

Running Head: GAMING SYSTEMS AND GERIATRICS

Gaming Systems and Geriatrics:

A Guide for the Use and Identification of Gaming Systems and Games within Occupational Therapy

Interventions

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This project, submitted by Luis Rodriguez-Santos, has been approved and accepted in partial fulfillment of the requirements for the degree of Master of Occupational Therapy from the University of Puget Sound.

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Project Chair, Lucretia A. Berg, MSOT, OTR/L

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Project Course Instructor, Lucretia A. Berg, MSOT, OTR/L

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Director, Occupational Therapy Program, George S. Tomlin, PhD., OTR/L

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Dean of Graduate Studies, Sarah Moore, PhD.

## Abstract

Participation in meaningful activities is an important aspect of occupational therapy interventions in geriatric settings. As people age, they are confronted with decreased physical and mental capabilities and an increased susceptibility to disease that limits functional independence. Incorporating opportunities for physical, cognitive, and social activity into interventions will help older adults improve their quality of life. Gaming systems such as the Nintendo Wii™, Xbox Kinect™, or the Omni VR™ provide occupational therapists with a modality that addresses client factors in a way that combines physical, cognitive, and social factors while also being meaningful and fun. However, many occupational therapists are unfamiliar with the gaming systems and lack sufficient time to identify the ways in which performance skills and client factors may be addressed by the games. A user manual, comprised of a quick start guide and activity analysis charts for each gaming system, was created for the occupational therapists at Tacoma Lutheran Retirement Community in order to quickly illustrate how to operate the gaming systems and identify client factors that each game may address within a treatment session.

### **Purpose Statement**

The purpose of this project was to provide a user manual comprised of a quick start guide designed to quickly illustrate to occupational therapists how to operate the gaming systems found in the Technology Room (Tech Room) of the rehabilitation department at the Tacoma Lutheran Retirement Community, and activity analysis charts that contain information on client factors that each game may address within a treatment session, thereby decreasing the amount of time an occupational therapist spends preparing for sessions.

### **Literature Review**

In the 21<sup>st</sup> century, advancements in modern medicine have provided the opportunity for more people to live longer than in any other time in history with an estimated 21% of the population reaching the age of 65 or older by 2050 (Higgins, Horton, Hodgkinson, & Muggleton, 2010). As people age, they are confronted with decreased physical and mental capabilities and an increased susceptibility to disease that limit functional independence. Incorporating opportunities for physical, cognitive, and social activity into interventions may help older adults improve their quality of life. (Higgins et al., 2010). Motion-capture technology, which is the process by which a device can be used to capture patterns of live movement (Dictionary.com, 2012), has the potential to address not just physical impairments but also cognitive and social impairments in the geriatric population while providing activities that are fun and rewarding to the clients.

### **Description of Motion-capture Technology**

Motion capture technology, which the Nintendo Wii<sup>TM</sup>, the Xbox Kinect<sup>TM</sup>, and the OmniVR<sup>TM</sup> are a part of, is achieved primarily by two different means. The first method uses an intermediary device such as the Wii Remote<sup>TM</sup>. The remote uses a combination of accelerometers and infrared detection within a specific distance from the sensor attached to the game console in order to transmit its position in space (Coyne, 2008). The second method uses a camera pointed at the player that captures

his movements thereby negating a need for a remote, which is the method used by the Xbox Kinect™. In either case, the player must move his body in a variety of ways in order to interact with the games. It is this coupling of body movement with the purposeful activity of the games that allows motion-capture technology to be used to carry out therapeutic interventions with the geriatric population as long as the occupational therapist's understanding of client factors and activity demands allows them to combine the technology with wellness routines (Williams, Doherty, Bender, Mattox, & Tibbs, 2011). Since gaming technology is a subset of motion-capture technology and the names are used interchangeably, gaming technology will be the term used to refer, for the remainder of this paper, to the devices that are the subject of this project.

### **Current Trends In The Use of Gaming Technology by the Geriatric Population**

With each passing decade, an increasing number of older adults are playing digital games. In 1999, an estimated 9% of older adults played video games in the United States while in 2007, that number rose to 24% (De Schutter, 2011). As more sophisticated gaming technology is invented, such as the incorporation of the entire body as a means to play the game, its use is being adapted for therapy within the field of gerontology (Burke et al., 2009). Therapists design interventions with the clients in a more holistic manner incorporating many complex muscular synergies, dynamic and standing balance, upper extremity range of motion, occupational exploration, and social elements simultaneously depending on the needs of the client.

The use of gaming technology is important because it allows therapists to address the benefits of leisure, play, and social participation during an intervention in addition to the physical benefits the games provide in a way that is increasingly relevant to the lives of the geriatric population. These elements are intrinsically motivating and the clients have an opportunity to expand their occupational interests by engaging in activities that are new for them (American Occupational Therapy Association [AOTA], 2008). For example, clients who have never been skiing or surfing may now have the

opportunity to explore these occupational interests virtually despite any impairments that may have prohibited real life participation. Likewise, clients using gaming technology may now be afforded the ability to participate in activities that they once were able to do but can no longer perform in real life while simultaneously working on their therapeutic goals.

### **Addressing Physical, Cognitive, and Social Challenges**

In the United States, 12.6% of the population is over the age of 64. One third of those living in community dwellings experience a fall every year (Bainbridge, Bevans, Keeley, & Oriel, 2011). Unsurprisingly, balance is a large concern for the geriatric population and is a major cause of injury related deaths (Williams et al., 2011). Gaming systems such as the Wii™ have been shown to have a positive impact on balance by working on joint stability, motor reflexes, and control of voluntary movements. One case study conducted with an 89 year-old man with an unspecified balance disorder using the Wii Bowling™ game as an intervention, recorded that after six one-hour treatment sessions his Berg Balance Score improved from 48 to 53, on the Dynamic Gait Index, his score improved from 19 to 21, and his time decreased from 14.9 to 10.5 seconds (Clark & Kraemer, 2009). Another study conducted by Williams et al., (2011) indicated that post-test balance scores were significantly greater than pretest scores for the well elderly after using the Wii Fit™ as part of the intervention.

Gaming systems may be used to address a wide variety of impairments in addition to issues with balance. The Nintendo Wii™ has been successfully employed as a method of providing upper extremity rehabilitation for clients who have suffered a stroke (Higgins et al., 2010). The Wii™ helped increase bilateral integration, upper extremity mobility, and grip strength. Using the Wii™ consistently for several sessions resulted in an increase in visual perceptual processing, postural control and functional mobility (Burke et al., 2009). Clients who used the Wii™ for stroke rehabilitation reported a decrease in pain awareness during the treatment and an increase in endurance. Additionally, clients reported increased engagement with the treatment and a desire to continue it over a longer period of

time (Burke et al., 2009).

Incorporating the use of gaming technology into therapy can also help to address dementia. Participants in a study by Fenney & Lee, (2010) who were diagnosed with dementia and used Wii Bowling™ as their intervention remembered task appropriate language such as the names of particular types of bowling techniques utilized by the game. The game required them to recall procedural knowledge and sequential motor actions. The participants retained this information for the duration of the study and could recall their experiences to their families. Another study by Leahey & Singleton, (2011) which also used Wii Bowling™ to address Alzheimer's disease showed similar results. Over the course of several months, the client was able to reduce the number of physical and verbal cues needed to play the game. The client was able to maintain his memory and even to transfer those learned skills to other leisure activities.

Regardless of what diagnosis a client has, a benefit gained from use of gaming systems commonly emerges. That benefit is a sense of enjoyment when playing a game, which can increase engagement. When people are fully engaged in an activity, they find that they perform better than they thought themselves capable (Aarhus, Gronvall, Larsen, & Wollsen, 2011). This sense of enjoyment could be attributable to an increase in social participation when interventions that include games are conducted in a group, or is possibly due to the visual and auditory stimulation provided by the games. Members of the geriatric population residing in long-term care facilities were more likely to enjoy therapeutic exercise when the Nintendo Wii™ was used as opposed to standard exercises (Hsu et al., 2011). The games may also provide clients with a distraction from pain caused by their impairments (Taylor, McCormick, Shawis, Impson, & Griffin, 2011). This factor alone could increase the enjoyability of an activity. Gaming systems may aid occupational therapists in addressing a wide variety of areas of occupation such as leisure, education, and play exploration. These areas of occupation may lead to new activities and interests for clients (AOTA, 2008). Gaming technology may

also allow clients to experience leisure activities that they have never done before, such as playing golf, surfing, and rafting, through digital environments. Conversely, through the use of gaming systems, clients may be able to participate in occupations that they were forced to give up as a result of impairments. During these activities, the client works on areas that affect their occupational performance such as stable or dynamic balance, functional grasp, and range of motion all while engaging in an activity that is meaningful (Marin, Lawrence, Navarro, & Sax, 2011).

The games offered by the gaming systems can also aid in fostering inter-generational socialization as well as peer socialization with a focus on physical or cognitive goals (Aarhus et al., 2011). Motor and praxis skills, sensory and perceptual skills, and emotional regulation skills may be addressed as well. Emotional regulation may, at times, be impaired as a result of physical impairments. Games create a situation that allows occupational therapists to evaluate the patience and emotional skills of clients. Many of the gaming systems have certain advantages over traditional forms of therapy such as being able to store and log data to measure progress and increasing the participation level of the client (Huber, Rabin, Docan, & Burdea, 2010). Although the trend of using gaming technology with therapy is slowly following the larger trend of growing elderly players (De Schutter, 2011), there are many occupational therapists who are unfamiliar with the technology or lack sufficient time to identify the ways in which performance skills and client factors may be addressed by the games.

### **Context of the Problem**

Julie Moore, OTR/L, MS, an occupational therapist at the facility who served as the facility coordinator for this project and communicated the needs of the facility, (personal communication, August 1, 2011) emphasized the need to help train the occupational therapists at the Tacoma Lutheran Retirement Community on how to use the gaming equipment. Each gaming console used a different menu system for its games that was not intuitive. Additionally, most gaming systems gave no information on how to identify what kinds of therapeutic outcomes each game might address. The

gaming consoles that offered this information did so in a confusing manner. As a result, the process of choosing the appropriate game for a particular client's needs was time consuming and inefficient.

Prior to the creation of this project, only a few of the occupational therapists at the facility knew how to navigate the menus, and only a small proportion of the games available were being used. Very few of the occupational therapists knew how to turn the gaming equipment on and begin a game. Additionally, if a certain level of use for the gaming systems was not achieved, the facility ran the risk of reduced funding for the equipment (J. Moore, personal communication, August 1, 2011). This project was initiated as a result of the staff at the Tacoma Lutheran Retirement Community requesting a user manual comprised of a quick start guide and an activity analysis of the games in order to help them to easily identify appropriate games for their clients and to orient new staff on how to use the gaming equipment as quickly and efficiently as possible.

### **Project Procedure**

After discussing the needs of the facility with Julie Moore, OTR/L, MS, the Tacoma Lutheran Retirement Community was chosen to house this project. This facility supports a large population of elderly people on its campus which includes 57 independent living apartments and 40 assisted living apartments (<http://tacomalutheran.org/living.asp>). The mission statement of the facility, "is to provide care in a Christ centered environment in an atmosphere of respect and dignity for the whole person" (<http://tacomalutheran.org/>). Their staff was helpful and knowledgeable and the rehabilitation center features a wide range of therapeutic equipment including a Tech Room with a Nintendo Wii™, Omni VR™, and an Xbox Kinect™.

The primary target population were the occupational therapists at the facility who worked in the rehabilitation department and had access to the Tech Room where the gaming systems are stored. The indirect population were the elderly clients who benefited from the therapist's increased functional use of the gaming equipment as a result of the manual by means of additional treatment options

In order to accomplish this project, the supplies and skills listed below were addressed. In terms of supplies, the anticipated costs are listed in the left column which represented two finished manuals.

### List of Acquired Supplies

Cost	Materials/Supplies/Equipment
\$10.50	2 Binders
\$7.00	2 sets of dividers
\$69.99	Olympus VG-110 Digital Camera
\$12.99	PNY 2 GB SD Memory Card
\$15.00	United Parcel Service Printing for 2 manuals

### List of Acquired Skills

Ability to use Microsoft Office™
Ability to operate Wii™
Ability to operate Kinect™
Ability to operate OmniVR™
Ability to identify occupational therapy use in software for Wii™
Ability to identify occupational therapy use in software for Kinect™
Ability to identify occupational therapy use in software for OmniVR™
Ability to use activity analysis in researching programs
Ability to assemble and order the manual

One manual was given to Tacoma Lutheran Retirement Community and the other manual was given to the University of Puget Sound. The completion of the manual required photographs to be taken of how the Nintendo Wii™, Xbox Kinect™, and Omni VR™ were set up at the facility. A camera and an SD memory card were needed in order to transfer those pictures and other text files to the author's computer. Last, the individual pages were printed at the United Parcel Service store.

Skills that the author needed included knowledge of operating the hardware of the Nintendo Wii™, Xbox Kinect™, and Omni VR™ and a familiarity with the games so that an activity analysis of the games could be successfully implemented. Because the author was familiar with only the Nintendo Wii™ at the start of the project, several months of investigation was conducted on the Xbox Kinect™ and Omni VR™, including the games for all three gaming systems that the facility owned. The investigations included studying the game mechanics of each gaming system and the infrared camera that the gaming systems employed in order to ascertain the maximum and minimum movements that the infrared cameras detected. The author also played the games to assess the length of the play time and level of difficulty. The investigations helped to ensure that the activity analysis of the games was as accurate as possible.

The information gathered from the investigation was compiled into a Microsoft Word™ document combined with photographs of the gaming systems to create quick start guides and the activity analysis charts. In March 2012, a pre-manual survey (see Appendix A) was devised then dispersed to the occupational therapy staff at the Tacoma Lutheran Retirement Community asking for their level of usage and understanding of the gaming systems. The results of the survey indicated that occupational therapists at the facility were only moderately comfortable with using the gaming systems. Most responded that the Nintendo Wii™ was the most difficult game system to use, followed by the OmniVR™ and the Xbox Kinect™. The survey also indicated that the Nintendo Wii™ and the Xbox Kinect™ games were the most difficult to use in therapy as a result of not knowing how the

games addressed client factors. In order to assess the effectiveness of the manual's ability to transmit the information, a pilot program was begun for a period of one week that involved only one of the gaming systems, the Nintendo Wii™, in order to cut down on cross platform confusion. By initially focusing on just one platform, the therapists could redirect their energy to testing out whether the manual was providing them with the information that they needed in order to match the games with their client's needs. This addressed not only how successful the project was in conveying the information but also how it could possibly be improved.

### **Description of the Product**

The user manual was comprised of color printed quick start guides for the Nintendo Wii™, the Xbox Kinect™, and the Omni VR™ and activity analysis charts for each gaming system's games that were placed in plastic sleeves and put in a three ring binder. The manual was divided into five sections, each marked with a tab. The first section contained an introduction describing the purpose of the manual and the benefits of using gaming systems as a treatment modality. The second section included the quick start guide for the Nintendo Wii™ which described the steps needed to turn on the television, the gaming system, and illustrated how to navigate the menus in order to start the game. The quick start guide also included photographs of the accessories of each gaming system that the occupational therapists would need to use when navigating the menus and playing the games. Following the quick start guide were the activity analyses charts that described: the basic mechanics for each game, whether the game could be played from standing or sitting, whether the game required the use of one or two hands, the average minimum time the game took in order to be completed, what the maximum and minimum movements the game required a player to perform, if the game required a player to cross midline, and how many cognitive steps a player must perform in order to complete the game. The third and fourth sections followed the same format as the second section except they addressed the Xbox Kinect™ and the OmniVR™. The fifth section contained a copy of the surveys (see Appendices A and

B), the acknowledgments for the project, and references. Two copies of the user manual were made. The first was given to the University of Puget Sound and the second copy was given to the Tacoma Lutheran Retirement Community.

### **Project Outcomes**

This project increased the occupational therapists functional use of the gaming systems, including how to identify and choose the games that best suited their client's needs in a quick and efficient manner. This may benefit the residents at Tacoma Lutheran Retirement Community by allowing them to combine play and purposeful activities in treatments. Additionally, future occupational therapists hired at the facility may be able to make use of these gaming systems with a minimal learning curve while being introduced to the games that the Tacoma Lutheran Retirement Community had available.

The following project goals and objectives were created by the author and remain viable.

**Goal 1:** After reading quick start portion of the manual, the occupational therapists at the Tacoma Lutheran Retirement Community would be able to demonstrate the ability to start-up and shut-down the gaming equipment and utilize the accessories.

Objective 1: Upon reading the manual, the therapists will be able to identify the location of all the power switches and the accessories on the Nintendo Wii™ and the Omni VR™ and be able to operate the hardware.

Objective 2: Upon reading the manual, the occupational therapists will be able to utilize the Nintendo Wii™ and OmniVR™ accessories to navigate the game menus and play the games.

**Goal 2:** After reading the activity analysis charts in the manual, the occupational therapists will be able to determine what the minimum and maximum requirements are in order to complete the game.

Objective 1: After reading the activity analysis charts in the manual, the occupational therapists

will be able to choose a game that can be played while seated.

Objective 2: After reading the activity analysis charts in the manual, the occupational therapists will be able to choose a game that can be played with two hands.

Objective 3: After reading the activity analysis charts in the manual, the occupational therapists will be able to choose a game that can be completed in five minutes.

The success of this project was measured by a second survey that was delivered after the pilot program was completed in order to assess the impact of the manual. The results of this second survey indicated that after using the manual, none of the staff members had problems with identifying the client factors that each game may address for the Nintendo Wii™. The staff indicated that the manual was helpful in decreasing the amount of time needed to set up the Wii™ before a therapy session. The staff also indicated that the activity analyses charts provided the information they needed to help them choose the appropriate game for their client.

### **Limitations of the Project**

The limitations encountered during the creation of this project included finding sufficient research within the literature regarding gaming system use among occupational therapists and having only five occupational therapists participate in the surveys. Having such a small number of participants limited the amount of feedback received about the effectiveness of the manual.

A second limitation of the project was due to scheduling conflicts with the Tacoma Lutheran Retirement Community, which reduced the opportunities the author had in examining the games. Further opportunities in examining the games could have resulted in more accurate activity analyses charts.

### **Implications for Occupational Therapy**

This project helps support the job performance of occupational therapists while also offering them easier access to a modality with which they can address the performance skills of their clients. Job

performance is a critical sub-component of the area of occupation, *work* (AOTA, 2008). Job performance includes relationships with co-workers, managers, completion of work, time management, and compliance with work norms and procedures (AOTA, 2008). Given the increased productivity demands placed upon occupational therapists, the ability to make the most efficient use of the limited time with a client is crucial.

Not only will the regular staff be supported in their job performance as a result of the manual, but visiting occupational therapists will also be able to use the gaming systems without needing to be familiar with the games. This will in turn provide the clients with additional treatment options that combine leisure, socialization, and play while maintaining a high level of motivation. It is the role of occupational therapists not just to accomplish their goals with clients, but to do so in a way that is meaningful, relevant, purposeful, and client-centered (AOTA, 2008). Using gaming technology as a means to accomplish that is well within our scope of practice. Occupational therapists are able to fully utilize these gaming systems potential due to training in activity analysis, and skills in assessing the functional needs of the clients. Since many of the games have some overlap in the areas of client factors and performance, it becomes important to look at the occupational profile of the client in order to choose the game that resonates with the client's past experiences.

The use of gaming systems facilitates a client's ability to address physical, cognitive, and social aspects of his or her life. When clients play the games, they engage active range of motion, strength, and endurance. Depending on the game, clients can focus on balancing, coordination, or postural control. The games have a built in level of grading by way of adjusting the difficulty settings. This will help therapists and clients to better create a just-right-fit when trying games that address their therapeutic goals. Many of the games offer cognitive challenges as well, such as solving puzzles that can involve changes in color, shape, sequencing, and logical reasoning, often while also performing physical tasks.

Another aspect of gaming systems is the ability to increase social participation. The games can be played in groups of up to four individuals. It affords clients the opportunity to share their interests with other clients and family members and creates shared experiences. An additional benefit to gaming systems is that it can be purchased and the activities can be continued at home where games allow for inter-generational play.

### **Theoretical Model and Application to the Framework**

The theory of Occupational Adaptation states that clients who become more adaptive will in turn become more functional. The theory of Occupational Adaptation describes internal and external factors. The internal factors occur inside a person and begin with a constant desire for mastery. The external factors affect the person and include the constant demand for mastery and the occupational environment (Schultz, 2006, p. 463). The interaction between the internal and external factors results in a press for mastery, which in turn leads to the occupational challenge. The occupational environment and role expectations of the person interact to create a need for adaptation to a given situation and results in the occupational response, the observable action a person does. (Schultz, 2006, p. 463)

This project addresses the needs of the occupational therapists and the residents at the Tacoma Lutheran Retirement Community through the lens of the theory of Occupational Adaptation. As gaming technology infiltrates therapeutic practice, it challenges an occupational therapist's sense of occupational competence. The facility would like the occupational therapists to make use of the Tech Room and the games. Performance expectations are not being met because there isn't enough time to gain familiarity with the gaming equipment. In Occupational Adaptation, the internal factor would be the desire to master choosing the correct games for each client intervention, whereas the external factor would be the requirement that the occupational therapists incorporate the use of this gaming system into each therapy session. The resulting press for mastery for the Tacoma Lutheran Retirement Community occupational therapists leads to the occupational challenge of how to comply with the

requirement for gaming technology use with each client within the limited session time available.

This manual may be a helpful tool in enabling the therapists to fulfill this goal and promote a more adaptive response. It accomplishes this by allowing the occupational therapists to improve their ability to identify which programs address specific client factors and performance skills each client wishes to focus on as a personal goal.

The Occupational Therapy Practice Framework (OTPF) is the corpus that guides the actions of the therapist. It is divided into two portions. The first is the domain which delineates the areas of expertise that fall under the purview of occupational therapy. The second portion is the process which demonstrates how occupational therapy services are to be delivered. Both of these segments work in tandem to inform a therapist how the interaction of client, context, and environment can affect occupational performance (AOTA, 2008). Contained within the OTPF are areas of occupation that include but are not limited to activities of daily living, rest and sleep, work, leisure, and social participation. Client factors are the specific abilities, characteristics, or beliefs held by clients.

Performance skills are observable actions clients use in daily life occupation (AOTA, 2008). Performance skills and client factors will guide activity analysis by helping to define what the just right challenge is for each individual client. This project addresses primarily the areas of occupation relating to work in regards to the occupational therapists. Within work, the goal of the project specifically targets job performance. Job performance includes work skills, time management, relationships with clients, co-workers, and managers, production and completion of work. (AOTA, 2008) In regards to the clients, this manual may facilitate activity analysis by asking the therapists to use their clinical reasoning in choosing the best game that addresses their client's goals and outcomes. Depending on what activity demands the client needs to focus on, the manual may direct the therapist to games focusing on client factors that are more commonly impaired in the geriatric population. Examples include mental functions such as memory, attention, and sequencing of movements. Orientation to

person, place, time, self, and others can also be addressed. Some physical body functions that can be addressed through the games include muscle endurance, control of voluntary movement, motor reflexes, joint mobility, and cardiovascular endurance.

Occupational therapists are moving towards a growing trend incorporating gaming systems into the clinics. It is the author's hope that using this manual will increase the occupational therapist's level of comfort and support their knowledge as they operate the gaming systems and use clinical reasoning to analyze the games for use in therapy. Their increased familiarity with gaming systems, after working with the manual, will position them at the forefront for future development of gaming technology and will enable them to transition to newer gaming systems with less problems than would otherwise be possible.

### **Sustainability**

The development of new technologies and games is ongoing. This manual will serve as a starting off point that can be added on to by future University of Puget Sound occupational therapy students as new games are developed. The manual may have to be updated on a regular basis, depending on how often the facility purchases new games. In order to expand the list of games that are covered in the activity analyses charts, someone will be required to research the games and perform an activity analysis, which could be a time consuming endeavor. In the event that the current rehabilitation coordinator for the Tech Room leaves, the project will still remain effective, but may require another staff member to monitor and update the manual on an annual basis.

### **Recommendations for Future Projects**

It may be necessary to construct a new manual as the facility replaces its gaming systems with new ones. As a result, when anticipating manual duplication, the author suggests first researching the types of gaming systems and games that are newly available in comparison to what was previously available to the facility. Because new types of games and gaming systems are released that have

strengths and weaknesses when utilized in a therapeutic manner, it is important to research the latest upgrades both in hardware and software. Additionally, when creating a quick start guide and activity analysis charts, it is important to ensure that the information provided is relevant to the needs of the facility.

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Human Resources

Julie Moore, OTR/L

Tacoma Lutheran Retirement Community

[jamoore@consonushealth.com](mailto:jamoore@consonushealth.com)

Cell#: 253-549-6117

Appendix A

University of Puget Sound Occupational Therapy Program

Survey of Gaming Use during Interventions

My name is Luis Rodriguez-Santos and I'm an occupational therapy student from the University of Puget Sound. I'm conducting this survey as part of a project for the Tacoma Lutheran Retirement Community that entails creating quick start guides for the gaming systems along with an activity analysis of the games. The project is overseen by Lucretia Berg, OTR/L, Professor at the University of Puget Sound's Occupational Therapy Program. The goal of this survey is to gather information on how often the gaming equipment is used and if there is a preference among occupational therapists and their clients for a particular gaming system. Please complete this survey by 3/8/12.

**Please circle the response that corresponds with your experience.**

1. How often do you use the Nintendo Wii, Xbox, and Omni VR as a part of your therapy sessions?

Frequently.....1  
 Sometimes.....2  
 Rarely.....3

2. How comfortable are you using the Nintendo Wii, Xbox, and OmniVR as a part of your therapy sessions?

Very comfortable.....1  
 Somewhat comfortable.....2  
 Not very comfortable.....3

3. Which concerns do you have regarding using the Nintendo Wii, Xbox, and Omni VR as a part of your therapy sessions?

Unfamiliar with the gaming system.....1  
 Set-up time takes too much time.....2  
 Unsure what client functions the games address.....3  
 None of the above.....4

4. Which gaming system is the most user friendly for you as a therapist?

- Nintendo Wii.....1
- Xbox.....2
- OmniVR.....3

5. Which gaming system best addresses your needs during your therapy session?

- Nintendo Wii.....1
- Xbox.....2
- OmniVR.....3

6. Which gaming system's menus do you find it the most difficult to navigate?

- Nintendo Wii.....1
- Xbox.....2
- OmniVR.....3

Thank you for taking the time to complete this survey. When you have completed the survey, please return it to Julie Moore, OTR/L, facility coordinator for this project. If you have any questions, you may contact me at 316-993-5627.

Appendix B

University of Puget Sound Occupational Therapy Program

Survey of Gaming Use during Interventions

My name is Luis Rodriguez-Santos and I'm an occupational therapy student from the University of Puget Sound. I'm conducting this survey as part of a project for the Tacoma Lutheran Retirement Community that entails creating quick start guides for the gaming systems along with an activity analysis of the games. The project is overseen by Lucretia Berg, OTR/L, Professor at the University of Puget Sound's Occupational Therapy Program. The goal of this survey is to gather information on how often the gaming equipment is used and if there is a preference among occupational therapists and their clients for a particular gaming system.

**Please circle the response that corresponds with your experience.**

1. How often do you use the Nintendo Wii as a part of your therapy sessions?

- Frequently.....1
- Sometimes.....2
- Rarely.....3

2. How comfortable are you using the Nintendo Wii as a part of your therapy sessions?

- Very comfortable.....1
- Somewhat comfortable.....2
- Not very comfortable.....3

3. Which concerns do you have regarding using the Nintendo Wii as a part of your therapy sessions?

- Unfamiliar with the gaming system.....1
- Set-up time takes too much time.....2
- Unsure what client functions the games address.....3
- None of the above.....4

- 4. Has the manual been helpful in decreasing the amount of time needed to set up the Wii before a therapy session?

Yes.....1  
No.....2

- 5. Do the activity analysis charts provide the information you needed to help you choose the appropriate game for your client?

Yes.....1  
No.....2

Thank you for taking the time to complete this survey. When you have completed the survey, please return it to Julie Moore, OTR/L, facility coordinator for this project. If you have any questions, you may contact me at 316-993-5627.