Ready For Gamification](#) – provides five reasons for introducing gamification to learners who are already familiar with online learning.

1. Online learners need immediate, personalized feedback
2. Online learners want to try out different risk-free approaches
3. Online learners feel their accomplishments are being overlooked
4. The term "mandatory compliance" makes them yawn, sigh or shudder
5. The current strategy doesn't cater to their personal learning needs

What this article suggests is that personalized feedback is critical in implementing gamification. The article also highlights that gamification provides opportunities to credit, reward or, looked at another way, motivate, adult learners. Finally, readers are reminded of how important choice is to adult learners.

For additional details on each of the five reasons, please review the full article.

## Laddering Gamification in LBS

If an LBS program decides that it is time to gamify curriculum, there are several options. Plan to “ladder” your gamification efforts. The strategy is to build a ladder for people to climb. Start with tools on the far left of the gamification spectrum (e.g., points) – the easiest games – to engage the widest possible audience. As learners master these easy games, level them up and introduce them to the next tool on the spectrum. This paper will present three options:

- Adding gamification elements to existing curriculum
- Using a gamified learning management system and adding learning curriculum
- Using learning management systems that are already in use in Literacy and Basic Skills, and explore their potential for gamification

### Add Gamification Without Technology

This option may be the simplest way to explore gamification in an LBS program because a program can add “game-like” elements to existing learning processes to further motivate and engage learners. The Taxonomy Alignment for Gaming illustrates that there are many ways to look at integrating gamification with learning, beginning with simple games such as flash cards and the traditional game of memory. These methods may not be as flashy as the video games of today, but they begin to introduce some game mechanics such as challenge and to activate human desires such as achievement (refer to the chart on the previous page).

## Pros

There are several pros to this approach. It can be cost-effective, so programs that are operating on a limited budget can begin to work towards a gamified approach without a significant outlay of funds. The other benefit to adding gamification elements without the use of technology is that the learning curve may be shorter for both learners and practitioners.

## Cons

Strong advocates for gamification will suggest that “dabbling” in gamification – that is, attempting to add elements of gamification to existing situations without the use of technology – may not result in the level of intended engagement.

## Using Technology to Add Gamification

The article [Low-Cost Gamification for Adult Learners](#) is about low-cost gamification for eLearning courses. It recommends:

1. Use simple over sophisticated user interface
2. Emphasize usability and uniqueness features over quantity
3. Enhance social media integration; it provides an alternate user interface for learning, can be used to channel announcements, leaderboards, bulletins, etc., and is already mobile-integrated
4. Provide self-help guides over live/video training; in many instances, the same content can be easily delivered through infographic guides and FAQ pages
5. Consider scheduled versus real-time performance analysis. Performance analysis is a standard feature provided by many vendors. What sets expensive vendors apart is that some of them have real-time performance analysis systems that allow users to check their progress immediately after completing tasks. While, instant feedback is important in eLearning, it may get costly. Scheduled (daily, weekly, or monthly) and real-time performance reports are much cheaper and equally appreciated by the learners.
6. Design your own assessment tools - Many people who are new to eLearning often think that the content is the only major thing that determines cost of their eLearning product. However, that's not always the case. Some vendors actually charge additional payment just for formulating and implementing assessment tools. To avoid spending more money than necessary, consider developing challenging assessments yourself.
7. Be strict with standard features – Standard features include curriculum paths, batch uploads, reports, and calendars. When going for low-cost gamification, it is best to ensure that the standards are well-delivered and without compromise. Focus on a few highly-efficient features that really add value to learning – not on the UI's appearance.

LBS programs can benefit from the article, [Stop Boring Content: Gamify your Learning in 8 steps that make a difference](#), which identifies measures a program can take to begin gamifying learning. These steps are highlighted in the left-hand column in the chart below. In the right-hand column are suggestions for how these steps could be demonstrated in an LBS program, using financial literacy curriculum as an example.

Step	What this could look like in an LBS program
Step 1: Win Scenario – Define all of the course objectives in a clear way. How do you “beat” this unit? How do I “win” this course?	In the financial literacy curriculum/course, learners “win” by having some money left over at the end of the month. Learners will be confronted by obstacles as they learn the principles of financial management.
Step 2: Story Line – Define an overarching story or consistent theme to situate the content in an interesting context or scenario for the learner. Consider using case-based learning or problem-based learning models when defining a storyline.	<p>Story Line – Learners have finally moved into a decent apartment in a good neighbourhood, where all the amenities (grocery store, pharmacy, bank, bus stops, etc.) are close by.</p> <p>They must use their resources (monthly income) wisely to manage and not be threatened with eviction next month.</p>
Step 3: Quests – These are the individual units in the curriculum. Try to avoid fake or unbelievable concepts and try to make them situated to the actual work environment while making them based on real things that the learner will need to know.	<p>Quests or units:</p> <ul style="list-style-type: none"> <li>• Shelter</li> <li>• Food</li> <li>• Water/hydro</li> <li>• Clothing</li> <li>• Transportation</li> <li>• Entertainment</li> </ul>
Step 4: Course Avatars – Allow learners to develop their own avatar which will reflect their accomplishments as they move through the curriculum.	An avatar is the graphical representation of the learner or the learner’s alter ego or character. <a href="#">Here</a> is a site which will assist learners in creating an avatar. LBS sites conducting on-site programming could consider having a box of crafts that learners can use to create their own avatar – one that they will keep throughout the course and that they will adorn as they achieve certain milestones and/or quests.
Step 5: Points System – The point system should be used as a positive reinforcement model for moving the user through the course.	<p>As learners complete each quest (unit), they receive 25 points. Each quest contains an additional obstacle that, if overcome, will earn learners an additional 10 points. Each quest will also enable learners to pick up additional “items” which will be useful.</p> <p>Note: Additional items that are achieved can be displayed by the avatar.</p> <p>Upon completion of the course, the points can be cashed in for prizes (to be determined by the program).</p>
Step 6: Levelling – Levelling lets learners know how they are doing within the learning environment.	The successful completion of each quest will mean that a learner will “level up”.
Step 7: Badges – Badges signify a reward for accomplishment. They should not be token, but could be tied to a reward system.	Badges will be awarded at the end of each quest. While the learning activities are primarily focused on financial learning and management, learners are also able to achieve badges for humanitarianism, cultural competency, and/or other achievements.



Step	What this could look like in an LBS program
Step 8: Learner Urgency – Create a sense of urgency for the learner to move through the learning materials.	If the learner does not complete all the learning materials, they will not make it to the game’s conclusion and rewards.

Note:

Consider different groups of learners served in your program. Are there customized scenarios and story lines that might appeal to different groups? If youth form a significant percentage of learners, perhaps a post-apocalyptic story line might appeal. Good Learning Anywhere has already been exploring this theme! For learners who are parents, is there a parenting story line and scenarios that could be incorporated?

LBS organizations might also consider a gamification approach that each adult literacy program in a community could approach as a group. A Literacy Service Planning group could identify a segment of the population it would like to target and develop a gamification strategy for this population.

**Learning Management Systems and Gamification**

This section of the report will explore the use of learning management systems (LMSs) and plug-ins that have been designed for gamification.

Wikipedia defines a Learning Management System (LMS) as a software application for the administration, documentation, tracking, reporting and delivery of electronic educational technology (also called e-learning) courses or training programs.

A plug-in is a software component that adds a specific feature to an existing computer program. When a program supports plug-ins, it enables customization. As has already been mentioned, customization is an important aspect of gamification, enabling learners to personalize their achievements and learning.

**Pros**

An advantage to using these software applications and components is that someone else has already done the thinking of “how” to gamify the learning activities and this additional responsibility will not fall to LBS practitioners and administrators. Another benefit is that the use of such applications and components will enable LBS programs to apply gamification in a more sophisticated manner than would likely be possible if LBS programs must rely on non-technological gamification methods.

**Cons**

While having access to technology (software and components) will assist LBS programs in achieving more sophisticated gamification, there must still be an integration of LBS curriculum and the technology, requiring some understanding of the technology and some technical skills. In addition, not all gamification plug-in software is free.

## How to Apply Gamification Tools Within Learning Management Systems (LMSs)

A basic search of gamification and Learning Management Systems (LMSs) on the Internet may seem quite promising at first, but many companies that have designed LMSs that are built upon gamification have done so for corporate training and might not be as relevant to LBS programming. For Internet searches, use “Learning Management Systems and education” and you will come up with some more applicable results. Often, these results will be more geared to the K-12 education system than the adult education system, but readers may see some familiar Learning Management Systems referenced.

## PLATO, Saba, Desire2Learn(D2L)/Brightspace, Moodle and Saba

As was mentioned earlier, Desire2Learn and Moodle are already in use in Ontario by some adult literacy programs, as is PLATO. This section of the report will explore how gamification is being integrated/used by these Learning Management Systems.

### PLATO

The PLATO courseware and learning environment are products of Edmentum, Inc. Most adult literacy practitioners, if they are familiar with PLATO, will have heard of its use in assisting adult learners in upgrading and moving towards Gr. 12 completion. Students learn from videos, readings and interactive multimedia activities in the PLATO environment. They do some assignments and tests online and can upload others. They can communicate with teachers and other students via a threaded discussion feature.

Teachers or practitioners can view reports and charts on student progress. They can add, remove or change the order of course content to individualize student learning.

Edmentum is moving into gamification, starting with [Reading Eggspress](#). This site is obviously designed for young children, but provides insight into how Edmentum is moving towards the use of gamified techniques.

The site describes its gamification as follows:

The updated Stadium feature in Reading Eggspress will help students apply their knowledge in a risk-free gaming environment by providing a better head-to-head experience that tests their English skills. Students will now be able to choose to compete in real time against their class, school, other students from around the world, or in practice mode. When students enter the competitive arena, they are automatically set to play at their grade level, with two levels of difficulty to choose from at each grade.

In this updated feature, learners will be presented with questions in a series of stadium challenges, as their avatar races three opponents along the bottom of the screen with each right answer. Each session brings new excitement, as there are hundreds of questions at each grade level to ensure students are flexing their language muscles in different ways.

## Desire2Learn/Brightspace

Desire2Learn has also been adding features that enable increased use of gamification techniques. Literacy and Basic Skills practitioners who have access to Desire2Learn – most likely school board-based and college-based academic upgrading/LBS programs – may benefit from [Gamification: Leveraging the D2L Tools Already at Your Disposal](#) (the presentation runs from 3:30 – 44:53 of the recording).

Dr. Carrie Miller of Minnesota State University's October 11, 2016 webinar [Maximizing Brightspace Tools to Create a Gamified Online Learning Environment](#) provides an overview of how specific tools in the Brightspace platform, like the Intelligent Agents, Checklists, Release Conditions, and Groups tools, can be used to create a gamified environment where students can “level up” and “beat the boss level.” Implementation and design challenges as well as lessons learned are discussed.

## Moodle

Moodle is probably the learning management system most used in the adult literacy field, likely because it is no cost for users who can implement it on their own servers independently. Moodle is an open source course management system that is used to provide an organized interface for e-learning, or learning over the Internet. The first version of Moodle was released in 2002. Moodle developers are now following the trends as they further develop the Moodle platform.

Moodle has developed new plug-ins that assist practitioners in gamifying existing and new courses. A plug-in enables customization by users. As was mentioned earlier, customization is an integral part of gamification techniques because it is the customization that enables learners to add their own touch to their learning, further engaging them to continue their learning.

Adult literacy programs that have already developed courses that use Moodle may find the article [Moodle Plug-ins for Gamification](#) useful, as this article identifies eight plug-ins that can be added to existing courses (or used in the development of new courses) to add gamification elements. The following section identifies Moodle links and descriptions of plug-ins.

### 1. Badges: <https://docs.moodle.org/25/en/Badges>

This plug-in enables you to add badges in Moodle. Badges are a good way of celebrating smaller achievements and for showing eventual progress. These badges can be set up for getting awarded based on the criteria you choose, and are fully compatible with [Mozilla Open Badges](#). For more information, see: <https://openbadges.org/faq/>.

### 2. MoodleBadges Free: <http://moodlebadges.com/>

By installing this plug-in, you get a library of gamification badges that can be used in Moodle or for any learning management software.

### 3. Blocks: Level up! [https://moodle.org/plugins/block\\_xp](https://moodle.org/plugins/block_xp)

This plug-in automatically captures and attributes experience points to students' actions. The block plug-in helps in generating reports for practitioners to get an overview of their students'/learners' levels.

4. Experience Points (XP): <https://moodle.org/plugins/browse.php?list=set&id=58>

This specific plug-in contains gamification style experience points that are given to the students. It also enables restriction of access to any activity according to a user's experience level.

5. Ranking Blocks: [https://moodle.org/plugins/block\\_ranking](https://moodle.org/plugins/block_ranking)

This plug-in improves gamification particularity in the Moodle platform. It is simple, easy to use and more visual. The plug-in helps in adding points in real time. For this plug-in to work effectively, the admin needs to configure the completion criteria for all activities you want to monitor.

6. Game Activity Module: [https://moodle.org/plugins/mod\\_game](https://moodle.org/plugins/mod_game)

This plug-in helps your learners solve quizzes, provides a glossary, questions and allows them to play some games like hangman, crossword, cryptex, millionaire, sudoku, snakes and ladders, the hidden picture etc. This plug-in is and will remain free for Moodle users.

7. Quizventure: [https://moodle.org/plugins/mod\\_quizgame](https://moodle.org/plugins/mod_quizgame)

In this plug-in, quiz questions from the course can be added and the possible answers will come down as space ships, and the learners have to shoot the correct one.

8. Exabis Games: [https://moodle.org/plugins/mod\\_exagames](https://moodle.org/plugins/mod_exagames)

The goal of this activity is to bring the aspect of game-based-learning into Moodle-courses. The way the activity works is that two of the exagames are based upon quizzes given to students within a Moodle course. This plug-in assists learners in acquiring knowledge, while having fun as an "enhancement" aspect of the quizzes.

There are also videos available that demonstrate how to add gamification elements to Moodle. These videos may be useful for practitioners who prefer visual instructions. The video, "[Gamify a Moodle course in under 20 minutes](#)" by Frederic Nevers is aimed at individuals who are quite comfortable using Moodle and who have Moodle version 2.0 or higher. Another benefit to this video is that users do not have to download or install any plug-ins to replicate what they see in the video as the presenter "gamifies" by using the core features of Moodle.

Diana Dell delivered a session called [Gamify your Moodle Course](#) at MoodleMoot US 2015. The 20-minute video provides examples of how practitioners can use the core gamification features within Moodle, add plug-ins or use Web 2.0 tools. The chart on the next page summarizes the gamification features and potential uses presented in the video.

Feature	Uses
Games Module	Create crossword puzzles that use the glossaries in the course. There are 7-8 games that can be accessed here, including Hangman, Snakes and Ladders, Hidden Pictures, and Millionaire. The Millionaire game pulls from the questions that are in the course quizzes. These games can be used to encourage repetition and give students instant feedback. Quizzes can be graded.
QuizVenture	Separate from the Games Module, QuizVenture is a space invaders-type game that interfaces with test questions.
Hot Pot (Hot Potatoes)	Free software for educators to download. Hot Pot creates simple games (5-6 types) like fill in the blanks. The games, once created, can be uploaded to Moodle. Students can do these games over and over and get feedback and hints.
Web 2.0 Tools	Examples: <ul style="list-style-type: none"> <li>• Quizlet, talking avatars, interactive quizzes (to give feedback on what students can do better)</li> <li>• Timed-Tests – Timed tests can be useful in assisting students to develop automaticity such that the answers become automatic.</li> <li>• Task Completion – generates great reports</li> <li>• Progress Bars and Course Completion Status – practitioners and students can see at a glance where students are at</li> </ul>
Unveiled Levels and Tasks	Just as in video games, Moodle practitioners can choose to hold information/material back until a learner has demonstrated completion of necessary tasks/activities
Chat Modules and Comment Blocks	Promote peer interaction. In the chat module, a chat history is kept to assist in monitoring conversation. Comment Blocks can be added to activities to encourage learners to comment while they are doing tasks and activities.
Scoreboards/Leaderboards	Scoreboards and leaderboards will pull from quiz results and display the top scorers.
Badges	Badges are part of the Moodle core offerings. Specific badges can be connected to specific activities or series of activities. Learners can display badges on their user profile page or import them into other areas (Open badges)
Printable Certificates	Can be offered to learners once learners meet criteria specified by the practitioner. Learners appreciate certificates but certificates can also be used for professional development for practitioners.

## Saba

The Ministry of Advanced Education and Skills Development (MAESD) funds Contact North | Contact Nord to provide access to Saba web conferencing for LBS organizations via e-Channel. Consequently, many adult literacy programs within Ontario have had experience with the Saba learning platform. While Saba does not currently have built-in plug-ins for gamification, creative practitioners may choose to use some of the gamification strategies identified in this report as they create content for delivery via Saba.

## The LBS Field and Gamification

Finding examples of where and how gamification has been integrated into adult literacy programming in Ontario remains challenging as there is very little literature currently available.

One research paper on the topic was found:

[Gamification and serious game approaches for adult literacy tablet software \(May 23, 2014\)](#). This paper is exciting as the research was conducted in a community-based adult literacy program in Brantford, Ontario – at the Brant Skills Centre. The authors of the paper are Kevin Browne, Christopher Anand and Elizabeth Gosse.

The full article is available at the link above for \$31.50, but the abstract for the article is below

In this paper, we overview the design of tablet apps we designed and built to teach literacy to adults, and present the results and conclusions derived from experiments performed with target users. Low adult literacy is a significant problem with a high economic cost both for the individuals and for society. Programs created to address low adult literacy face access and engagement barriers that tablet software may be able to help overcome. We designed three tablet apps, using two contrasting approaches of incorporating game-design elements to engage the users. We tested the apps with participants from the Brant Skills Centre, a non-profit organization that offers adult literacy programs in Brantford, Ontario. Though participants were divided on whether they preferred the apps to more traditional instruction, most participants preferred using the apps in addition to more traditional instruction. Based on this we conclude that gamification and serious game design approaches were effective at increasing learner engagement, and we propose a direction for future research.

Dr. Kevin Browne has been involved in additional gamification studies. Dr. Kevin Browne and associates conducted a research study in which they developed a tablet app to help adults improve their reading comprehension skills. The iPad app was designed to teach users the question generation strategy, while using gamification approaches. This [paper](#) looked at the design of the app and presented evaluation results performed with 48 post-secondary students from McMaster University. Results from the study showed that the gamified app which aimed to teach question generation strategy resulted in a statistically significant improvement in reading comprehension relative to the study's control group. The study also showed that while some gamification design elements were effective, participants noted room for improvement.

The Literacy and Basic Skills (LBS) field has begun to explore the potential for gamification for some adult learners. Literacy Link South Central (LLSC) has developed several resources, beginning in 2014:

- [Gamification and Adult Literacy \(2014\)](#)
- [Gamification Essentials for Educators \(2014\)](#)
- [Using Gamification Techniques to Increase Learner Comfort with Typing \(2014\)](#)

For more information, review Literacy Link South Central's [website](#).

### **Work to Keep an Eye On**

Another project to watch is [Literacy Uplift](#). This is a collaborative project, funded by the Social Sciences and Humanities Research Council (SSHRC), between George Brown College, Teaching English as a Second Language Toronto, Literacy Nipissing and Development Made Simple to build upon the potential of mobile learning to promote and support literacy training.

This research, to be conducted in the Centre for Arts, Design and Information Technology, will develop a set of design principles for an effective mobile learning literacy solution that will address low literacy skills among Canadian adult first and second language English learners, and equip them with the language and digital literacy skills needed to thrive in Canadian communities and workplaces. Based on these principles, a prototype of an effective mobile learning solution will be produced.

Dr. Agnieszka Palalas, representing Athabasca University, is leading the research activities of this SSHRC-funded project and providing her expertise in design-based research (DBR), mobile learning and mobile-assisted language learning (MALL). Like the XPRIZE teams, it will be notable to see if/how gamification is applied during the Literacy Uplift project.

Beyond Canada's research, the Barbara Bush Foundation Adult Literacy [XPRIZE](#), presented by Dollar General Literacy Foundation, is a global competition challenging teams to develop mobile applications for existing smart devices that result in the greatest increase in literacy skills among participating adult learners in just 12 months. The solutions will overcome key barriers to literacy learning by improving access, while increasing retention, and scaling to meet demand. The goal of XPRIZE is to empower nearly 1 in 10 low-literate adults living in the U.S. with the skills they need to improve their lives and realize their dreams.

Registered teams will compete to produce literacy skill-building apps that are accessible for use on mobile phones and that are engaging, relevant and attuned to the needs and interests of adult learners. It is likely that gamification will form part of the strategy that some of these teams will use!

## **Conclusion**

In Literacy and Basic Skills programs, the ongoing engagement of adult learners is critical. Most LBS programs do not have the resources to chase trends. However, gamification is a trend that is here to stay, having successfully made its way from video games into the realm of learning. This report has introduced gamification and demonstrated how and where adult learning curriculum and gamification can intersect. The application of gamification to curriculum can assist LBS programs in reaching out to target groups that have historically been difficult to attract to adult literacy programming. Applying gamification to all curriculum is not possible, nor is it advisable. However, LBS programs are encouraged to review the content of this report and consider how, where and when some initial steps towards gamification can be taken.