GAMIFICATION IN NURSING JURISPRUDENCE

by

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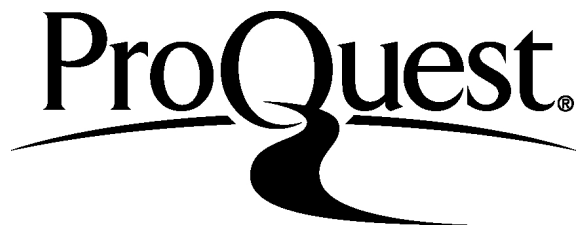
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Table of Contents

Abstract

A Licensed Practical Nurses (LPNs) understanding of regulation and standards of practice as it informs their practice, is vital to assuring public safety. The College of Licensed Practical Nurses of British Columbia (CLPNBC), along with other nursing regulatory bodies were tasked by their relative governments to design a jurisprudence education program as part of a quality assurance initiative. The CLPNBC jurisprudence pilot program used gamified learning to teach LPNs about jurisprudence and potentially influence change in their attitude and behaviors. To explore previous research and guide this research, the theoretical frameworks of gamification in learning and engagement in gamification were used. Through Evaluation Research, the Jurisprudence Pilot Project (JPP) was analyzed to determine whether LPNs identified any influence to change their attitudes and behaviours regarding how jurisprudence informs their practice. The use of gamified education is a new concept for nursing regulators in Canada, and this research draws conclusions and provides a set of recommendations for moving forward regarding engagement in the gamified education and the ability to change attitudes and behaviours related to jurisprudence education.

Key words: gamification, education, engagement, jurisprudence, regulation

Chapter One: Introduction

Introduction to Gamification

Healthcare regulatory bodies across Canada were being tasked with designing innovative ways to teach registrants about the regulation and standards of practice that govern nursing practice, known as jurisprudence. The College of Licensed Practical Nurses of British Columbia (CLPNBC) through their Quality Assurance Committee (QAC), decided to try gamification to inform and engage Licensed Practical Nurses (LPNs) in understanding jurisprudence.

Games can be an entertaining way to pass time and, depending on how the game elements are used, are proving to be beneficial for educational purposes. Gamification was first used in 2008 but really began to gain momentum in the latter half of 2010 (Deterding, Khaled, Nacke, & Dixon, 2011). There has been, and still is, much debate over the use of gamification and its definition. For the purpose of this research study, gamification will be referred to and defined in the context of academia. Gamification is "the use of elements of game design in non-game concepts" (Deterding et al., 2011, para. 5). Gamification has been defined in various ways by different people but ultimately each definition is similar in the use of game thinking and game elements in non-game contexts to engage users in solving problems and improve their experience and lead to fuller engagement (Jacobs, 2013: Landers, 2014).

To understand this definition, each piece of the definition needs to be viewed separately. The elements of games are characterized by the rules and competition towards a goal (Deterding et al., 2011, para. 6). These elements also depend on the user and the desired end goal. Other elements could include rewards, badges and competition. In addition, gamification is used in non-game concepts. The idea behind using gamification is that it piques the users' interest, keeps them engaged and enhances the users' experience (Deterding et al., 2011).

Background of Study

For LPNs, regulation is one of the least understood parts of their practice. Hudspeth (2008) defines this well noting, "an enigma is something not easily understood and is sometimes hard to explain. Thus is nursing regulation—an enigma" (p. 265). The CLPNBC's goal with the Jurisprudence Pilot Project (JPP) was to provide education in a fun and engaging way, to influence change in nurses' attitudes and behaviours surrounding regulation, while working with clients and raising the level of safe competent care.

According to the Health Regulatory Organizations of British Columbia (HROBC), there has been a struggle to define quality assurance in relation to competence since the mid-1900s (Health Regulatory Organizations of British Columbia, 2005). In the world of healthcare, the terms "quality" and "competence" can mean different things depending on whether one is a professional, a regulatory college or a client. In 1989, the Pew Health Professions Commission (the Commission) was established to assist health professionals, policy makers and educational institutions to respond to the challenges of the changing health care system. The Commission implemented initiatives to guide health professionals on how to promote accountability and develop better quality assurance processes (Health Regulatory Organizations of British Columbia, 2005). The Commission was focused on workforce regulation and how it impacts the quality of healthcare. The Commission defined professional competence as "…knowledge, judgement, technical skills and interpersonal skills relevant to professionals throughout their respective careers" (Health Regulatory Organizations of British Columbia, 2005, p. 4). As stated in the Commission's report, previous quality assurance initiatives seemed to focus more on hospitals and specific aspects of healthcare delivery, such as facilities, equipment and staff, but rarely looked at how quality assurance related to a regulatory body and the professionals they were responsible for regulating. In 1966, a physician named Avedis Donabedian, known as the

father of quality assurance, started to show the relationship between quality assurance and the

delivery of healthcare (Best & Neuhauser, 2007, p. 472). Donabedian's work looked at three

pieces of a healthcare system and related quality assurance measures: structure - including

resources; process - the task that was being completed; and outcomes how effective care was

based on patient satisfaction, and use of resources (Health Regulatory Organizations of British

Columbia, 2005, p. 3). Donabedian stated:

> People have a big problem understanding the relationship between quality and systems.
>
> It is the ethical dimension of individuals that is essential to a system's success…you can
>
> then work backward to monitor and improve the system. (Best & Neuhauser, 2007, p.
>
> 472)

In 2012, health regulatory bodies across Canada received direction from their respective

provincial governments to design a quality assurance program for registrants that focused on the

safety of the healthcare client. Quality assurance strategies need the ability to measure

competence through "integration and application of knowledge, skills, attitudes and judgment

required for safe and appropriate performance in an individual's practice" (College of Licensed

Practical Nurses of BC, 2014, p. 10). The Health Professions Act (HPA) 2015, sets out the

authority for regulatory colleges in British Columbia to "establish, monitor and enforce standards

of practice; to enhance the quality of practice; and reduce incompetent, impaired or unethical

practice amongst registrants; and to establish and maintain a continuing competency program to

promote high practice standards amongst registrants" (s. 16). The CLPNBC carries out these

objectives through the work of its QAC. LPNs are required to adhere to the regulation and

standards of practice set by the government and the regulatory body, but are also required, as

members of a self-regulating profession, to understand the regulation, and standards of practice

(jurisprudence) governing nursing practice, and apply them to their practice appropriately (Entry to Practice Competencies for Licensed Practical Nurses, 2013, p. 7).

Where it Began for CLPNBC

The QAC, usually comprised of board members, LPNs, a public member and two staff liaisons, had not been functioning to their full capacity for several years due to a lack of direction in their duties. In 2012, the CLPNBC hired a new Director of Policy and Practice, and with this came a renewed focus on the development of a quality assurance framework, undertaken by the QAC. The QAC developed a three pillar approach to its new quality assurance program.

The first pillar identifies a practice hour requirement: This pillar stated that LPNs in BC must engage in a minimum of 1125 LPN practice related hours within a five-year period (QA Framework, 2013, para. 5). This pillar was implemented in 2014, the end of the first 5-year cycle at renewal 2018. However, there still remains much debate about whether the practice hour requirement actually translates to nursing competence, or simply informs the CLPNBC that a LPN is employed in an LPN nursing role. As stated on the CLPNBC's website, "this minimum number of hours is one indicator of competence to practice" (College of Licensed Practical Nurses of British Columbia, n.d., para. 6). The second pillar involves jurisprudence as defined previously, which was piloted in 2015 and became a requirement of registration beginning in 2016-2017. The CLPNBC's QAC determined that a jurisprudence education program enhanced through gamification could potentially teach LPNs how jurisprudence relates to their nursing practice. Several members of the QAC had completed online learning in the past and believed what they experienced, could be done with the jurisprudence education but enhance it by adding gamification. The third and final pillar will be introduced in 2017, and pertains to practice feedback. Employers, colleagues and clients will provide feedback regarding the LPNs' practice.

The CLPNBC's goal is that together the three pillars will lead to greater quality nursing care and provide a measurement for competent nursing practice.

The research in this thesis is focused on the second pillar - jurisprudence. Taber's (2005) defines jurisprudence as "the application of the principles of law as they relate to the practice of nursing, to the obligations of nurses to their patients, and to the relationships of nurses with each other and other healthcare professionals". The HPA (2015), sets out the objectives of the CLPNBC including, but not limited to the following: "to establish, monitor and enforce standards of practice, to enhance the quality of practice and reduce incompetent, impaired or unethical practice amongst registrants" and "establish and maintain a continuing competency program to promote high practice standards amongst registrants" (s. 16.2). Nurses need to understand that people place their trust in the nurses that care for them, so being able to provide safe, competent care should be the most important goal for all nurses.

Gamified Education

The QAC determined that the use of gamification in the education modules (see Appendix F), which includes six days in the life of an LPN, could be an engaging way to immerse nurses in real life activities that they have seen or may see in their own practice. Participants work through each day, which showcases 3-4 different residents and their health care issues. Each day represents a different healthcare area such as acute care, community care and long-term care. (see Figure 1-6)

Figure 1 – Day 1 Residential Care

Figure 2 – Day 2 Community Health Centre Clinic
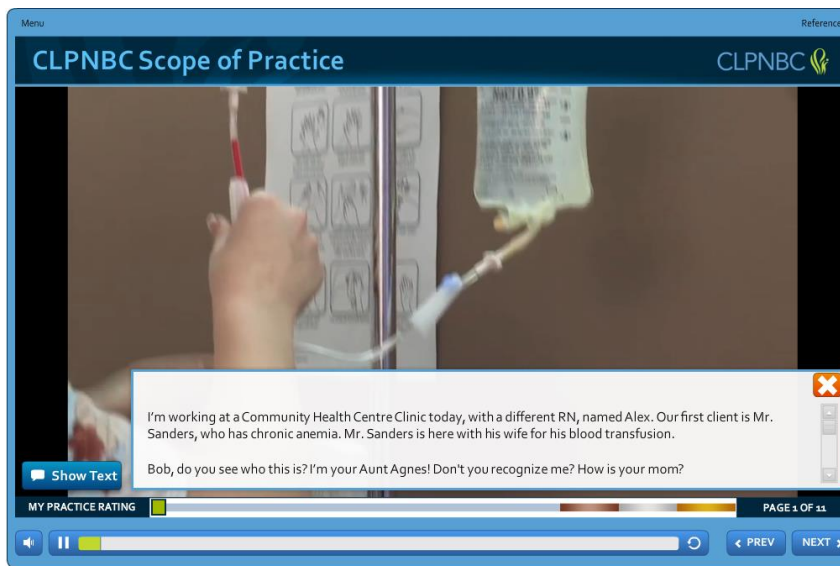
Figure 3 – Day 3 Home Care

Figure 4 – Day 4 Acute Care
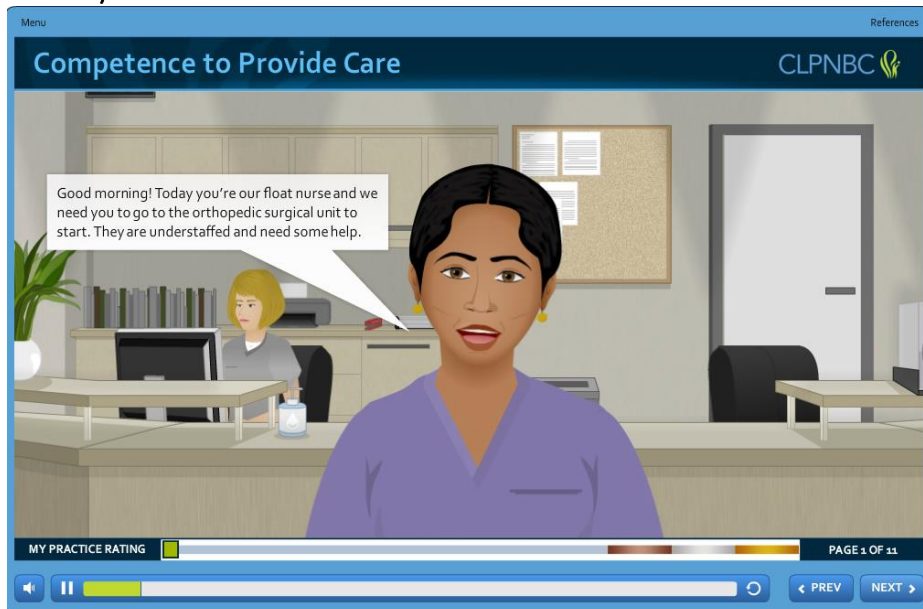
Figure 5 – Day 5 Long Term Care
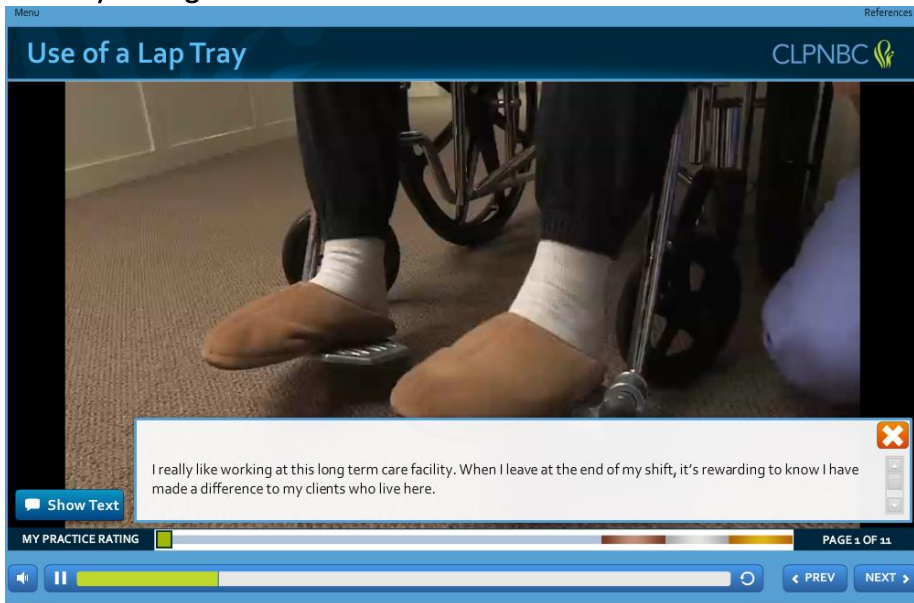
Figure 6 – Day 6 Community Care
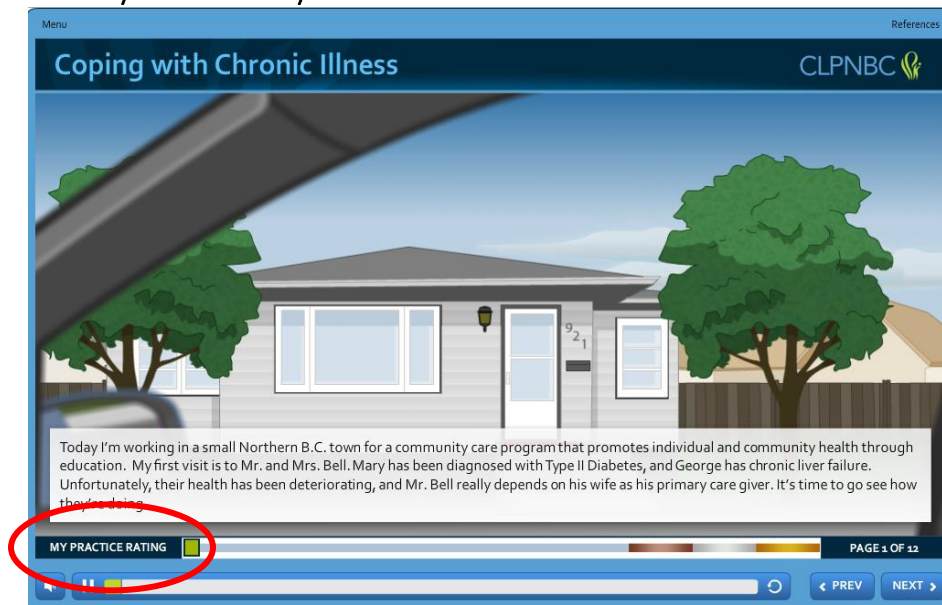
Adapted with permission from "Jurisprudence Education" under Quality Assurance, 2016, Burnaby, BC: College of Licensed Practical Nurses of British Columbia.

As the participants worked through the scenario and answer questions related to the CLPNBC standards of practice, they achieved a rating (see Figure 6). The rating increases each time the participant answers correctly on the first try, and a smaller increase on the second try and no

increase on the third. At the end of each module, based on the practice rating, the participant

received a badge. Each badge related to the mark the participant achieved: Gold badge – 91-

100%, silver badge – 81-90%, bronze badge – 70-80% (see Appendix F).

  Not all participants received the gamified education component before completing the

final exam. The education program was set to have every second participant automatically

directed to the final exam without receiving the gamified education component. These

participants had access to other resources, the same resources that were available to the gamified

education group. (See Figure 7-9). The CLPNBC decided to take this approach to determine

whether participating in gamified education changed the end result for the participants (personal

communication, Summer, 2014).

Figure 7 – Resources

Figure 8 – Link Button
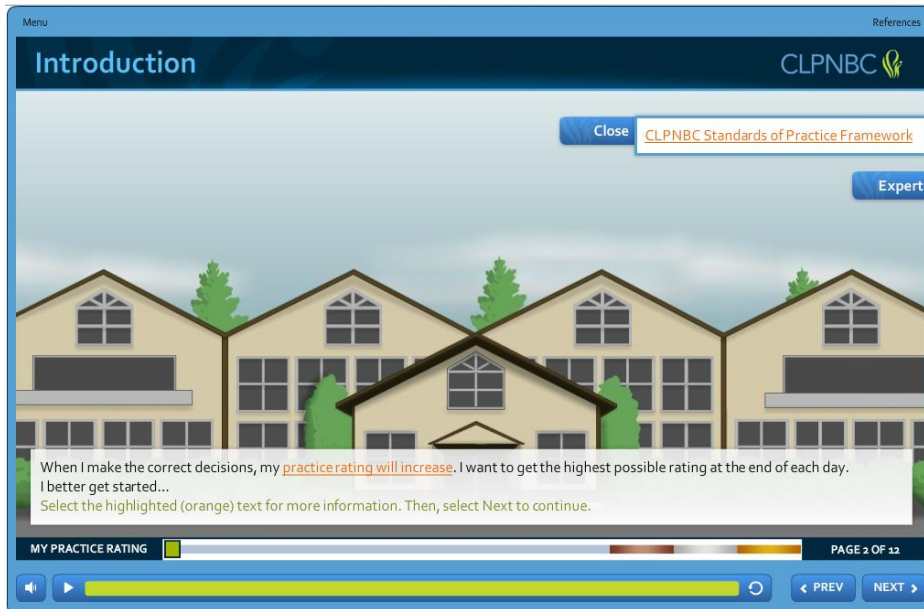
Figure 9 – Expert Button

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The CLPNBC provided ample opportunity for all LPNs to participate in the JPP. The

pilot project was not a mandatory requirement but instead was intended to spark people's

curiosity so they would want to participate. The CLPNBC allowed access to the JPP for a three-

month period and offered any LPN that completed the JPP, whether successful or not, to be exempt from the jurisprudence program again until 2017. Jurisprudence became mandatory for registration and renewal at the end of 2016. The CLPNBC also offered that the online gamified educational module could be completed at the participants' convenience, starting and stopping the modules as much as they chose. The CLPNBC assumed that by providing flexibility in completing the education module, more nurses would be likely to engage.

Statement of the Problem

Nursing regulatory bodies across Canada are continuously evaluating the competence of nurses in regards to their nursing knowledge and skills in relation to client safety. In my previous role with the CLPNBC, I presented and facilitated many learning events for LPNs in their workplace. It was often evident by the questions and comments that neither LPNs nor employers understood how jurisprudence informed nursing practice. This lack of understanding can lead to nurses working outside of their skills and abilities. HPA (2015) states "A registrant may provide such nursing services related to the care of patients as are consistent with his or her training and ability" (s. 4.1).

Witnessing the lack of knowledge regarding jurisprudence both with LPN registrants, and employer groups, led me to examine further how the CLPNBC's use of gamified education influences a change in LPNs' behaviours and attitudes in their own practice and ultimately safe delivery of care.

Significance of the Study

This research examined the effects of gamification on nursing education within the context of the CLPNBC's quality assurance program. I used the participants of the JPP to evaluate how successful the gamified education was in influencing a change in nurses' attitudes and behaviors related to professional responsibility to understand regulation and standards of

practice for the safety of the healthcare client. The use of gamified education that replicates real life situations that LPNs may encounter may help them understand how quality assurance, in this case, regulation and standards of practice, promote safe competent care.

The CLPNBCs use of gamification to deliver the jurisprudence education to LPNs appeared to be very forward thinking, as no other LPN regulatory body in Canada had employed such an approach in the past. Some are awaiting the outcomes of the CLPNBC's pilot to see whether using gamified jurisprudence education is successful in changing LPNs attitudes and behaviors regarding regulation and standards of practice. Sharing outcomes of the project, will benefit other jurisdictions as they move forward in developing their own jurisprudence programs.

Impact of Problem

The mandate of the CLPNBC is to regulate the profession of LPNs in BC to protect the public (Health Professions Act: Nurses Licensed Practical Regulation, March 1, 2015). The CLPNBC's aim in utilising a gamification model was to take something that is boring and mundane, and increase engagement and motivation, to have a positive impact on the attitudes and behaviours of the LPNs that take part. The CLPNBC felt that if gamified education influenced change, LPNs could take the changes they experienced back to their work place, and speak about what they were able to learn, and perhaps influence further change. Without an education program to teach LPNs what jurisprudence means to their practice, the registrant base could keep perpetuating the same culture.

Introduction to Research Question

This research into the use of gamification in jurisprudence education of LPNs asks the question: What is the impact of gamified education on the attitudes and behaviors of LPNs as it relates to their knowledge of jurisprudence in nursing practice?

Sub questions include:

1. What are the elements of gamified education that most influence learning?

2. How do the elements of gamified education impact the LPN's ability to inform change in the workplace?

3. How did the LPN's new knowledge manifest itself in their own nursing practice?

This study examined the experience of two groups engaged in the JPP. Group one were LPNs that received the gamified education and exam and group two were those that did not receive the gamified education, but had to write the exam. Identifying if there was any influence or change on attitudes or behaviors related to regulation and standards of practice because of the gamified education was the goal.

To be able to answer these questions and examine the effects of gamification in learning, I researched theoretical frameworks related to gamification theory and engagement theory. Having fun while learning seems to pay high dividends, but the right elements are needed to make sure the highest levels of engagement are harnessed.

Both gamification and engagement need to be strongly linked so that the intended learning is accomplished and the changes in attitudes and behaviors are affected for the better. As described previously, gamification is the use of game thinking and mechanics in non-game contexts to engage users in solving problems. Whitton (2011) defines engagement theory as "being concerned with all the qualities of an experience that really pull people in- whether this is a sense of immersion that one feels when reading a good book, or a challenge one feels when playing a good game" (p. 598).

LPNs in BC

According to the Canadian Institute of Health Information (CIHI), there were 10,264 LPNs in BC in 2014. At the time of registration renewal at the end of 2015, this number grew to approximately 12,275. Of the numbers reported by CIHI (2014), 9,248 (90%) were female and

1,016 (10%) were males. The average age of the LPNs in BC is 41-years-old, with the largest age grouping was those over 30-years-old at 81%. The largest number of LPNs were employed full-time at 4,568 (44.5%), followed by those employed casually, with no set hours or days of work at 3,163 (30%) and LPNs employed part-time was 2,528 (24.6%). The highest percentage of LPNs worked in nursing home or long-term care settings at 4,547 (45%) and in hospitals, 4,042 (40%). (Canadian Institute of Health Information, 2014, table 1-19). This does not take into account the LPNs that were in the process of licensing, or that fit into other classifications not captured by CIHI data. The CIHI data was used to determine if a representative group was established for this research.

Participants

All LPNs in BC that held a "Full", "Non-Practicing" or "Interim" license were encouraged to participate in the JPP. The CLPNBC through their monthly newsletter to registrants, and advertising on the CLPNBC homepage, invited registrants to be part of the JPP. Anytime contact was made with a registrant the JPP was promoted. As previously described, the CLPNBC enticed registrants by giving them a pass until 2017 if they completed the pilot project.

All participant of the JPP that indicated they would participate in further research related to this topic, were sent an invitation to be part of the research project.

Definition of Terms

Casual: works on an as needed basis

CLPNBC: College of Licensed Practical Nurses of British Columbia

ER: Evaluation Research

Full License: able to practice as a LPN

Full-time: >33 hours per week

Gamification: "the use of elements of game design in non-game concepts" (Deterding et al., 2011, para. 5). It is defined in various ways but ultimately very similar in the use of game

thinking and game elements in non-game contexts to engage users in solving problems and

improve their experience and lead to fuller engagement (Jacobs, 2013: Landers, 2014)

HPA: Health Professions Act

HROBC: Health Regulatory Organizations of British Columbia

Interim License: Is allowed to practice as an LPN while awaiting registration. Usually used for

students that are awaiting results of the national exam.

JPP: Jurisprudence Pilot Project

Jurisprudence: Regulation, legislation and standards of practice

LPN: Licensed Practical Nurse

Non-practicing License: Cannot practice as an LPN until license is converted to full

Part-time: < 32 hours per week

QAC: Quality Assurance Committee

Limitations

Having a representative group of the LPNs may be challenging with more than 12,000

LPNs in the province. This research was to include a focus group of 6 -10 participants.

Participants would have been required to travel to a predetermined location. The province of BC

is large and geographically diverse, creating a potential barrier to travelling. For this reason, a

convenience sample was to be used to try to keep costs down for participants. The idea of a

convenience sample was for better participation by using people that did not have to travel and

were in that location. When invitations were sent, only two participants responded to be part of a

focus group. The minimum number needed to proceed with a focus group was six, so another

invitation was sent to the two respondents to take part in a personal interview.

Delimitations

As I started this research I looked for any past research that related to the use of

gamification in teaching about regulatory concepts. I enlisted the help of the Royal Roads

Librarian as I was not able to turn up any results. The Librarian was not able to find any

previous research that pertained to this research focus. Due to this, I decided I would only look at what the provincial regulatory bodies were doing in Canada.

Summary

As nursing regulatory bodies prepare to teach LPNs about jurisprudence, the CLPNBC piloted their own gamified education project. Through gamified education, the CLPNBC sought to influence LPNs to change their attitudes and behaviours regarding how regulation and standards of practice inform their practice, and keeps the client safe. Many LPNs complete their initial studies and become nurses without truly understanding who set the rules and how those rules influence to their practice. The CLPNBC invited LPNs to participate in the JPP through their newsletter and website, and after completion, they were invited to participate in research on how gamified education influenced them in their practice. Questions asked through a telephone interview, and survey questionnaire compiled to support or deny that gamified education engaged the LPNs enough to result in changes that support safety to the client.

Chapter Two: Literature Review

Introduction

  A literature review was conducted using the Royal Roads University Reference Library and databases such Google Scholar, ProQuest, CINAHL and Ebscohost. The literature review looked at all aspects of gamification in education, but then was synthesized for research related to gamification theory and engagement theory. From this literature, I looked at what components of gamification leads to engagement and compared it to what the CLPNBC offered the participants of JPP.

Use of Gamification for Learning

  Gamification uses game thinking, game mechanics and ideas known from games in non-gaming environments (Arshavskiy, 2014; Edmonds, 2011; Hyla, 2015; Werbach & Hunter, 2012; Zinger, 2014). In recent years, gamification has become a well-used buzzword in the learning community (Edmonds, 2011; Lozano, n.d.). Caffarella and Daffron (2013) acknowledged that "game-based learning, once thought to be a frivolous waste of time for youth, games now span all age groups, level of skill and interest" (p. 380). O'Brien (2015) agreed when he stated "the mere thought of game-playing in the workplace was frowned upon. But games are such a big part of people's lives now" (para. 2). Game mechanics, such as tools and badges look promising for promoting engagement in the education field, especially when they are used for activities related to safety or in the case of my research for safety of the client. Gamification in education could be a good tool when engagement is needed in activities that might otherwise seem routine, boring or monotonous (Chadwick, 2014; Edmonds, 2011). Elements of games such as tasks, challenges and fun can be leveraged to promote learning (Kapp, 2014). "Humans love challenges and it's a large part of why we play games and it is a great design tool for creating gamification. Effective gamification taps into emotions, challenge, socialization and mastery"

(Kapp, 2014, p. 10). Gamification is extremely effective by providing learners with both audio

and visual stimulants, and by encouraging them to explore their game environment in order to

attain rewards (Chadwick, 2014; Burke, 2014; Lozano, n.d.).

> The use of gamified elements in online training has been particularly effective in

engaging learners and solidifying their knowledge (O'Brien, 2015). "The most effective pieces

of gamification in learning help create the overall context and narrative, which then can help

select the most appropriate game elements to create an immersive experience" (Raftopoulos,

2014, p. 13).

> Learners recall just 10% of what they read and 20% of what they hear. If there are visuals
>
> accompanying an oral presentation, the number rises to 30%, and if they observe
>
> someone carrying out an action while explaining it, 50%. But learners remember 90% if
>
> they do the job themselves, even if only as a simulation (Herger, 2014, p. 14).

Games can be fun, engaging, challenging, and motivating, because when learning is done

through games it allows participants to fail again and again, and reflect on these failures until

they win without compromising the safety of the client (Kumar, 2014; Coppens, 2014). There

also seems to be a correlation between how participants act in a gamified situation and how they

will do other things, so choices made in a game can reflect how they will behave in a real life

situation (Coppens, 2014). This can be a powerful way to influence a change in behaviors and

attitudes, especially when one's concept of being correct is no longer correct.

> Gamification seems to be evolving and becoming one of the most powerful driving forces

for learner engagement (Kingsley & Grabner-Hagen, 2015; Kumar, 2014). Game designs

usually focus on embedding quantitative game-elements into products, to create intrinsic

motivation such as points, badges and leader boards. These elements can give participants

information on their achievements, progress and high scores (Arshavskiy, 2014; Bittner &

Shipper, 2014; Bowen, 2014; Dale, 2014; Raftopoulos, 2014; Werbach & Hunter, 2012; Whitton, 2011). Intrinsic rewards are the rewards that engage the participant at an emotional level (Burke, 2014). But intrinsic rewards are not sufficient enough on their own to sustain engagement. Engagement also needs the extrinsic rewards that give participants that short-term boost to play and immerses them in the education. The only downside is the effects of extrinsic reward tends to wear off, which can actually reduce the participant's long-term motivation (Amir & Ralph, 2014). Being aware of how to keep the extrinsic motivation fresh and challenging to participants can be hard to do. The excitement of winning a bag or having the highest score may only last for a short time and strategies need to be in place to increase the rewards based on what is important to the participant. Bowen (2014) supports this with "gamification can shift the motivation for learning from extrinsic to intrinsic" (p. 8), winning a badge for solving a quiz is not motivational, but changing your thinking around your own practice could be a great motivator (Hyla, 2015). In jurisprudence education, gamification also requires participants to be focused, with an awareness of surroundings, have a sense of control and have an intrinsically satisfying experience.

The concept of jurisprudence education is that the learning will influence LPNs to change their attitudes and behaviors related to regulation and standards of practice. Even if training focuses on serious topics, such as an emergency medical situation, gamification has the ability to make it seem more lifelike without any consequences to the client. This is why gamification worked well with compliance training and many other forms of serious training (O'Brien, 2015). Hughes (2014) agreed with O'Brien but cautioned that designers of gamification should be "looking for ways to ensure users take what they've learned away with them and apply it to their daily lives" (p. 5). The gamified education needs to produce a high-impact positive change for a given learning situation instead of making it just about adding an element of fun for the learners

(Andrews, 2014; Bowen, 2014).   By making gamification an easy and engaging experience for users it will help guide and motivate learners to make positive changes.

Whether gamification is viewed as a set of strategies, tactics, or products for learning, its most effective uses will always be those that enable learners to make significantly positive changes. Gamification can also meet the needs of a particular learning environment and allow students the possibility to explore different concepts (Andrews, 2014; Arshavskiy, 2014; Bowen, 2014). "Increased user retention is the key to any effective application of gamification. When users remember the learning material, apply it to their real lives, and come back to learn more, you know your project has been successful" (Hughes, 2014, p. 6). Companies also need to realize that not all users will engage and be motivated to learn new ideas (Cook, 2013). Some participants will complete only because it is a requirement but not necessarily change any behavior or attitudes.

Theoretical Framework

My research is guided by the following theoretical frameworks: gamification theory; and engagement theory. This study involved LPNs that received the gamified education and exam and those that did not receive the gamified education and but had to write the exam, and identifying any influence of change on attitudes or behaviors. This study gathered LPNs perspectives on whether the experience influenced or brought about a change in their attitudes and behaviors related to regulation and standards of practice.

Gamification Theory

Gamification has been studied and applied in several domains, with some of the main purposes being to engage, teach, entertain, and measure (Hakkarinen, n.d., para. 1). Gamification theory and the influence of gamification, shows a positive effect on learning; however, individual and contextual differences do exist and may lead to differences in results

(Orosco, 2014). While many studies have been conducted regarding gamification in many

different aspects, there have not been any results of gamification used in a highly regulated

process. When looking at gamification use in relation to nursing regulation, no studies or articles

could be found on the subject in North America; therefore, the results of this research will be

beneficial as more regulatory bodies move forward with their own jurisprudence requirements.

The theory of gamification in education looks at how learning happens when game

elements are added. According to Landers and Landers (2014) "gamification alters a

psychological characteristic that strengthens the relationship between the quality of instructional

content and the learning outcomes" (p. 770). Cain and Piascik (2015), defines gamification as

"the use of game principle for the purpose of learning, skill acquisition and training" (p.1).

Acquisition of skills can be broadened in a virtual environment without any real consequences to

the client which is ideal for learning in the medical field. Gamification is not just popular

because of the fun element, but also because it incorporates a cognitive and psychological

process (Cain & Piascik, 2015, p. 3). Having fun while learning is beneficial but making sure

the right elements are used to promote engagement, needs to be at the forefront.

Engagement Theory

Engagement encompasses such things as: number of visits, time spent on the education

site, depth of the visit, and participation. According to Whitton (2011) engagement theory

pertains to "being concerned with all the qualities of an experience that really pull people in -

whether this is a sense of immersion that one feels when reading a good book, or a challenge one

feels when playing a good game" (p. 598). The use of gamification in education needs to be

engaging enough to draw people in to the learning and have some kind of influence on them

(Whitton, 2011). The first impression of the education and how real to life it can be adds to the

feeling of engagement (O'Brien &Toms, 2008). Such things as living the experience or dealing

with time constraints are ideas carried through that can make learning with gamification a success. Additionally, the use of game competition in terms of rewards or badges that can be shared with others through such avenues as Facebook or Twitter which may encourage others to participate and gather the same rewards as their colleagues (Landers, 2014, p. 753). The CLPNBC tried to harness some intrinsic factors such as collecting badges and being able to post them on social media. The types of game elements that make the learning interesting and how these elements lead to engagement in a program were part of this research. Using specific goals, in this case badges and assessments (exam) in gamification can directly affect learning outcomes (Landers & Landers, 2014). Mackay (2013) and Steinkeuhler (2010) concurred that games are styled for engagement. This is highlighted in Steinkuehler's study of boys that read below grade level, when these boys were allowed to incorporate reading in a gamified way they were eventually able to read at a couple of levels above their grade level (Steinkuehler, 2010).

Both gamification theory and engagement theory support the use of interactivity, challenges and rewards, which tends to lead to more engagement and promotes success. Landers and Landers (2014) also points out that "learners who practice and engage with a task more often produce greater knowledge and skill than those who do not practice" (p. 772). My research looked for examples that connect engagement with the gamified education, specifically looking at what aspects of gamification LPNs found to be the most engaging and whether it led to success in changing their attitudes and behaviors regarding regulation, and standards of practice. The theories that link engagement and gamification will be explored further through the research questions.

Gamification and Engagement

Gamification seems to boost participant's engagement (Boller, 2014; Burke, 2014; Landers & Landers, 2014; Raftopoulos, 2014; Smith, 2014). The most effective uses of

gamification in learning are: illustrating progress; increasing engagement; creating challenges;

and instilling a sense of accomplishment (Osborne, 2014, p. 16). Osborne (n.d.) stated, "by

gamifying, you harness the power of what humans inherently love to do – play games" (p.17).

Kingsley & Grabner-Hagen (2015) agreed and stated, "students are, therefore, learning content

and practicing literacy skills as if they were playing a game, making the educational experience

both challenging and fun" (p. 52).

Even though gamification can motivate and engage participants, designers need to be

cognizant of the issues and challenges of using gamification. Companies are often quick to

design a program that gets initial interest because it is new and attractive, but participants can get

bored easily if companies forget to include any intrinsic motivation to keep participants engaged

(Cook, 2013). Despite gamification receiving initial positive feedback, gamification mechanics

have not been used enough to understand or be able to measure the results accurately (Roberts,

2014). Allowing for intrinsic motivation and increased engagement, rewards such as badges can

be integrated into the overall strategy of the design (Cook, 2013). Learning to play in any

gamified situation can be hard and sustaining engagement can be difficult, but gamified ideas

should be kept fresh with new objectives and rewards to help hold the participants' interest as

long as possible (Burke, 2014; Zinger, 2014). Determining what motivates the targeted learners

and defining what the benefit is to keep them motivated in the gamified learning will help design

better gamified education.

Games are among the most powerful motivational tools, so the use of gamification in

learning should capitalize on using motivation and engagement as it can lead to changes in

behaviors (Andrews, 2014; Werbach & Hunter, 2012). Game mechanics seem to help attract,

direct, and engage people in behaviors that are represented in the game play (Andrews, 2014;

Werbach & Hunter, 2012). This research will examine how gamification motivates and engages

LPN's to learn about and understand how jurisprudence informs their practice.

Engagement in Gamified Jurisprudence

Gamification can aid learners to practice their skills for real-world situations in a safe and

engaging environment. By making learning fun, the level of knowledge retention is increased

and the learners participate more actively in the process (O'Brien, 2015; Whitton, 2011).

Werbach and Hunter (2012) stated, "people's brains are wired to crave solving puzzles, feedback

and reinforcement, which games activate the brain's dopamine system which is associated with

pleasure" (p. 28). Gamification can also be designed to give more autonomy to users by

allowing them to set their own goals or to guide them to make their own choices (Kim, 2015;

Whitton, 2011).

In designing gamification, one needs to be cognizant of the variables such as gender, age,

and cultural orientations, which can play a role in the motivation, but we also need to remember

that gamification itself does not automatically generate motivation or engagement (Kim, 2015;

Whitton, 2011). Even different cultural orientations, such as individualism and collectivism, can

affect people's expected outcomes of playing social network games. These outcomes can include

social interaction, recognition, entertainment, and diversion and in turn can affect different game

usage patterns (Kim, 2015; Whitton, 2011). Kim (2015) further stated that "female students

were about 35 percent as likely as male students to enjoy the competitive aspects of the video

games" (p. 31). For gamification to succeed, it needs people's commitment because they should

care enough to play along. It is for this reason that the closer the goal of gamification aligns with

the goal of a player, the more successful the gamification will be (Kim, 2015; Whitton, 2011).

There have been some criticisms of the use of gamification and more specifically, that

gamification can become "exploitationware" with counterfeit rather than genuine incentives.

When people feel that gamification attempts to manipulate their behavior, they will inevitably object to and disengage from it (Kim, 2015). Whitton (2011) also spoke to the transfer of game-based learning to real life and that it may not be as smooth as once thought particularly in regards to higher level skills (p. 196). Instead, gamification needs to be used wisely, thoughtfully, and selectively with a clear goal; a thorough understanding of the target audience, the nature of the target activity, and the gamified learning content (Kalinauskas, 2014; Kim, 2015).

Video games seem to have a high influence on players, and there seems to be a dependency between psychological needs, such as satisfaction, and engagement in gaming (Kalinauskas, 2014; Werbach & Hunter, 2012). There are four factors that impact game engagement in the short term: 1) autonomy which allows the players a sense of choice and psychological freedom; 2) ability to influence the gameplay; 3) competence promotes the feel of effectiveness in the game; and 4) relatedness which connects the needs and the feeling of connectivity and interaction with others (Kalinauskas, 2014; Werbach & Hunter, 2012).

Kalinauskas (2014) and Werbach and Hunter (2012) agreed that the proper use of gamification can motivate people to strengthen their relationship with the goals of a company, in the case of the CLPNBC, the safety of the healthcare client. Gamification tends to use the same game design and elements as playing a video game or a sport competition, which can ensure interest and involvement (Kalinauskas, 2014; Werbach & Hunter, 2012). Gamification can also influence self-determination, which in the long run influences creativity since an individual may be willing to spend more time and effort while searching for a solution to the problem (Aparicio, Vela, Sanchez & Montes, 2012; Kalinauskas, 2014; Levin, 2015; Werbach & Hunter, 2012). Levin (2015) believed that "using gamification we can motivate students to improve their own achievements. By using a practical implementation of gamification anyone can increase motivation, create positive competition, more fun and hence, increase their performance" (para.

10). Even failures are desired, because it improves the experience of mastering the challenge

(Kalinauskas, 2014; Werbach & Hunter, 2012). When learners fail at an activity, they are doing

so in a safe environment, where no clients are being harmed. Failure can also help solidify the

learning as the participant will repeat the same problem but now with new education. This can

also effect the participant's motivation to complete the task and learn the new information.

Summary

There are many articles around gamification and using it as a tool for education. In the

literature review, I searched for articles related to gamification theory and engagement theory to

help with understanding what elements lead to more success when trying to change attitudes and

behaviors was conducted. Arnold (2012) summarizes, "Game play has traversed the realm of

recreation and has infiltrated the worlds of commerce, productivity, and education, proving to be

a useful training and motivation tool" (p. 32). Using extrinsic and intrinsic motivation to have

learners engage fully in learning, seemed to be a main point when related to gamification and

engagement. Other factors such as having it relatable to what the learner thinks are important,

and can promote engagement. Gamification can be used to engage users to embrace specific

behaviors, or change them to meet a specific goal which was the purpose of JPP (Barata, Gama,

Jorge, & Goncalves, 2013).

Chapter 3: Research Study

Introduction

My research into the use of gamification in jurisprudence education of LPNs asks the question: What is the impact of gamified education on the attitudes and behaviors of LPNs as it relates to their knowledge of jurisprudence in nursing practice? This chapter sets out the criteria and rationales for how participants were chosen to participate in this research, along with the methods of gathering and analyzing the qualitative and quantitative data. I will describe the research methodology related to gathering evidence related to the research questions.

Research Methodology

Evaluation research (ER) is a form of inquiry that is most concerned with effects of change. The aim of evaluation research is to learn how well a program, practice or policy is working and aid in making decisions on whether the program should continue or needs modification (Connelly, 2015). ER compares what is happening to what should be happening (Bentz & Shapiro, 1998, p. 131). Connelly (2015), outlines "five basic elements of evaluation research: judging the value of something, gathering valid data, completing systemic inquiry, making comparisons and reaching informed decisions" (p. 60). This form of inquiry fits well with my research study. Having participants provide qualitative and quantitative feedback on their own experience with the JPP to examine whether there was any influence to their attitude and behaviors related to regulation and standards of practice, led to recommendations for change. Any recommendations that come from the data gathered will help the CLPNBC modify their jurisprudence program as they move forward and it becomes a requirement of registration for LPNs. "Evaluation research has a practical, immediate aim of providing systematic data to inform decision making about a specific program, process, or procedure" (Connelly, 2015, p. 35)

Research Methods Used

My research utilized a mixed method approach to analyze and triangulate the data on what influence gamification had on changing LPNs attitudes and behaviors. Mixed method or triangulation research is defined by Atkinson (2011) as "mixing and matching of different research methods and data in a single study in order to pursue different forms of knowledge about a question at hand" (p. 217). Qualitative data was collected by using two methods; first an interview where participants were asked questions to gather information on their experience with the JPP. The interview participant was encouraged to elaborate as much as possible and was reminded at the beginning of the interview that they could answer as freely as they wished as everything that was shared would be kept confidential. The second form of qualitative and quantitative data collection was in a survey. The survey, included a series of reflective questions and several open-ended questions for them to express as much or a little as they wanted, and closed-ended questions, where I provided answer options for the participants to choose from. These questions were asked in the form of a Likert Scale rating or the choice of different options. In research, both quantitative and qualitative data can be mixed for the purpose of illustrating a more complete understanding of the phenomenon being studied (Mertens & Hesse-Biber, 2012, p. 78).

Interviews

The original plan when starting my research study was to host a focus group for 6-10 participants. The original invite went out to LPNs that participated in the JPP and agreed to be part of further research. We concentrated the invites in the local area of Victoria, BC to possibly make it easier to obtain participants without them having to travel. Alternatively, the two participants that did sign up were invited to have a personal interview regarding their experience in the JPP. One participant replied, agreeing to do an interview. The interview was conducted

through a 3-way telephone call with the participant, my research assistant and me. The interview was recorded and later transcribed. The same questions that were intended for the focus groups were used for the interview (See Appendix D).

Survey

The second form of data gathering I used was a survey (See Appendix E). Sheppard (2004) stated "surveys are used to discover attitudes, perceptions and facts about particular population groups" (p.88). A survey consists of questions that the respondent reads and answers themselves. Since this was done solely by the individual without assistance to interpret what each question meant, the questions had to be clear and precise, as the respondent cannot ask for clarification from the researcher. My survey questions were developed to investigate the LPNs thoughts and feeling on their perceived influence of gamification on their learning. Within the survey, questions were asked to compare other gamified applications against what the CLPNBC produced. Finding out if the participants found this new way of learning assisted them to change their attitudes and behaviors around nursing jurisprudence. The survey results will also be used to validate the data gathered during the interviews, as well as to gauge how engaged LPNs were and if they noticed any changes in their attitudes and behaviors and were able to transfer this back to the work place to influence further change.

The survey comprised of both open-ended and closed-ended questions. Dan and Kalof (2008) differentiate between open-ended questions and closed-ended questions noting, "closed-ended questions require the participant to choose from given choices. This makes the results easy to tabulate and quantify. Open-ended questions allow the participants to answer based on what they want to tell me" (p. 120). The closed-ended questions were structured using a Likert Scale of 1-10. Using descriptors as choices in the survey can reduce the amount of subjective data, but also verify the data gathered in the interview. I provided several answer options, asking

participants to tick all that apply and include a box with "other" or "please explain". Providing

these options will get some qualitative data, but the amount will be greatly reduced than if

participants answered freely. By using open-ended questions, it allows for responses that may not

have been anticipated and allows respondents to answer in their own words (Dan & Kalof,

2008). Questions will be used for a comparative analysis and identifying any themes regarding

participants' behaviors and attitudes before and after the gamified education.

For the survey, I used a purposeful sample as defined by Shepard (2004) which "are a

selected group of people with a particular purpose in mind" (p.94). The link to the survey was

sent to 1709 participants of the JPP who stated they would be willing to be contacted for future

research around the project (see Appendix C). The survey remained open for 10 days to allow for

as much access as possible. In total, 261 people took part in the survey, 164 participants

completed all questions and 97 participants completed some but not all questions. Some

questions were not answered as some participants did not experience the gamified education so

could not relate to the experience.

Reliability

Reliability and validity are issues in qualitative research. To ensure reliability of a

researchers' analyses, they need to maintain meticulous records of interviews and observations

and by documenting the process of analysis in detail (Mays & Pope, 1995, p. 311). Along with

reliability, researchers also have to pay attention to validity. Triangulation refers to an approach

to data collection in which evidence is deliberately sought from a wide range of different,

independent sources and often by different means (for instance, comparing oral testimony with

written records) (Mays & Pope, 1995, p. 311). By completing a personal interview, along with a

survey, reviewing literature and other resources related to gamification, I cross referenced

findings to validate accuracy and reliability. If I was to interpret something incorrectly, with triangulation this would be found and corrected before it can affect any results.

The interview was recorded along with handwritten answers and then the recording was transcribed verbatim and compared to the handwritten answers. Once all questions were asked and recorded, the interviewee was then provided with a copy of their answers to confirm accuracy. If any of the answers were not captured correctly, then the corrections were made to rectify this immediately.

Conflict of Interest

The role as the interviewer in any research is vital to its success. According to Dan and Kalof (2008) "the interviewer must build rapport and connect with respondents so they will feel comfortable but must also remain neutral" (p. 127). I was worried that my previous role as a Nursing Practice Advisor/ Consultant could cause some concerns for participants. In my previous position, I provided information to registrants about practice issues and provided support to registrants through telephone conversations and emails. Although I could not recognize anyone as someone I had provided support to, it could make participants uncomfortable if they realize they have corresponded with me in a professional capacity.

Ethical Considerations

In my research, I adhered to the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2, 2014) three core principles: Respect for Persons, Concern for Welfare and Justice (p. 6). This Policy expresses the Agencies' (Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council of Canada and the Social Science and Humanities Research Council of Canada) continuing commitment to the people of Canada to promote the ethical conduct of research involving humans (*Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*, 2014, Chapter 1). The people of

Canada, through Acts of Parliament, have created and funded the Agencies to promote and assist

research within their respective legislative mandates. In discharging their mandates, the Agencies

wish to promote research that is conducted according to the highest ethical standards (*Tri-*

Council Policy Statement: Ethical Conduct for Research Involving Humans, 2014, Chapter 1).

Respect for Persons

Respect for Persons recognizes the intrinsic value of human beings and the respect and

consideration that they are due (*Tri-Council Policy Statement: Ethical Conduct for Research*

Involving Humans, 2014, p. 6). Prior to beginning the research, would-be participants were

asked to read and sign a consent form, that they are willingly giving consent to participate and in

the case of interviews, given the chance to review the transcripts for accuracy. (See Appendix B)

Throughout the research, participants were reminded that at any time they could withdraw from

the process and not have it affect them negatively.

Concerns for Welfare

"The welfare of a person is the quality of that person's experience of life in all its

aspects" (*Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*, 2014,

p. 7). Privacy and confidentiality were expressed to all participants so they would feel that they

could participate and answer freely without jeopardizing their employment. Confidentiality was

reiterated often so participants knew no identifiers would be used, so their privacy was protected.

Justice

"Justice refers to the obligation to treat people fairly and equitably. Fairness entails

treating all people with equal respect and concern" (*Tri-Council Policy Statement: Ethical*

Conduct for Research Involving Humans, 2014, p. 8). The process used to invite LPNs to

participate in my research was done randomly. For the interviews, a group of 57 LPNs in the

Victoria, BC area were invited to participate, but ended with only one. For the survey, everyone

that participate in JPP and wanted to be contacted for further research was sent the link to

participate. This was done so that each individual could make their own decision on whether to

participate or not.

Summary

   This chapter set the stage for the research project. Using elements of ER, participants

provided feedback on their experiences with gamified education in JPP. Using triangulation in

the data gathering process helped to validate data and improve reliability. Data gathered through

an interview, a survey through Fluid Survey™, and a literature review formed the basis for

triangulation. From this review, qualitative and quantitative data was compiled on if and how

LPNs felt gamified education engaged them to influence change in their attitude and behavior.

The survey utilized both open-ended and closed-ended questions to extract personal opinions on

whether the gamified education influenced a change in attitudes or behaviours. The next chapter

will identify the findings of the research.

Chapter 4: Analysis

Introduction

Using an ER methodology for this research, data was gathered on the perceptions of participants engaged in gamified learning to assess any influence in their attitudes or behaviors regarding nursing jurisprudence. To understand this fully, my research intended to answer: What was the impact of gamified education on the attitudes and behaviors of LPNs as it related to their knowledge of jurisprudence in nursing practice? The sub questions related to this included: 1) What are the elements of gamified education that most influenced learning? 2) How do the elements of gamified education impact the LPN's ability to inform change in the workplace? 3) How did the LPN's new knowledge manifest itself in their nursing practice?

My research included qualitative and quantitative data gathered through an interview and an online survey. The results of this data will be shown in a consolidated form throughout this chapter. All responses are displayed with no identifiers attached so that no connection is made between responses and the individual. Any verbatim quotes used from the survey will be identified as (S1) through (S261). Since there was only one person that participated in the interview process, no individual identifier is needed for these responses. This chapter will provide a summary of responses, all qualitative and quantitative data, and any themes that emerged from the data.

Interview

My research assistant sent out 48 invitations to participate in a focus group to LPNs that resided in the Victoria, BC and completed the JPP (see Appendix A). Only two responded back that they would be interested in participating in a focus group. Since there were only two respondents, I had to change how I completed this step of the research. Deciding that completing a focus group would not be feasible with such a small group, a change to conducting a personal

interview with each participant was initiated. Within seven days of a second invitation to participate in a personal interview, only one person responded that they were willing to participate.

My research assistant set up the interview with the participant, which will be referred to as "interviewee". The interview was conducted through a three-way telephone conversation between the interviewee, my research assistant and me. The interviewee was informed that the conversation would be recorded, later to be transcribed verbatim and once completed, the interviewee would receive a copy to verify the accuracy of the conversation. At the end of the interview, I transcribed the recording, forwarded the transcription to my research assistant to be emailed to the interviewee to verify.

At the beginning of the interview, the interviewee was reminded of the informed consent she signed and I verbally reiterated its contents (See Appendix B). The interviewee was then asked to recall her experience with JPP and she stated that she participated in the gamified education and exam. The interviewee was asked what she felt her level of knowledge regarding regulation was prior to taking JPP, and she picked 6 on a Likert scale of 1-10, 1 being very low and 10 being very high. When asked why she picked this number, she related the number to the fact that she thought there had been changes to regulation since she became an LPN but had not stayed current with them all. She did feel a bit stronger when asked about her knowledge of the CLPNBC Standards of Practice. Using the same Likert scale, she picked an 8 for this question. She was able to identify that in nursing school a lot of time was dedicated to studying these aspects of nursing practice and she had a fairly good knowledge.

While participating in the exam, the interviewee was surprised at some of their incorrect answers and in that moment had thought to herself that she should read up on the incorrect questions.   But the interviewee stated that in her busy days she did not actually do this, so she

feels that JPP had little to no effect on her practice. Subsequently she was not able to take any of her new knowledge back to her workplace to inform further change among her work mates.

When the interviewee was asked about her experience with the gamified education, she identified that it definitely helped her to recall previous learning while completing the exam. She could not relate it to any other experience she had, as she does not play games or do anything similar online. The interviewee thought the project was good and offered this feedback:

> "Even though I wasn't able to take any of it back it still had an impact on how I think about being an LPN. I did have a discussion with my nurse educator on our scope of practice where I work. I feel it was a very worthwhile study".

The research findings from the interview will be referred to in the conclusions.

Survey Findings

The survey was sent out to 1708 participants of the JPP that agreed to be part of further research on the subject.   Of that, 261 (15%) of all invited participants took part in the survey, 164 (63%) participants in the survey completed all questions and 97 (37%) of survey participants completed some questions. All answers that were submitted were compiled as part of the data. Some of the missed questions may be related to the fact that some participants did not experience the gamified education, but this does not explain all the blank answers.

The survey was administered through Fluid Survey™. The survey was open for a total of 10 days, spanning one weekend, to try to get as many LPN participants as possible. The survey consisted of 14 questions, along with 7 demographic questions. Once the survey closed, all responses were exported into NVivo™, "software that supports qualitative and mixed methods research. NVivo is designed to organize, analyze and find insights in unstructured or qualitative data" ("NVivo," n.d., para. 1). NVivo assisted to organize the survey responses based on key words, itemized in the following tables.

Demographics of Participants

Table 1 - Gender

Gender (n=248)	*Percentage of respondents (n=261)	BC CIHI (2014) Table 8 *Percentage
Male	10	10
Female	90	90
Transgender	0	0
Other	0	0

*percentages are rounded to the next whole number

The demographics of the JPP research participants were compared to data gathered by the

Canadian Institute of Health Information (CIHI) for British Columbia in 2014 for an overview

view of the make-up of LPNs in BC compared to participants in my research. Of the 261 LPNs

that participated in the survey, 248 (95%) participants answered this question. Of those

respondents, 90% were female, and 10% were male (see Table 1). Interestingly, the literature

review revealed that female students were about 35% as likely as male students to enjoy the

competitive aspects of gamification (Kim, 2015).

Table 2 - Age of Respondents

Age of Respondents (n=244)	*Percentage of respondents	CIHI (2014) Table 10 *Percentage
21-25 years old	2	19
26-30 years old	3	
31-34 years old	4	15
35-40 years old	15	13
41-45 years old	9	13
46-50 years old	16	12
51-55 years old	20	11
56-60 years old	22	9
61-64 years old	8	5
65+ years old	1	2

*percentages are rounded to the next whole number

There was a wide age range for the participants, with the biggest number of participants

42% falling in between 51 and 60 years of age (see Table 2). In comparison, in 2014 CIHI data

showed the largest age group 19% for LPNs between 21 years old and 30 years old (Canadian

Institute of Health Information [CIHI], 2005-2014, table 10). The largest age group was for

participants between the ages of 56-60 years at 22% of all respondents and the second largest

was 51-55 years of age at 20%. It was interesting to see two respondents 1% between the ages of

65-69 years of age are actively practicing nursing.

Table 3 – Length of time as an LPN

Length of time as an LPN (n=244)	*Percentage of respondents	CIHI (2014) Table 16 *Percentage
<1 year – 10 years	53	75
11 years – 20 years	23	12
21 years – 30 years	12	5
31+ years	12	8

*percentages are rounded to the next whole number

The length of time LPNs had been practicing showed that there are a relatively higher

number of new nurses, with about 53% practicing 1-10 years (see Table 3). These demographics

are congruent with the CIHI data from 2014 (Canadian Institute of Health Information [CIHI],

2005-2014, table 16).   The next largest category is nurses that had practiced between 11 and 20

years at 23%.

Table 4 - Places of work

Places of Work (n=244)	*Percentage of respondents	CIHI (2014) Table 12 *Percentage
Hospital	35	40
Community Health	16	9
Nursing Home/Long-Term Care	34	45
Other	15	6

*percentages are rounded to the next whole number

Most nurses that took part in the survey either worked in a hospital 35% or in a nursing

home/long term care 34% (see Table 4). CIHI data from 2014 showed that there was slightly

higher number working in nursing home/long term care than in hospitals (Canadian Institute of

Health Information [CIHI], 2005-2014, table 12).

Table 5- Employment Status

Employment Status (n=245)	*Percentage of respondents	CIHI (2014) Table 11 *Percentage
Full-time	27	45

Part-time	59	25
Casual	14	31

*percentages are rounded to the next whole number

The largest portion of LPNs 59% responding to my survey worked in part-time employment, while 27% worked full-time and 14% work as a casual (see Table 5) but CIHI reported in 2014 that a larger number reported working full-time 45%.

Table 6 - Position

Position (n=240)	*Percentage of respondents	CIHI (2014) Table 13 -14 *Percentage
LPN/Staff Nurse/Community Nurse	78	87
Instructor/Educator/Professor	3	5
LPN Specialty/Coordinator/Care Manager	11	3
Other	8	10

*percentages are rounded to the next whole number

The participants in the survey were represented in the positions of LPN/Staff Nurse/Community Nurse 78%, while the next highest 11% working in an LPN Specialty/Coordinator/Care Manager position.

In summary, the survey respondents were significantly more female than male which was supported by CIHI data. The average age group for participants were between the ages of 55-60 years, with the next closest being 50-54 years. Compared to CIHI data this age group was higher than the BC average, which showed the age was highest for 21-30 year olds. Interestingly, the largest group for number of years practicing was the category of less than 1-10 years, the same as what the CIHI data showed. Research participants identified that they worked in part-time positions more than any other form of employment and identified that they worked in an LPN role in either the hospital or nursing home/long-term care. CIHI data for 2014 showed that LPNs reported a higher rate of working full-time and working as an LPN in a nursing home/long term care situation. As the literature review revealed, gamification designers need to be cognizant of variables such as gender, age, and other cultural orientations which can play a role in how participation is linked to motivation (Kim, 2015; Whitton 2011). When JPP participants were

compared to the statistics that CIHI collected in 2014, this research attracted a good cross-section

of LPNs but it seemed that participants tended to be part of the older LPN population. For the

purpose of this research this variance will still be acceptable.

Survey Grouping

        LPNs were randomly assigned into one of two groups (see Table 7). The JPP

automatically randomized which group each participant was assigned to. One group was given

the gamified education before moving onto the exam while the other group received no

education and went straight to the exam. As indicated 101 participants 53% had only the exam,

while 88 participants 47% experienced the gamified education and then exam. The survey

results were based on responses from all participants. Both groups were given the same access

to reference documents throughout the exam.

Table 7 – Grouping

Grouping	# of people (n=261)	*Percentage of respondents
Education and Exam	88	34
Exam only	101	38
No response	72	28

*percentages are rounded to the next whole number

        LPNs were asked to rate their knowledge of regulation related to jurisprudence. The

majority of participants picked the number 7 out of 10 (see Table 8).

Table 8 – Survey Question 1

Q-1. Given numbers 1 -10, 1 being very low and 10 being very high, how would you rate your knowledge of regulation prior to partaking in the Jurisprudence Pilot Project?	# of people (n=261)	*Percentage of respondents choosing each number
10	10	4
9	18	7
8	38	15
7	53	20
6	28	11

5	25	10
4	10	4
3	6	2
2	1	0
1	2	0
No response	70	27

percentages are rounded to the next whole number

When respondents were asked why they choose the numbers they did, some of the words or

phrases respondents used most often were positive (see Table 9).

Table 9 – Survey Question 2

Q-2: Why did you pick the number in the previous question?	# of people (n=261)	*Percentage of respondents choosing each number
Keep-up-to date	8	3
Knowledgeable	70	26
Little knowledge of area used	4	2
Part of nursing program	4	2
Reflected my basic knowledge	2	1
Refreshed my information	15	6
Score on JPP	10	4
Unsure of own knowledge	29	11
Was prepared	3	1
No response	91	35
Other	25	9

percentages are rounded to the next whole number

The comment most often used by LPNs related to being knowledgeable. LPNs used

statements such as: "I feel I have a good grasp on knowledge and commitment to give quality

and professional care" (S58) and "I feel that I generally have a good handle on the rules and

regulations. I also usually make informed choices. I also know the standards of practice very

well" (S87). "Playing games allows users to engage … to construct their new knowledge and

processes; this, then can be used to motivate users to solve future problems" (Orosco, 2014, p.

20).

Some participants stated that they were not sure of their knowledge level regarding

regulation and provided statements such as: "I haven't been exposed to many interactive

education opportunities with regards to regulation since completing schooling" (S103) and

"although I consider myself well-informed, I realized during the education/exam that I was "out

of practice" with some issues, especially the acute care applications (as I do not work in acute

care). The project was a good refresher/reminder for me" (S105). Another LPN commented "I

think I may have rated higher, however some juriprudence (sic) questions seemed to relate more

to areas of home care that I was unfamiliar with" (S10). LPNs referred most often to feeling

confident in their knowledge regarding jurisprudence, and even those who stated they were not

as confident, felt that JPP was a good refresher. O'Brien (2015) and Whitton (2011) both agree

that the level of knowledge retention is increased and learners participate more when they are

actively engaged in the learning process.

LPNs were then asked to rate their knowledge of the standards of practice related to

jurisprudence. The highest percentage of participants, 21% picked either the number 8 out of 10

or 26 % who chose not to respond to this question (see Table 10).

Table 10 – Survey Question 3

Q-3: Given numbers 1 -10, 1 being very low and 10 being very high, how would you rate your knowledge of standards of practice prior to partaking in the Jurisprudence Pilot Project?	# of people (n=261)	*Percentage of respondents choosing each number
10	21	8
9	32	12
8	56	21
7	48	18
6	17	7
5	13	5
4	6	3
3	0	0
2	0	0
1	0	0
No response	68	26

percentages are rounded to the next whole number

When respondents were asked why they choose the numbers they did, some of the words

or phrases most often used are displayed in Table 11. One participant stated their choice was

"mostly because they are the basic questions that any LPN should have knowledge of from the

[critcal] thinking in the field of nursing" (S171) and another stated "I believe that my practice as

an LPN is well above the minimal expectations and requirements set by the standards of practice

but there is always room for further growth and improvement" (S135). Hughes (2014) believes

that gamification should "look for ways to ensure users take what they have learned away with

them and apply it to their daily lives" (p. 5). But other nurses found that they did not have the

knowledge expected "I always found our standards of practice vage (sic). I always found then

(sic) hard to put them in every day job" (S160). Another participant agreed "trying to remember

standards of practice is not easy" (S72).

Table 11 – Survey Question 4

Q-4: Why did you pick the number in the previous question?	# of People (n=261)	*Percentage of respondents choosing each of the top 8 responses
Areas I am unfamiliar with	3	1
Changes that I was not aware of	3	1
Common sense	5	2
Good review	12	5
Based on my JPP results	3	1
Keep up-to-date	16	6
Knowledgeable	72	28
Unsure of level of knowledge	8	3
Other	43	16
No response	96	37

percentages are rounded to the next whole number

One of the main points of my research was to identify whether LPNs perceived that

participating in gamified education influenced change in their attitudes and behaviors.

"Gamification is about using gaming attributes to drive engagement, strengthen skills, or

behavior changes" (Arnold, 2014, p. 34). When participants were asked to identify any changes

in their own practice related to their attitude or behaviors (see Table 11), 33% stated that they

identified no change. The next highest response was 16% in which participants stated that a

change in their awareness of jurisprudence had been significant. One participant stated "The

project definitely increased my knowledge level" (S25), while another shared that "it made me

more aware that there is a bigger picture that I always need to be cognizant about" (S12).

Not all participants felt that the gamified learning had any influence on their attitudes or

behaviors pertaining to jurisprudence. Statements like "no change in attitude or behaviours (sic),

work the same as previous to taking the exam" (S20), or "no change in attitude since taking part

in project" (S57), reflect a common theme with such a high percentage feeling this way. One

participant shows that there may have been some sort of influence even if it was only more self-

awareness; "I do not think there has been any lasting change in my attitude - except perhaps to be

a bit [more humble] (sic) about my own knowledge - as always, I was reminded that my job [is]

a bit different than a hospital LPN - which was more the focus of the exam" (S134). About 33%

of participants felt that JPP had no influence on their attitude or behavior around jurisprudence

but 57% felt that JPP had some influence on them, whether increased awareness or more

accountability.

Table 12 – Survey Question 5

Q-5: Tell me about any part of the Jurisprudence Pilot Project that has influenced some kind of change in your attitude or behaviors as an LPN?	# of People (n=261)	*Percentage of respondents choosing each of the top 8 responses
Accountability	5	2
Awareness	28	11
Confident	9	3
Grey area in nurse-client relationship	6	2
Keep up-to-date	13	5
More knowledge	11	4
None	58	22
Refresher	10	4
Reminder	8	3

Seek answers when in doubt	7	3
Other responses	22	8
No response	84	33

percentages are rounded to the next whole number

When participants were asked to articulate why JPP had an impact of their practice, the most referred to statement was a better understanding of jurisprudence related to their practice (see Table 12). "The aim of gamification is to change behavior while motivating and engaging" (Orosco, 2014, p. 11). Comments shared in respect to why JPP had an impact on these LPNs practice were still on the theme of higher awareness and increased knowledge with statements such as "I want to be a better nurse each and every day" (S4) and another shared "it made me realize that all parts of the regulations and scope are important to know even if they did not necessarily seem to impact me" (S16). Landers and Landers (2014) previously stated "learners who practice and engage with a task more often produce greater knowledge and skill than those who do not practice" (p.772).

Interestingly a few participants were able to realize that they were lacking the knowledge of jurisprudence enough to trouble them, "because I realized that some of the [parts] I did not know, I really did not know, and that, to me, was concerning" (S22) and "it gave me a mild panic attack to know that I was forgetting information and techniques that I might need to use again some day" (S76). Others stated that JPP made them realize they had become complacent about their practice; "working 10 years in the same location had lent a complacency to my work that I was not aware of until taking part in the Jurisprudence Project" (S115) while another admitted "I had simply "forgotten" that this was a requirement of my job. I think I was treating it as more optional" (S105).

Positive comments from participants regarding why JPP influenced them were shared, such as; "It has empowered me to self regulate with better understanding and share this understanding with my team" (S97), "having clearer view of standards and scope builds more

confidence" (S99) and "I think it is important in todays (sic) environment and culture to be on

top of jurisprudence" (S21). LPNs that felt the gamified education had some influence on their

attitudes or behaviors related it to more awareness and knowledge, some even stating that JPP

reminded them of their responsibilities as a nurse to keep the healthcare user safe.

Table 13 – Survey Question 6

Q-6: Why do you think this had an impact on your practice?	# of People (n=261)	*Percentage of respondents choosing each of the top 10 responses
Accountable	6	2
Awareness	5	2
Be a better nurse	11	4
Better understanding	20	8
Confidence	7	3
Educational	9	3
High practice standards	5	2
More aware	14	5
Reminder	7	3
Stop and reflect	5	2
Other responses	28	11
No response	114	44

percentages are rounded to the next whole number

LPNs were asked to share if they were influenced to make a change in their attitudes or

behaviors, and were these same LPNs able to take their new found knowledge back to their

workplace to further influence change (see Table 13). It was closely split with "no" edging out a

bit higher at 38% and "yes" at 36%.

Table 14 – Survey Question 7

Q-7: Were you as an LPN able to take any new learning back to your workplace to influence change there?	# of People (n=261)	*Percentage of respondents
Yes	93	36
No	98	38
No response	70	29

percentages are rounded to the next whole number

Participants were asked to expand on why they were able to influence further change or

not. Orosco (2014) believes that "[gamifpication] also helps to energize employees to utilize and

disseminate knowledge" (p. 33). But one of the themes that came out of this question was that the participants were only able and accountable for their own practice and they could not expect others to change with or because of them. "My change was more of a personal nature - it did not create a change in policy of procedures at my work" (S134), "I can only change myself and be positive role model. I dont (sic) expect to change others." (S13), "this did not impact any change in my workplace" (S42) and "I don't think anything changed my workplace, but it changed my practice." (S12).

Some participants shared how they were able to influence some change in practice with their employer or colleagues as one participant shared they were "able to bring up at nursing meeting the importance of everyone being more accountable for their individual practices" (S53). While another shared "Yes as most our staff did the Pilot Project it had opened up the way we comunicate (sic) and had everyone asking questions and working closer as a team" (S54). Some other interesting comments made by participants related to influencing change in the workplace were:

> "Sharing with other team members and bringing an renewed excitment (sic) to our proffessional (sic) responsibilty (sic) to our patients and thier (sic) families." (S137)
>
> "Some of my colleagues who took the JPP survey were overshelmed (sic) with the lack of knowledge for LPN practice. This JPP was a shocker and wonder what lies ahead." (S118)

LPNs felt that the learning they experienced influenced them personally but felt that for one reason or another were unable to influence further change to attitudes and behaviors in their workplace.

Another part of the evaluation of the JPP was the comparison of the gamified elements related to other forms of gamification participants had experienced. The question "had you

experienced any other gamified experiences previous to the Jurisprudence Pilot Project, (see

Table 14) was presented with prompts such as Candy Crush, World of Warcraft, videos, and

interactive websites to get participants thinking of other forms of gamification they may have

experienced. The different applications of gamification that participants had experienced are

shown in tables 14a-14d. When participants compared JPP to other gamification applications,

most, 17% stated that JPP was "somewhat similar" but in a close second at 16% choose "not at

all".

Table 14a – Survey Question 9

Q-9: Had you experienced any other gamified experiences previous to the Jurisprudence Pilot Project?	# of People (n=65)	*Percentage of respondents
Candy Crush	47	73
World of Warcraft	3	4
Other online video games	15	23

percentages are rounded to the next whole number

Table 14b

Interactive Education	# of People (n=27)	*Percentage of respondents
Babble	1	4
Online course	11	41
Healthcare hub training	1	4
HR seminar	1	4
Learning activities online	6	22
Mavis Beacon Typing	1	4
Other education in field	2	7
Self-help seminars	1	4
Surge learning	1	4
Through school	1	4
Webinars	1	4

percentages are rounded to the next whole number

Table 14c

Online video games	# of People (n=10)	*Percentage of respondents
Angry birds	1	10

	1	10
Boom beach	1	10
Card games	1	10
Games on IPod	1	10
Lineage2	1	10
Too many to note	1	10
Farmville	1	10
Jungle Cube	1	10
Online Yahtzee	1	10
Word games	1	10

percentages are rounded to the next whole number

Table 14d

Other	# of People (n=19)	*Percentage of respondents
Cards games	1	5
Clinical instructor	1	5
Hay day	1	5
Health authority courses	1	5
Multiple platform and genres	1	5
None	9	47
Playing games with kids	1	5
Post call surveys	1	5
Puzzles	1	5
Saga games	1	5
Word searches	1	5

percentages are rounded to the next whole number

To be able to gauge whether the gamification of JPP is comparable to other online activities, a question was asked in the survey (see Table 15a). The research asked how JPP compared to the other online gamified experience that participants had (see Table 15a-15b)? Some experiences that participants related to ranged from word games to puzzle video games. One LPN shared that JPP "made them more relatable being visual scenarios" (S63) and JPP worked well by "applying theory to real situations" (S78). Participant stated "being a visual learning person, the gasification (sic) helped memory!" (S95). Engaging participants into gamification can make the learning more interesting and fun as described by one, "the gamified elements interested me & it made it into a fun activity (S101), "it was interactive. Not just boring reading (S111) and "reading is easy to forget, when you participate it sticks with you" (S126).

Table 15a – Survey Question 10

Q-10: How was the Jurisprudence Pilot Project's use of gamification comparable to online experiences you related to in question #9?	# of Persons (n=261)	*Percentage of respondents (n=95)
Very similar	6	2
Somewhat similar	43	16
Not at all	42	16
No response	143	55
Other:	27	11

percentages are rounded to the next whole number

Table 15b

Other comments	
Irregular consistency of animation	2
No comment	2
No previous experience similar	6
Unsure of question	1
Waste of time	1

But even though the gamified education was comparable to other online games or interactive learning, and of those that answered the question, 36% thought JPP did help them learn about regulation and standards of practice (see Table 16). Cook (2013) states that "interactive learning games can increase long-term retention rates by up to 10 times" (p. 23). Not everyone felt the same way as one participant stated "Yes, but some of the gamified elements felt "dumbed down" or slightly patronizing to me" (S85) and "they did not relate to what we had to know for the exam" (S27). In the literature, gamification was found to work well for compliance training and many other forms of serious training (O'Brien, 2015). One LPN was not impressed with JPP at all and stated "No, they were annoying, condescending, and silly, thus I skipped through them" (S31).

Table 16 – Survey Question 11

Q-11: Were the gamified elements in the Jurisprudence Pilot Project effective in helping you learn about regulation and standards of practice?	# of Persons (n=261)	*Percentage of respondents

Yes	93	36
No	40	15
No response	128	49

percentages are rounded to the next whole number

Table 17

How were the gamified elements in the Jurisprudence Pilot Project effective in helping you learn about regulation and standards of practice?	# of Persons (n=87)	*Percentage of respondents for the main 10 points
Better understanding	9	10
Easy to use	3	3
Enjoyed learning	3	3
Good review	13	15
Interactive	2	2
Made it fun	6	7
Reminder	3	3
Scenario based	1	1
Short clips	1	1
Visual learning	7	8

percentages are rounded to the next whole number

Participants were then asked to define how the gamified elements in JPP were effective in helping them learn about regulation and standards of practice. Participants commented on such things as the real life situations, interesting and fun, and participation helped them remember. Gamification in education is seen as a good tool when engagement is needed in activities that might otherwise seem boring or monotonous, which jurisprudence may be seen as (Chadwick, 2014; Edmonds, 2011). One participant stated that "Wholistic (sic) learning style helped to clarify regulations" (S53) while another shared "simple short clips to drive home points are effective" (S62). "The gamified elements interested me & it made it into a fun activity" (S101), "applying theory to real situations" (S74) "it made it interesting and the applications relevant" (S104) and "LPNs are expected to follow the Standards of Practice and are not something reviewed often. The scenarios given during the training are a good way to apply the Standards of Practice in real life" (S85).

Participants then identified the top three (3) pieces of new knowledge they acquired

through the gamified learning in the JPP. The top one at 19% was the Scope of Practice for

LPNs, the second at 16% was Professional Standards and the third was Boundaries in the Nurse-

Client Relationship 13% (see Table 18).

LPNs stated that if the CLPNBC could support more learning, whether learning modules

on the CLPNBC website, 32%, along with continuing the Test Your Knowledge in LPN Connect

22% (see Table 19).

Table 18 – Survey Question 12

Q-12: Identify your top three (3) pieces of new knowledge you acquired through the Jurisprudence Exam that you can apply to your professional practice.	# of responses choosing their top 3 pieces of new knowledge (n=422)	*Percentage of responses
Scope of Practice for the LPN: Standards, Limits and Conditions	80	19
Professional Standards	69	16
Boundaries in the Nurse-Client Relationship	55	13
Communicable Disease: Preventing Nurse-to-Client Transmission	3	0
Conflict of Interest	52	12
Consent	14	3
Documentation	23	5
Duty to Provide Care	27	6
Duty to Report	35	8
Medication Administration	5	1
Privacy & Confidentiality	33	8
Use of LPN Title	7	2
Working with Healthcare Assistants	36	8
Other	12	3

percentages are rounded to the next whole number

Table 19 – Survey Question 13

Q-13: How else could CLPNBC help you learn about the Standards of Practice?	# of responses choosing each item (n=376)	*Percentage of responses
Presentations by CLPNBC staff	31	8

Continuing the Test Your Knowledge in LPN Connect	82	22
Learning modules on CLPNBC website	121	32
Social media- Facebook page or discussion forum	30	8
Conference/education day sponsored by CLPNBC	68	18
Conference/education day sponsored by Licensed Practical Nurses Association of BC	32	9
Other:	12	3

Other:	Responses (n=12)
Anything would be beneficial	1
Conferences outside Vancouver	2
Felt pressured	1
Future emails to refresh knowledge	1
Keep resources available	1
Liked format	1
Making education mandatory	1
More real life situations	1
Sections done seasonally	1
Videos on CLPNBC website	1
Work place educators	1

percentages are rounded to the next whole number

Final comments from participants

Participants offered some final comments at the end of the survey. One participant stated "I did not take [jurisprudence] as seriously as it seems to have been intended" (S138). Other participants stated "JPP (sic) is an interesting and enjoyable way to review your knowledge and to learn new information. Highly recomend (sic) it" (S128) and "[Jurisprudence] is a new venture for the CLPNBC, but I believe we did it very well for the first offerring (sic)- it can only get better" (S109). User retention is the key to effective application of gamification, so that when users have a good experience in the gamified learning, they remember the material, apply it and hopefully come back to learn more (Hughes, 2014). Many agreed with this participants' comment "JPP (sic) was a fun and interesting way to learn" (S104) but not everyone as this participant states "JPP (sic) was not a helpful program, really did not learn anything that I did not already know and use" (S20).

Summary

By using ER for my research, I was able to gather qualitative and quantitative reactions and feelings of the LPNs that participated in JPP. The focus of this research was to understand if and how the gamified education influenced any change in their attitudes or behaviors regarding nursing jurisprudence. As the literature review revealed, the use of gamification in education needs to be engaging enough to draw people into the learning and have some kind of influence on their attitudes or behaviors (Whitton, 2011). The JPP participants offered personal insight and perceptions of what they experienced in the project. Participants were able to share whether the gamified learning was successful in influencing any change in their attitude or behavior and if so, were the participants able take their new knowledge back to their workplace to further influence change. The perspectives participants provided answered my research questions regarding: What was the impact of gamified education on the attitudes and behaviors of LPNs as it related to their knowledge of jurisprudence in nursing practice? The sub questions related to this include: 1) What are the elements of gamified education that most influenced learning? 2) How do the elements of gamified education impact the LPN's ability to inform change in the workplace? 3) How did the LPN's new knowledge manifest itself in their own nursing practice? I will summarize my finding in Chapter 5 – Conclusions and Recommendations.

Chapter 5: Conclusions and Recommendations

Introduction

The questions my research posed to answer were: What was the impact of gamified education on the attitude and behavior of LPNs as it relates to their knowledge of jurisprudence in nursing practice. To be able to answer these questions, I looked to the following to guide me in my exploration: 1) what were the elements of gamified education that most influenced learning? 2) how did the elements of gamified education impact the LPN's ability to inform change in the workplace and 3) how did the new knowledge manifest itself in their own nursing practice? In this chapter I will discuss the conclusions from the data I collected and offer recommendations for the CLPNBC moving forward as jurisprudence becomes part of registration in 2016.

Conclusion One

I found in my research that there are three different elements of gamification that can lead to engagement: immersion, intrinsic and extrinsic motivation and competition.

Immersion

LPNs found that the gaming elements that most influenced their learning during JPP were the elements that immersed them directly into the learning. Gamification has the ability to immerse the learner into real life situations without causing any harm to real people. The relationship between gaming and real life applications can create an extrinsic reward but can also reflect how a person may react if presented with the same problem in real life (Coppens, 2014). "The most effective use of gamification in learning is to create an overall context and narrative, and then select the most appropriate game elements to create an immersive experience" (Raftopoulos, 2014, p. 13). In the JPP education, one immersive experience was an emergency situation where the participant had ten seconds to answer the question. Participants expressed

that they felt their level of stress increased with the timer counting down and it made them very

nervous, but when they answered it in time and saved the client, they felt rewarded. Living the

experience through gamification or dealing with time constraints on your actions, can make the

gamified learning seems very real to life (O'Brien & Toms, 2008). One participant shared "I had

no idea there were different rules when it is an emergency" (S10), while another shared that it

helped them to "understanding my role during emergency" (S41) and "Scenerios (sic) made it

more typically life like" (S129). This participant stated "LPNs are expected to follow the

Standards of Practice and are not something reviewed often. The scenarios given during the

training are a good way to apply the Standards of Practice in real life" (S85). Games can be a

place for the participant to fail again and again and reflect on these failures without

compromising the client (Kumar, 2014; Coppens, 2014). For participants, being immersed in an

experience where making a mistake does not risk a life, is good way to learn and also can raise

the extrinsic value of the learning.

Intrinsic and Extrinsic Motivation

To promote engagement in gamified education, the CLPNBC relied on some intrinsic and

extrinsic motivation. "Intrinsically motivated activities are those that the individual finds

interesting and performs without any kind of conditioning, just by the mere pleasure of carrying

them out" (Aparicio, Vela, Sanchez, & Montes, 2012, para. 3). "Gamification supports and

enhances the intrinsic and extrinsic motivation of employees to develop their skills and

competency as well as enhance their status" (Orosco, 2014, p. 43). Even though the CLPNBC

used intrinsic motivation, in the form of badges, in all the data collected, not one participant

referred to badges specifically as a tool that influenced their learning. The CLPNBC awarded

badges to participants based on their mark in JPP. Wining a badge for solving a quiz is not

motivational but changing your thinking around your own practice could be a great motivator

(Hyla, 2015). Once participants received a badge, they could share amongst colleagues and friends through different social media platforms. It is very hard to draw conclusions on whether this form of intrinsic motivation was successful or not, due to the fact that direct questions related to badges and sharing of them were not asked in the research.

Competition

Another benefit of gamification according to Orosco (2014) is "creating a degree of competition between users helps to increase motivation" (p. 44). Competition through sharing badges on social media could draw in colleagues and friends to engage and beat the scores that their friends received. "Creating a program that has a social aspect is imperative to driving motivation and success. Even something as simple as a Facebook share or Twitter post can help drive engagement. Social sharing is essential!" (Freifeld, 2013, p. 8). Due to the way the program was set up, there was no way to promote competition between participant within the platform. Even though some participants alluded to being competitive themselves, as these participants stated "it was less dry, tended to raise my own competitive nature (S116) and "competitive personality" (S150) this was not capitalized on through the online learning modules. Having a way to promote scores within the course platform or through social media may increase competition and lead to fuller immersion by more people.

Conclusion One looked at three different elements of gamification; immersion, intrinsic and extrinsic motivation and competition. These three elements when used in a gamification application can lead to influencing attitudes and behaviors. Participants found that the real life situation immersed them in the education, without causing harm to anyone. This also leads to intrinsic motivation, as participants usually want to do what is right. The CLPNBC needs to create variable rewards structure, randomizing situation for the participants, and completing regular updates to avoid LPNs getting used to the questions and any potential boredom (Freifeld,

2013). Participants in the JPP did mention that the program brought out their own competitive

nature and in future this could be something the CLPNBC could capitalize on.

Conclusion Two

Influencing Change

LPNs, when asked if they were able to influence change in their workplace after

completing JPP, seemed divided. Some LPNs felt that JPP had an influence on their attitude and

behaviors in relation to regulation and standards of practice, but stated they were unable to

influence change in their workplace. Some LPNs shared that they did not feel it was their

responsibility to influence changes in other nurses while other LPNs stated they tried but were

not successful. Some comments participants provided: "I don't feel I'm in the position to educate

on these subjects" (S18), "just fluff the top brass think is important" (29), "everybody already

knows everything at my work place" (S46) and "the "education" received was the research one

did to find out the answers they did not know - this is personal" (S51).

Some LPNs stated that they were able to influence change at their workplace, whether it

was being a role model or bringing forward the education from JPP. According to Orosco (2014)

game mechanics "encourages employees to focus on their work, and as their own behaviors and

attitudes are modified, they influence the performance and behavior of their colleagues" (p.17).

Some comments LPNs shared were: "I listened to ideas at work and interjected with professional

responsibility standards of the LPN" (S34), "able to bring up at nursing meeting the importance

of everyone being more accountable for their individual practices" (S53), and "open the

standards of practice in LPN's meeting with the employer" (S120).

Gamification had a positive influence on some of the LPNs to change their attitudes and

behaviors around their own nursing practice. The influence seemed to stop there for most LPNs

as their comments suggested they felt it was not up to them to try and influence change at the

workplace. Some comments related to the fact that JPP seemed more as a personal learning experience.

Conclusion Three

Success of gamification

The gamified education was successful in teaching LPNs what jurisprudence means to their nursing practice. Gamification in learning helps to create the overall context and narrative of what is being learned (Raftopoulos, 2014). LPNs stated that they found the gamified learning engaging and helped them to see problems from a different perspective. LPNs agreed that the learning was a good refresher especially if they had not worked in a particular area for a while.

> "I found that some of the areas covered were more of a priority than I had originally thought since they did not impact me directly. It made me realize that all parts of the regulations and scope are important to know even if they did not necessarily seem to impact me." (S16)

Not all participants thought JPP was engaging and motivating.   Some nurses expressed that they thought the learning was a waste of time and that the use of gamification in the way the CLPNBC used it made the learning cartoonish and child-like. Some of these same nurses stated that the learning had no influence on their attitude or behaviors. Even stating that they had the knowledge to practice safely and did not learn anything new from participating in this project. As found in the literature review, when people feel that gamification attempts to manipulate their behavior, they will inevitably object and disengage (Kim, 2015). Another comment from participants summed up their experience and how they felt about the gamified education "I found that I was only learning with the end goal of passing a test, not learning" (S111). As stated earlier, companies need to understand that not all participants will be motivated to learn, and will only complete the program because it is required (Cook, 2013).

Recommendations

My research looked at how successful the CLPNBC was in using gamification in

education to engage LPNs and influence change in attitudes and behaviors related to

jurisprudence. Participants commented on being able to refresh their knowledge on different

practice areas that they may not have practiced in for a time. As the CLPNBC moves forward

with this part of their quality assurance process four (4) recommendations came from this

research:

1. It is recommended to make the gamified learning relevant to all nursing practice areas

or touch on as many areas as feasible.

2. It is recommended that by the end of 2016 the CLPNBC should develop ways to

heighten the intrinsic and extrinsic motivation for LPNs, such as making jurisprudence

more competitive and a larger reward for doing well.

3. It is recommended that by the end of 2016 the CLPNBC should work with LPNs and

employers to increase participation.

4. It is recommended that before the next offering of jurisprudence, the CLPNBC

assesses the questions for clarity and logic and that they follow the regulation and

standards of practice accordingly.

Recommendation 1: Relevance

The CLPNBC needs to make the learning relevant to as many nursing practice areas as

possible. As stated by participants, they found that the learning did not pertain to their place of

employment. Even though most LPNs identify working in a hospital or nursing home/long-term

care home, which were represented in the gamified learning, some LPNs remarked that they

worked in areas of nursing that was not depicted in any of the learning modules: "I felt that the

test was difficult because there were many questions I couldn't answer as I do not work in an

acute setting. There should be different tests for different fields of nursing" (S8). Taking into

account all the places that nurses listed as their place of employment, it could be hard for the

CLPNBC to design learning around every practice area. But according to Zappala (2012)

"relevance is the single most important aspect of teaching and training adults was to allow

participants to apply real work materials, concepts and skills" (p. 19). This situation could be

rectified by designing generic gamified education and questions.

The CLPNBC portrayed many nursing situations through recorded scenes played by real

life actors and video scripts with voice overs. Videos can be an excellent way to illustrate course

concepts (Kelly, 2012, p. 10). Also "hands-on learning activities increase student engagement

and heighten perceived course value. Engagement and perceived course value are believed to be

integral to a student's positive learning experience and to retention of less-prepared students

(Harrington & Floyd, 2012, p. 16). This can lead students to relate and engage to the situations

in the videos, whether they have experienced the situation or not.

The use of generic practice settings may help the CLPNBC meet the needs of the LPNs

that work in unusual practice settings. This may take some creative thinking as the JPP featured

the most popular areas of practice. Videos and real life actors portraying nurses in the videos is a

favorable way to engage LPNs in the gamified education. If the CLPNBC recruited LPNs to

help in playing roles it may be a good tool to learn these unusual practice areas.

Recommendation 2: Motivation

By the end of 2016, the CLPNBC should develop ways to heighten the intrinsic and

extrinsic motivation for LPNs, such as making jurisprudence more competitive and a larger

reward for doing well. "Gamification supports and enhances the intrinsic and extrinsic

motivation of employees to develop their skills and competency as well as enhance their status"

(Orosco, 2014, p. 43). The CLPNBC currently uses the intrinsic motivation of badges that

participants receive based on their score in the education or exam component. Freifeld (2013)

warns to pay attention to "when and how rewards happen, and how they aggregate are

components that needs to be carefully considered and well integrated into the overall strategy"

(p.8). No participant mentioned this as a reason for engagement and having any influence on

their attitude or behavior, but it could have more impact on the participants if there were some

elements of competition in JPP.

Promoting competition could be as easy as showing leaderboards within the learning

environment. A leaderboard is a list of people that are participating in a game, arranged by some

criteria, usually a score (Whitton, 2010). To promote privacy, leaderboards could also be set up

to show people that the participant wants to complete against. "Leaderboards represent a

meaningful combination of game attributes with the potential to increase time on task" (Landers

& Landers, 2014, p. 772). Whitton (2010) agrees that "adding a leaderboard or high scores list

will enable players to see how they are performing in relation to others" (p. 146). The CLPNBC

does need to be aware that for some people competition could be stressful, so being able to

promote healthy competition if the learner wants to be a part of it, would be a useful strategy.

Recommendation 3: Increasing Interest

By the end of 2016, the CLPNBC needs to work towards the roll-out of the next

jurisprudence course by creating partnerships with LPNs and employers to increase their interest

in participating. One comment from a participant highlights the fact that some LPNs do not

understand all aspects of how regulation and standards of practice drive nursing practice:

> "I feel that it was good review as well as reminded me that my employer has policy's (sic)
>
> but it's important to know your standards of practice as well as law, it had reminded me
>
> how it all fits together. It's influenced me to educate myself and review often and keep up
>
> to date" (S84).

By engaging LPNs and their employers, clarity can be provided that employer policies come after regulation and standards of practice. Encouraging engagement of participants in developing questions and scenarios based on their experiences may increase their motivation to engage in the process. Also by using participants that are working in those different practice roles could help round out the jurisprudence questions and help inform participants that nursing practice is the same no matter what role they are in. Jurisprudence is taking the learning and making it fit to their situation.

Recommendation 4: Clear and Logical Questions

Before the next offering of jurisprudence, the CLPNBC needs to assess the questions for clarity and logic and that they follow the regulation and standards of practice accordingly. Kapp (2012) speaks about disjointed learning "if information is presented in a disjointed and unconnected fashion…participants quickly become bored and disengage. The result is resentment, anger, and a sense that they are wasting their time" (p. 66). A participant shared: "doing the job as long as I have I have lots of resources to draw on but found some of the questions ambiguos (sic) and unclear at times" (S21), "Questions were poorly written and confusing. Perhaps having clearer questions would be beneficial" (S5), "some questions were the same" (S60) and "sometimes the examples did not help with the test. Test questions were tricky" (S117). When questions are confusing, the participants do not engage and do not retain the information needed to be successful. More focus on clarity and logic using plain language and accepted terms in the nursing profession.

Summary

As demonstrated in participants' responses, the CLPNBC was successful in increasing awareness of how regulation and standards of practice influences their practice. LPNs shared their perceptions on how gamified education influenced their nursing practice which in turn will

help promote safety to the client. As the CLPNBC moves forward with the next offering of

jurisprudence, instituting the recommendations outlined will produce a solid program that will

appeal to the LPN population as a whole. Learning to play in any gamified situation can be

difficult and to keep people interested can be even more so, but keeping jurisprudence interesting

and incorporating what LPNs find important will engage them even more. Defining what the

motivating factors are for the participants and defining the benefits, will keep participants

interested in the learning.

Chapter 6: Research Implications

Implementation Process

The CLPNBC designed a gamified education module to educate LPNs about the regulations and standards of practice, known as jurisprudence. My research addressed the question "what was the impact of gamified education on the attitudes and behaviors of LPNs as it relates to their knowledge of jurisprudence in nursing practice?" To help me answer this question, I asked the following questions to hone in on specific aspects of gamification: 1) what are the elements of gamified education that most influence learning? 2) How do the elements of gamified education impact the LPN's ability to inform change in the workplace? 3) How did the LPN's new knowledge manifest itself in their nursing practice?

LPNs were invited to participate in JPP to provide CLPNBC with a way to measure how well LPNs understood jurisprudence related to their nursing practice. Participants were randomly assigned into two groups: those that received gamification and then exam and those that did not receive gamified education but only participated in the exam. The gamified pieces of JPP led the LPN through different work environments and then on to a final exam. My research looked at whether having the gamified education had any influence on the LPNs attitudes and behaviors related to their understanding of regulation and standards of practice. Chapter 4 shows the questions and analysis that my research entailed and Chapter 5 includes the conclusions from the research and the recommendations for the CLPNBC moving forward.

Future Implications

Chapter five outlined my conclusions and the proposed recommended changes for the CLPNBC and their jurisprudence program. As the CLPNBC moves forward with making jurisprudence a requirement for renewal in 2016-2017, LPNs will start to see the need to make changes in their attitudes and behaviors around jurisprudence. Jurisprudence is the backbone of

nursing as the regulation and standards of practice guide nursing practice to keep the healthcare user safe. If LPNs continually fail to make the connection between jurisprudence and their own practice, the habits that they have fallen into will keep perpetuating. This leaves the healthcare user at risk of harm or even death and the CLPNBC is not meeting it mandate of public protection.

The CLPNBC designed the current JPP around the common areas of practice for LPNs. The CLPNBC needs awareness of the different practice areas that LPNs work in to make sure that jurisprudence is generic enough in the education and questions to be inclusive of all areas. According to Freifeld (2013), if you "find out what motivates your audience and your game, its intended results will win every time (p.8). If the CLPNBC fails to develop a generic program that can be interpreted in all the different practice areas, there will always be LPNs that feel due to their nursing positions, jurisprudence does not pertain to them.

The CLPNBC's mandate is regulating LPN in the public interest (College of Licensed Practical Nurses of BC, n.d., para. 3). The CLPNBC regulates the profession so that LPNs provide care to the healthcare user in the safest way possible. Jurisprudence speaks to the regulation and standards of practice that every LPN needs to understand as this is the foundation of nursing.

It will take time for all LPNs to understand how jurisprudence informs their nursing practice. Hudspeth (2008) still summarizes jurisprudence up best with the statement "an enigma is something not easily understood and is sometimes hard to explain. Thus is nursing regulation—an enigma" (p. 265).

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Appendices

Appendix A: Letter of Invitation to LPNs for Participation in a Focus Group/Interview

[Date]

Dear [participant name],

I would like to invite you to be part of a research project that I am conducting for the College of Licensed Practical Nurses of British Columbia (CLPNBC). This project is part of the requirement for a Master's Degree in Learning and Technology at Royal Roads University. My name is Shelley Trimblett and my credentials with Royal Roads University can be established by contacting Elizabeth Childs, Program Head, MA Learning and Technology at xxx-xxx-xxxx.

My research will look at the effects of gamification on teaching Licensed Practical Nurses (LPNs) about Jurisprudence in the context of a regulatory body's Quality Assurance (QA) program. In addition to submitting my final report to Royal Roads University in partial fulfillment for a Master of Arts in Learning and Technology Degree, I will also be sharing my research findings with CLPNBC. The project findings may be presented at provincial and/or national regulatory conferences. As this research will also be published, a copy of this thesis will reside in the RRU library as well as in Library and Archives Canada, accessed through the Thesis Canada Portal, and the ProQuest/ UMI database.

The jurisprudence research findings will be put towards refining the Jurisprudence Program going forward. It may also form the basis for a variety of journal articles related to the responsibilities of a health regulatory organization in developing a quality assurance program to meet its legislated mandate to establish and maintain a continuing competency program to promote high practice standards amongst registrants.

My research will utilize open-ended questions in a focus group activity and will last approximately 90 minutes. The questions will include such things as: "tell me what your level of understanding regarding jurisprudence and how it related to your nursing practice before participating in jurisprudence" and "do you feel participating in the jurisprudence pilot project influenced you to make changes in your attitudes or behaviors in your own nursing practice."

You were chosen as a prospective participant from all individuals who agreed to participate in further research regarding the Jurisprudence Pilot Program. You will have an opportunity to verify any data you contribute during the focus group before it is analyzed. All identifying factors will be removed before it comes to me to be analyzed. The data will then be used, in part, to formulate survey questions for the next cycle of research for the project.

Information will be recorded in both digital and hand-written formats and, where appropriate summarized, in anonymous format, in the body of the final report. In order to capture data correctly during the focus groups, a digital recorder will be used; however, any participant can request that the recorder be turned off at any time for a few minutes during the session. Unless specific agreement was obtained beforehand, no specific comments are attributed to any individual. Each member of the focus group will be expected to treat both the identity of all other participants and all of comments made during the focus group as confidential. Participants

are not to disclose or discuss this information with anyone who was not part of the group. (Appendix C)

All documentation gathered will be kept strictly confidential and without personal identifiers. As a researcher, I will not be privy to who is invited, nor to who accepts or declines to participate in the project. Participants' names and any other personal identifiers will not be included as part of the data analysis, and all raw data and transcribed materials are in a locked cabinet. The key will be on my person at all times. I will retain the compiled research data for one (1) year without personal identifiers and then destroy through confidential shredding at the conclusion of the research. Any data pertaining to an individual, who has chosen to withdraw at any time during the research process, will be destroyed through confidential shredding provided that their withdrawal happens prior to the analyses of these data. Once the data analysis has started, best efforts to remove any remarks from the participant will happen but will be difficult once anonymized.

A potential conflict of interest could arise from participants sharing information related to their experience during the Jurisprudence Pilot Project. At all times during the research project, confidentiality and free and informed consent will be maintained. You are free to share only information that you feel comfortable sharing in a small group and can decline to answer any questions. You can also pick a pseudo name to use during the research process to maintain anonymity. It is not mandatory to participate in my research project but if you do choose to participate, you are free to withdraw at any time without prejudice. Similarly, if you choose not to participate in this research project, this information will remain confidential also.

Please feel free to contact me at any time should you have additional questions regarding the project and its outcomes. Research findings and recommendations will be shared with all participants at the conclusion of the project. The College of Licensed Practical Nurses of BC will also provide information about the research project findings and recommendations to its registrants and stakeholders through articles published in its College Connection newsletter.

If you would like to participate in my research project, please contact my assistant at:

Name: Nursing Practice Advisor

Email: xxxxx

Telephone: xxx-xxx-xxxx

Sincerely,

Shelley Trimblett

Appendix B: Informed Consent

LPN FOCUS GROUP/INTERVIEW PARTICIPATION

My name is Shelley Trimblett and this research project is part of the requirement for a Master of Arts in Learning and Technology Degree at Royal Roads University. My credentials with Royal Roads University can be established by contacting Elizabeth Childs, Program Head, MA Learning and Technology at xxx-xxx-xxxx.

This document constitutes an agreement to participate in my research project, the objective of which is to look at the effects of gamification on nursing education in the context of a regulatory body's Quality Assurance (QA) program.

My research will utilize open-ended questions in a focus group activity and is foreseen to last approximately 90 minutes. The questions will include such things as: "tell me what your level of understanding regarding jurisprudence and how it related to your nursing practice before participating in jurisprudence" and "do you feel participating in the jurisprudence pilot project influenced you to make changes in your attitudes or behaviors in your own nursing practice."

 In addition to submitting my final report to Royal Roads University in partial fulfillment for a Master of Arts in Learning and Technology Degree, I will also be sharing my research findings with CLPNBC. As this research will also be published, a copy of this thesis will reside in the RRU library as well as in Library and Archives Canada, accessed through the Thesis Canada Portal, and the ProQuest/ UMI database.

Your name was randomly chosen as a prospective participant from among all individuals who agreed to participate in further research regarding the Jurisprudence Pilot Program. You will have an opportunity to verify the data collected during the focus group. The data will then be used, in part, to formulate survey questions for the next cycle of research for the project.

Information will be recorded in both digital and hand-written formats and, where appropriate summarized, in anonymous format, in the body of the final report. In order to maximize trustworthiness of the data collected, digital recording will be utilized, however, you can request that the recorder be turned off at any time for a few minutes during the session. At no time will any specific comments be attributed to any individual unless your specific agreement has been obtained beforehand. Each member of the focus group will be expected to treat as confidential both the identity of all other participants and all of comments made during the focus group. You are asked to not disclose or discuss this information with anyone who was not part of the group.

All documentation will be kept strictly confidential and without personal identifiers. Participants' names and any other personal identifiers will not be included as part of the data analysis, and all raw data and transcribed materials will be kept in a locked cabinet in my office. The key will be kept on my person at all times. Compiled research data will be retained for a period of one (1) year without personal identifiers and all raw data will be destroyed at the conclusion of the research through confidential shredding. Data and information pertaining to an individual who has chosen to withdraw at any time during the research process will not be retained and will be destroyed through confidential shredding provided that their withdrawal is received prior to the

analyses of these data. Once the data have been analyzed, best efforts will be made to remove any quotations contributed by the withdrawn participant.

A potential conflict of interest could arise from sharing information relating to your experience during the Jurisprudence Pilot Project. Confidentiality and free and informed consent will be maintained at all times throughout the research project. You are free as a participant to share only information that you feel comfortable sharing in a small group and to decline to answer any questions that might be posed.

You are not compelled to participate in this research project. If you do choose to participate, you are free to withdraw at any time without prejudice. Similarly, if you choose not to participate in this research project, this information will also be maintained in confidence.

By signing this letter, you give free and informed consent to participate in this project.

Name: (Please Print): _____

Signed: _____

Date: _____

Appendix C: Letter of Invitation to LPNs for Survey Participation

 [Date]

Dear [participant name**],**

I would like to invite you to be part of a research project that I am conducting for the College of Licensed Practical Nurses of British Columbia (CLPNBC). This project is part of the requirement for a Master's Degree in Learning and Technology, at Royal Roads University. My name is Shelley Trimblett and my credentials with Royal Roads University can be established by contacting Elizabeth Childs, Program Head, MA Learning and Technology at xxx-xxx-xxxx.

My research will look at the effects of gamification on teaching Licensed Practical Nurses (LPNs) about Jurisprudence in the context of a regulatory body's Quality Assurance (QA) program. In addition to submitting my final report to Royal Roads University in partial fulfillment for a Master of Arts in Learning and Technology Degree, I will also be sharing my research findings with CLPNBC. The project findings may be presented at provincial and/or national regulatory conferences. As this research will also be published, a copy of this thesis will reside in the RRU library as well as in Library and Archives Canada, accessed through the Thesis Canada Portal, and the ProQuest/ UMI database.

The research data will be put towards refining the Jurisprudence Program. It may also form the basis for a variety of journal articles related to the responsibilities of a health regulatory organization in developing a quality assurance program to meet its legislated mandate to establish and maintain a continuing competency program to promote high practice standards amongst registrants.

One of the major components of my research project is an online survey that will take approximately 15 minutes to complete. The survey will include demographic questions to establish age groupings of participants, the length of time the participant has been an LPN, and the context of participants' practice settings. There will also be a series of close-ended (yes/no, agree/disagree, Likert Scale) of questions, as well as some open-ended questions that ask you to provide comments or information about one of your previous answers to a close-ended question. Your name was chosen as a prospective participant from among all individuals who agreed to participate in further research related to the Jurisprudence Pilot Project. The data obtained will be used to formulate recommendations that will be provided to CLPNBC to refine the Jurisprudence Program to promote high practice standards amongst registrants. The survey and respondents' feedback will be kept on a Canadian-based survey platform, Fluid Surveys, to ensure Canadian standards for privacy and security are met.

All survey responses will be kept strictly confidential. All data and associated materials will be password protected and kept in a locked cabinet in my office. The key will be kept on my person at all times. Compiled research data will be retained for a period of one (1) year and all raw data will be destroyed at the conclusion of the research through confidential shredding. Data and information pertaining to an individual who has chosen to withdraw at any time during the research process will not be retained and will be destroyed through confidential shredding.

This survey asks for your personal opinions about a variety of issues related to your experience with the Jurisprudence Pilot Project. You are encouraged to answer as honestly as possible, guided by your first impressions as you read the question. If you feel uncomfortable or unable to answer any question, simply skip it and go on to the next one.

You are not compelled to participate in this research project by completing and submitting this survey. As a researcher inside my own organization, I will not be privy to who is invited, nor to who accepts or declines to participate in the project. If you do choose to participate, then simply click on the survey link below and follow the instructions. Your submission of the completed survey will be accepted as your indication of giving your informed consent. If you do choose to participate, you are free to withdraw at any time without prejudice.

Survey link will be inserted here

*Please complete and submit the survey no later than **11:59 pm PST, Friday, November 27, 2015**.

Please feel free to contact me anytime at xxx-xxx-xxxx should you have additional questions regarding the project and its outcomes. Research findings and recommendations will be shared with participants at the conclusion of the project. The CLPNBC will also provide information about the research project findings and recommendations to its registrants and stakeholders through articles published in its *College Connection* newsletter.

Sincerely,

Shelley Trimblett

Appendix D: Sample Focus Group/Interview Questions

My research will look at the effects of gamification on teaching Licensed Practical Nurses (LPNs) about Jurisprudence in the context of a regulatory body's Quality Assurance (QA) program. The focus group will be about 90 minutes and you will be asked some questions related to your experience with gamified learning around jurisprudence. All comments made during the focus group will be kept strictly confidential.

All data and associated materials will be password protected and kept in a locked cabinet in my office. The key will be kept on my person at all times. Compiled research data will be retained for a period of one (1) year and all raw data will be destroyed at the conclusion of the research through confidential shredding. Data and information pertaining to an individual who has chosen to withdraw at any time during the research process will not be retained and will be destroyed through confidential shredding.

This focus group questions asks for your personal opinions about a variety of issues related to your experience with the Jurisprudence Pilot Project. Information will be recorded in both digital and hand-written formats and, where appropriate summarized, in anonymous format, in the body of the final report. In order to maximize trustworthiness of the data collected, digital recording will be utilized, however, you can request that the recorder be turned off at any time for a few minutes during the session. At no time will any specific comments be attributed to any individual unless your specific agreement has been obtained beforehand. Each member of the focus group will be expected to treat as confidential both the identity of all other participants and all of comments made during the focus group. You are asked to not disclose or discuss this information with anyone who was not part of the group.

You are not compelled to participate in this research project. If you do choose to participate, you are free to withdraw at any time without prejudice. Similarly, if you choose not to participate in this research project, this information will also be maintained in confidence.

Thank you

Shelley Trimblett

Research Questions

My research intends to answer the question: What was the impact of gamified education on the attitudes and behaviors of LPNs as it relates to their knowledge of jurisprudence in nursing practice?

Sub questions include:

1. What are the elements of gamified education that most influence learning?

2. How do the elements of gamified education impact the LPN's ability to inform change in the workplace?

3. How did the LPN's new knowledge manifest itself in their nursing practice?

Questions

1. Given numbers 1 -10, 1 being very low and 10 being very high, how would you rate your knowledge of regulation prior to partaking in the Jurisprudence Pilot Project?

2. Why did you pick the number you did?

3. Given numbers 1 -10, 1 being very low and 10 being very high, how would you rate your knowledge of standards of practice prior to partaking in the Jurisprudence Pilot Project?

4. Why did you pick the number you did?

5. Tell me about any part of the Jurisprudence Pilot Project that may influence some kind of change in your attitude or behaviors as an LPN?

6. Why do you think this had an impact on your practice?

7. Were you as an LPN able to take any new learning back to your workplace to influence change there?

8. If yes, can you give me some examples?

These last five questions are for participants that experienced gamified education.

9. If you had the gamified education prior to taking the exam, did you find this helped you to recall previous learning to help on the exam?

10. Had you experienced any other gamified experiences previous to the Jurisprudence Pilot Project? (Prompt – games such as Candy Crush, World of Warcraft, videos, interactivity, etc.)

11. If yes, what kind?

12. Did you find the Jurisprudence Pilot Project's use of gamification was comparable to others you had experienced?

13. Were the gamified elements in the Jurisprudence Pilot Project effective in helping you learn?

Do you have anything else you would like to share regarding the gamified education?

Appendix E: Sample Survey Questions

My research will look at the effects of gamification on teaching Licensed Practical Nurses (LPNs) about Jurisprudence in the context of a regulatory body's Quality Assurance (QA) program. This survey is hosted through a Canadian company known as Fluid Survey and will take approximately 15 minutes to complete. All survey responses will be kept strictly confidential. The information you provide will be summarized, in anonymous format, in the body of the final report. At no time will any specific comments be attributed to any individual unless your specific agreement has been obtained beforehand. All data and associated digital materials will be encrypted for privacy protection. Compiled research data will be retained for a period of one (1) year and all raw data will be destroyed at the conclusion of the research by wiping the storage device. By completing and submitting in whole or in part the questionnaire, you give free and informed consent to participate in this research.

The survey questions ask for your personal opinions about a variety of issues related to your experience with the Jurisprudence Pilot Project. You are encouraged to answer as honestly as possible, guided by your first impressions as you read the question. If you feel uncomfortable or unable to answer any question, simply skip it and go on to the next one.

You are not compelled to participate in this research project. If you do choose to participate, then simply click on the survey link below and follow the instructions. Your submission of the completed survey will be accepted as your indication of giving your informed consent. Even if you do choose to participate, you are free to withdraw at any time without prejudice and if you do not click 'submit' your data will not be saved and will constitute withdrawal. The information you provide will be summarized, in anonymous format, in the body of the final report.

Please feel free to contact me at any time should you have additional questions regarding my research project and its outcomes. There will not be a formal debriefing session after the survey has been completed, but you are welcome to request a copy of the presentation and/or journal paper. My credentials with Royal Roads University can be established by contacting Jo Axe.

Thank you

Shelley Trimblett

Demographics

        The demographic categories will aide in comparing and identifying if participants of the interview our representative of the total registrant in British Columbia.

- Respondents by gender

    - Male

    - Female

    - Transgender

    - Other

- Respondents by place of work

    - hospital- (general, maternal, pediatric, psychiatric), mental health center and rehabilitation/convalescent center

    - community health- community health center, home care agency, nursing station (outpost or clinic) and public health department/unit.

    - nursing home/long term care- nursing home/long-term care facility

    - other place of work- business/industry/occupational health office, private nursing agency/private duty, self-employed, physician's office/family practice unit, educational institution, association/government and other

- Respondents by length of time as an LPN

    - less than one year to 10 years

    - 11 to 20 years

    - 21- 30 years

    - 31+ years

- Respondents by age grouping

    - 21-25 years

    - 26-30 years

    - 31-34 years

    - 35-39 years

- o 40-44 years

- o 45-49 years

- o 50-54 years

- o 55-59 years

- o 60-64 years

- o 65-69 years

- Respondents by position

  - o LPN/Staff Nurse/Community Health Nurse

  - o Instructor/Educator/Professor

  - o LPN Specialty*Coordinator/Care Manager

  - o Other

- Respondents by Employment Status

  - o full time

  - o part time

  - o casual

Which group were you part of"
- o Education and exam
- o Only the exam

Subjective Experience

1. Given numbers 1 -10, 1 being very low and 10 being very high, how would you rate your knowledge of regulation prior to partaking in the Jurisprudence Pilot Project?

2. Why did you pick the number in the previous question?

3. Given numbers 1 -10, 1 being very low and 10 being very high, how would you rate your knowledge of standards of practice prior to partaking in the Jurisprudence Pilot Project?

4. Why did you pick the number in the previous question?

5. Tell me about any part of the Jurisprudence Pilot Project that has influenced some kind of change in your attitude or behaviors as an LPN?

6. Why do you think this had an impact on your practice?

7. Were you as an LPN able to take any new learning back to your workplace to influence change there? Please give examples.

These last five questions are for participants that experienced gamified education. *(not sure if I can have these questions pop up only if the participant picked education and exam above)*

8. If you had the gamified education prior to taking the exam, did you find this helped you to recall previous learning when completing the exam?

9. Had you experienced any other gamified experiences previous to the Jurisprudence Pilot Project? (Prompt – games such as Candy Crush, World of Warcraft, videos, interactivity, etc.) If yes, please tell me which games.

10. How was the Jurisprudence Pilot Project's use of gamification comparable to online experiences you related to in question #9?

11. How were the gamified elements in the Jurisprudence Pilot Project effective in helping you learn about regulation and standards of practice?

12. Identify your top three (3) pieces of new knowledge you acquired through the Jurisprudence Exam that you can apply to your professional practice.

  o Scope of Practice for the LPN: Standards, Limits and Conditions
  o Professional Standards
  o Boundaries in the Nurse-Client Relationship
  o Communicable Disease: Preventing Nurse-to-Client Transmission
  o Conflict of Interest
  o Consent
  o Documentation
  o Duty to Provide Care
  o Duty to Report
  o Medication Administration
  o Privacy & Confidentiality
  o Use of LPN Title
  o Working with Health Care Assistants
  o Other

13. How else could CLPNBC help you learn about the Standards of Practice?

         o   Presentations by CLPNBC staff

         o   Continuing the Test Your Knowledge in LPN Connect

         o   Learning modules on CLPNBC website

         o   Social media- Facebook page or discussion forum

         o   Conference/education day sponsored by CLPNBC

         o   Conference/education day sponsored by Licensed Practical Nurses Association of BC

         o   Other: _____

14. Do you have anything else you would like to share regarding your experience with the gamified education?

Appendix F: Jurisprudence Education

https://clpnbc.org/JPEducation

Day 1

Adapted with permission from "Jurisprudence Education" under Quality Assurance, 2016, Burnaby, BC: College of Licensed Practical Nurses of British Columbia.

Appendix G: Survey Data Analysis

- Respondents by gender

Male	26
Female	222
Transgender	0
Other	0
No response	13

261

- Respondents by place of work

Hospital	86
Community Health	38
Nursing home/Long Term care	83
Other place of work	37
No response	17

261

- Respondents by length of time as an LPN

<1 year – 10 years	128
11 years -20 years	56
21 years – 30 years	30
31+ years	30
No response	17

261

- Respondents by age grouping

21-25 years old	4
26-30 years old	7
31-34 years old	9
35-39 years old	36
40-44 years old	23
45-49 years old	38
50-54 years old	50
55-59 years old	54
60-64 years old	21
65-69 years old	2
Other	2
No response	15

261

- Respondents by position

LPN/Staff Nurse/Community Health Nurse	188
Instructor/Educator/Professor	7

LPN Specialty/Coordinator/Care Manager	27
Other	18
No response	21

261

- Respondents by Employment Status

Full time	66
Part time	145
Casual	34
No response	16

261

- Which group were you part of

Education and exam	88
Exam only	101
No response	72

261

Subjective Experience

15. Given numbers 1 -10, 1 being very low and 10 being very high, how would you rate your knowledge of regulation prior to partaking in the Jurisprudence Pilot Project?

10	10
9	18
8	38
7	53
6	28
5	25
4	10
3	6
2	1
1	2
No response	70

261

16. Why did you pick the number in the previous question?

Always something to learn	3
Appropriate, no other reason	1
Changes which I was unaware of	1
Common Sense	4
Do already	2
Feel I am average	3
Keep-up-to date	8
Knowledgeable	70
Little Knowledge of area	4
LPNs were never part of it	1
Not enough education	2

Part of nursing program	4
Protect the public	2
Recall of information	1
Refer to references	1
Reflected my basic knowledge	2
Refreshed my information	15
Score on JP	10
Seasoned nurse	4
Unsure of own knowledge	29
Was prepared	3

17. Given numbers 1 -10, 1 being very low and 10 being very high, how would you rate your knowledge of standards of practice prior to partaking in the Jurisprudence Pilot Project?

10	21
9	32
8	56
7	48
6	17
5	13
4	6
3	0
2	0
1	0
No response	56

18. Why did you pick the number in the previous question?

Areas unfamiliar with	3
Aware of standards of practice	4
Changes not aware of	3
CLPNBC provides updates	2
Common sense	5
Completed post basic studies on subject	1
Confident	4
Duty to protect public	1
Education in newsletter	1
Experience	2
Good review	12
Guides LPNs	1
Haven't paid attention	1
How I feel	2
Important	1
JP results	3
Keep up-to-date	16
Knowledgeable	72

Learned about in nursing school	7
New changes	2
Not enough practice	1
Refresher	1
Teach PN students	1
Unsure of level of knowledge	8
Work experience	2
Worked at CLPNBC	1

19. Tell me about any part of the Jurisprudence Pilot Project that has influenced some kind of change in your attitude or behaviors as an LPN?

Accountability	5
Approach	2
Awareness	28
Better communication	1
Confident	9
Deeper understanding	3
Duty to report	1
Emergency situation	1
Grey area in nurse-client relationship	6
How to sign my name	1
JP results	1
Keep up-to-date	13
Legalities are important	1
Less collaborating	1
Maintain high practice standards	2
More aware	1
More knowledge	11
More reluctant	1
None	58
Professionalism	1
Refresher	10
Reinforced my knowledge	1
Reminder	8
Right of patients	3
Seek answers when in doubt	7
The amount we have to remember	1

20. Why do you think this had an impact on your practice?

Accountable	6
Awareness	5
Be a better nurse	11
Better understanding	20
Communication	3
Confidence	7
Educational	9

Empowered	3
High practice standards	5
Keep up-to date	4
More aware	14
More engaged	1
More motivated	1
None	2
Personalities	1
Positive	1
Reminder	7
Somewhat	3
Stop and reflect	5
Unsure	5
Yes	4

21. Were you as an LPN able to take any new learning back to your workplace to influence change there? Please give examples.

Yes	93
No	98
No response	56

These last five questions are for participants that experienced gamified education. *(not sure if I can have these questions pop up only if the participant picked education and exam above)*

22. If you had the gamified education prior to taking the exam, did you find this helped you to recall previous learning when completing the exam?

Excellent	1
Hard to remember	2
Legal language unclear	1
Skipped it	1
Unsure if had education	2
Videos were excellent	1

23. Had you experienced any other gamified experiences previous to the Jurisprudence Pilot Project? (Prompt – games such as Candy Crush, World of Warcraft, videos, interactivity, etc.) If yes, please tell me which games.

Interactive Education	
Babble	1
Online course	11
Healthcare hub training	1
HR seminar	1
Learning activities online	6
Mavis Beacon Typing	1
Other education in field	2
Self help seminars	1

Surge learning	1
Through school	1
Webinars	1

Online video games	
Angry birds	1
Boom beach	1
Card games	1
Games on IPod	1
Lineage2	1
Too many to note	1
Farmville	1
Jungle Cube	1
Online Yahtzee	1
Word games	1

Other

Cards games	1
Clinical instructor	1
Hay day	1
Health authority courses	1
Multiple platform and genres	1
None	9
Playing games with kids	1
Post call surveys	1
Puzzles	1
Saga games	1
Word searches	1

24. How was the Jurisprudence Pilot Project's use of gamification comparable to online experiences you related to in question #9?

Very similar	6
Somewhat similar	43
Not at all	42
Other:	27
No response	143
Irregular consistency of animation	2
No comment	2
No previous experience similar	6
Unsure of question	1
Waste of time	1

25. How were the gamified elements in the Jurisprudence Pilot Project effective in helping you learn about regulation and standards of practice?

Yes	93

No	40
No response	128

Allowed to research	1
Better understanding	9
Cannot relate	3
Can't remember	1
Concise	1
Didn't apply	3
Didn't review	2
Dislike games	1
Doing the task	1
Easy to use	3
Enjoyed learning	3
Felt it was patronizing	2
Gave insight	2
Good review	13
Holistic learning style	1
Interactive	2
Kept me interested	2
Made it fun	6
Made me think	1
More reflection	1
More visual	1
Neutral	2
New experience	1
Reminder	3
Satisfaction	1
Scenario based	1
Short clips	1
Simplified language	1
Visual learning	7
Learning modules	1
Nothing	6
Review process	4

26. Identify your top three (3) pieces of new knowledge you acquired through the Jurisprudence Exam that you can apply to your professional practice.

Scope of Practice for the LPN: Standards, Limits and Conditions	80
Professional Standards	69
Boundaries in the Nurse-Client Relationship	55
Communicable Disease: Preventing Nurse-to-Client Transmission	3
Conflict of Interest	52
Consent	14
Documentation	23

Duty to Provide Care	27
Duty to Report	35
Medication Administration	5
Privacy & Confidentiality	33
Use of LPN Title	7
Working with Health Care Assistants	36
Other	12

27. How else could CLPNBC help you learn about the Standards of Practice?

Presentations by CLPNBC staff	31
Continuing the Test Your Knowledge in LPN Connect	82
Learning modules on CLPNBC website	121
Social media- Facebook page or discussion forum	30
Conference/education day sponsored by CLPNBC	68
Conference/education day sponsored by Licensed Practical Nurses Association of BC	32
Other:	12

Anything would be beneficial	1
Conferences outside Vancouver	2
Felt pressured	1
Future emails to refresh knowledge	1
Keep resources available	1
Liked format	1
Making education mandatory	1
More real life situations	1
Sections done seasonally	1
Videos on CLPNBC website	1
Work place educators	1

28. Do you have anything else you would like to share regarding your experience with the gamified education?

Any education	4
Can't recall	1
Clearer language	1
Clearer questions	1
Conferences or workshops around JP	1
Fun and interesting	1
Good job	1
Good review	1
Great experience	1
Helpful	1
It is annoying	1
None	1
Do not agree with answers	1
Not serious	1
Online modules	1

Prep guide	1
Repeated questions	1
Second guessing	1
Simplistic	1
Too difficult	1
Very informative	1