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Using Second Life with Learning-Disabled Students in Higher Education

by Stephanie McKinney, Agi Horspool, Renee Willers, Omar Safie, and Laurie Richlin

Second Life ([2L](#)), one of the most popular and widely known of the multiuser virtual environments (MUVES) on the Web, is an unstructured virtual world where users can engage in a variety of virtual experiences. Although it was not originally designed for education, universities are becoming increasingly visible in 2L; educators use the environment for many purposes, including studying human behavior, replicating architectural landmarks, and allowing students to interact with virtual representations of fictional places (Foster 2007). Some 2L locations seem to have been designed specifically with higher education in mind, such as St. Benedict's Monastery ([Figure 1](#)), where clickable information cards about architectural, spiritual, and historical aspects of the monastery appear throughout the space. Similarly, a virtual replication of Dante's *Inferno* ([Figure 2](#)) brings a visual dimension to the classic text, creating an interactive experience with endless educational applications.

Although these examples are inspiring, contemporary educators who want to unleash the potential of this cyberworld face numerous challenges, one of which is ensuring that educational uses of 2L are available and accessible to all students, including those who are learning disabled. In fact, educators and institutions must ensure that any implementation of 2L in educational contexts complies with the Americans with Disabilities Act ([ADA](#)), which mandates accessibility for students with a wide range of disabilities.

This article will focus on the specific needs of [learning-disabled](#) (LD) students using 2L in higher education. It is becoming increasingly important that educators and university administrators consider these needs as the growing popularity of virtual environments in higher education has coincided with a recent increase in the number of LD students entering colleges and universities (Heiman and Precel 2003). Because of its innovative format, 2L is well suited to address common issues that challenge LD students and better accommodate their transition to college. However, if the needs of LD students are not considered, 2L in the classroom—or as the classroom—could inhibit participation for these students. Therefore, educators must be proactive in accommodating LD students and should design instruction in 2L with these students' particular needs in mind.

The Potential of 2L for LD Students

As an experiential environment, 2L enriches students' learning experiences in ways that are not possible with traditional texts or standard course management systems that depend on text-based assignments ([Exhibit 1](#)). For example, at Pepperdine University, students in a literature class collaborated to build three-dimensional objects (e.g., a museum, a monument, or a playground) in 2L to represent the themes in a novel they read (Oishi 2007). This example attests to 2L's potential for fostering cooperative and individual learning activities, which is one of the MUVES's greatest merits (Childress and Braswell 2006). 2L provides a truly blank slate that students can use to express their understanding of the material visually.

These attributes and the rethinking of the educational paradigm that underpins these examples may yield tremendous benefits for some LD students ([Exhibit 2](#)). The visual nature of 2L provides students who are challenged by the mechanics of writing with an alternative mode for demonstrating mastery of course material. Moreover, 2L's environment lends itself to student interaction and collaboration; as a result, it can facilitate peer teaching (Carr and Braunger 1998; Sylvester 1995), which gives LD students another avenue for seeking help when they find the pace of the classroom challenging. Additionally, 2L's chat format and

available voice features allow students to engage in discussion about both the course material and the details of specific tasks.

The Needs of 2L Students

Research reveals that LD students need support in reading and writing in order to complete assignments and comprehend content (Hadley 2006), and they require much more time for reading than most college students (Brinckerhoff 1996; Hadley 2006). As a result of these needs, an LD student may find it difficult to internalize course concepts in the time typically allotted to all students for learning them. However, if allowed to use multiple learning modalities to engage with the course material, LD students may be able to learn concepts more quickly and completely than they would otherwise (Cromby, Standen, and Brown 1996). The visual representation provided by the *Inferno* site in 2L, for example, would help LD students who have difficulty with text-based content to comprehend Dante's text more fully.

Time is also an issue for LD students when they are completing writing assignments or taking notes. In many cases, these students may need much more support than is typically provided by university writing centers (Hadley 2006). LD students may find the writing process itself difficult, encountering problems with formulating and organizing ideas and putting them into written form. 2L, with its multimedia potential and optional auditory components, could enhance the learning of LD students by supporting alternative assignments that depend on visual representation rather than on writing.

Additionally, LD students need continual feedback to monitor their progress, as they are often unaware of the gaps in their comprehension. Research indicates that constant assessment through homework and classwork in high school helps LD students to gauge achievement throughout their courses and make adjustments as needed (Hadley 2006). However, college-level work requires more independence, and many undergraduate courses use midterms and final exams as primary assessment activities, limiting opportunities for feedback. Delayed or limited feedback can be extremely detrimental for LD students as it prevents them from assessing their own progress until it is too late to seek necessary interventions (Hadley 2006). Courses that implement 2L could help meet some of these challenges. For example, a properly structured 2L environment could allow biology students who are learning about DNA replication to receive continuous, immediate assessment and feedback via in-world exercises. This feedback would allow the students to gauge knowledge acquisition and determine if they need additional support in order to master the concept. Moreover, this feedback and assessment could take place beyond the temporal constraints imposed by the scheduled class period, which would benefit LD students enormously. Like other virtual environments, 2L allows unlimited time to work on details or practice a task slowly or repeatedly. In the biology class, LD students would be able to use 2L to learn the material (via text, video, and virtual simulation of DNA replication), take an assessment that provides immediate feedback, relearn material as necessary, and obtain guidance and support, all within the 2L environment. Moreover, they could complete all of these tasks independently, at their own pace, which would make learning easier for LD students.

It is important to note that these feedback mechanisms are not built into 2L; faculty members will need to integrate them as they develop the virtual components of their own 2L environments (Cromby, Standen, and Brown 1996). Most importantly, however, educators will need to formulate a course design that effectively implements these mechanisms in order to achieve these learning benefits.

Providing Support Through Design There are many different subtypes of learning disabilities, and the degree of disability and type and extent of support needed can vary considerably across individual students. As a result, educators and administrators may not know what kinds of support they should offer LD students or how much is needed, particularly in online learning contexts (Foley 2007). One way to clarify these

provisions is to adopt the principles of universal design for learning (UDL), which suggest that designers should consider the needs of all users (rather than just those of the average user); this means presenting material in a variety of ways and providing a number of avenues that students can use to demonstrate their understanding of course concepts. UDL principles highlight the need for designs that are simple, intuitive, and flexible in use. When imported into the field of education, these principles dictate that curricula enable all individuals to gain knowledge, skills, and enthusiasm for learning (Rose and Blomeyer 2007). All individuals benefit with UDL because UDL-compliant sites create options to learn using preferred modalities, such as listening to audio, viewing visual material, or reading written text. In UDL-compliant courses, students also have choices in how they demonstrate competence, whether by creating an object or experience in 2L, writing a paper, or completing some other activity. Instructors and designers who create courses with UDL principles in mind must consider the needs of all students at the onset of design, thus eliminating the need for modification once the course has begun.

The benefit of utilizing UDL principles in course design is that all the necessary tools for helping any student learn and achieve academic success are already integrated into the course. Courses constructed using UDL principles will necessarily offer multiple modes of teaching and learning, constant and frequent assessment and feedback, and multiple resources. These measures both maximize the instructional reach of class material and specifically benefit the LD student. For instance, a Web site that provides textual descriptions of audio files and visual images not only helps those with hearing and visual impairments, but also offers multiple streams of input, which may help LD students process information more effectively (Exhibit 3). While the implications of implementing UDL principles in design for LD students have not yet been thoroughly explored, the thoughtful implementation of these principles will be crucial to creating effective educational applications of 2L.

Providing Ancillary Support in Higher Education Through 2L As noted above, greater numbers of LD students are entering colleges and universities today than ever before (Heiman and Precel 2003), and the transition from college to high school can bring a distinct reduction in the level of monitoring and support that LD students receive. In the K-12 environment, educators are perceived to be responsible for student academic success and, as a result, considerable support is available to LD students in this setting (Hadley 2006). When they enter college however, LD students must advocate for themselves. The support they receive is largely dependent on the individual student's ability to identify his or her own needs and seek out the appropriate support services. The potential efficacy of using 2L to support LD students as they move into higher education has remained largely unexplored, but the opportunities are significant.

Research indicates that LD students entering college feel anxious when they are not sure what types of support services will be available to them on campus or how to access those services (Hadley 2006). 2L could help address their concerns in two ways. First, virtual walkthroughs of university campuses could show students the types of support services available, where they are located on campus, and what steps are necessary to obtain access to the services they need. Second, virtual meetings with a service provider, such as a tutor or writing center counselor, could reinforce and clarify the information obtained from virtual walkthroughs. In this way, LD students could learn how to obtain the support they need before they arrive on campus, and they would be able to reaccess that information from any computer at any time. The virtual office hours implemented at Bowling Green State University in order to allow students access to faculty members (Figure 3) could provide a model for university online services for LD students. Such services would allow students to access support staff both before stepping onto the university campus and after enrolling; moreover, they would continue to be able to access these services on an ongoing basis. This kind of multifaceted facilitation would help LD students cope with the increased demands for independence and socialization encountered in the university setting (Hadley 2006; Lipka 2006). It could also be a cost-effective means of assessing the needs of incoming students and organizing support services for them even before they arrive on campus.

Universities are already using 2L to develop relationships with students prior to enrollment, creating environments designed to familiarize students with the resources available on campus and making incoming students feel more comfortable and connected to the university, fellow students, faculty members, and staff. For example, Case Western Reserve University has created a [virtual 2L campus](#) and provides tours for prospective students. Within this virtual environment, students can get a sense of the physical layout of the campus and chat informally with current Case Western students. Admissions directors hope this informal atmosphere allows students to ask questions they would not feel comfortable asking an administrator face to face (Young 2007). For LD students who feel uncomfortable with their learning disabilities and self-conscious about asking for assistance, the ability to gain access to many different resources while retaining a sense of anonymity within 2L may make them more willing to ask for the help they need. In turn, these students would be better supported and better prepared to succeed in college. Paired with information offered through high school counselors or provided in admissions materials, 2L can help ensure that students get the help they need to transition successfully to college.

Limitations of 2L for LD Students Despite all its potential, 2L poses some challenges for educators. Bringing 2L into university computer labs or classrooms sometimes proves difficult, and technical hurdles make venturing into 2L time consuming for both faculty members and students. Usually, only system administrators can download the software necessary to run 2L on university computers. Moreover, advanced graphics cards are required to support the software, as Ohio University administrators discovered while implementing a project designed to bring faculty members into 2L; most of the computers on campus had to be upgraded in order to allow them to access the university's 2L learning community (Liu 2006). Overcoming these technical and structural difficulties requires that universities carefully assess their capabilities and determine who will be responsible for any necessary upgrades.

In addition to the technical hurdles of using 2L, the open and flexible nature of the virtual environment can itself become a barrier for LD students who need a very structured and supportive learning environment. Both the course design and the 2L environment need to be structured carefully in order to yield benefits for LD students; otherwise, these students could easily find themselves lost in the environment and unable to find necessary guidance. For example, a student struggling with the basics of navigating 2L might have difficulty reaching an assigned site, and if instructors have not integrated in-world mechanisms for seeking and receiving help, the student may be unable to resolve the problem until he or she is able to reach an instructor. As a result, the student might experience high levels of frustration.

It is important to remember that 2L can be challenging for all first-time users. John Lester (2006) of Linden Lab, the organization that created 2L, suggests that educators “spend as much time as possible exploring 2L” before using it in the classroom in order to ensure that they fully grasp the technology before sharing it with students (vi). If navigating 2L can represent such a significant challenge for university faculty members, one imagines the challenge for LD students could be exponentially greater, depending on the nature of the student's disability, particularly if they are not allowed adequate time to explore and learn how to use the environment.

Feedback presents an additional challenge. While the interactive nature of 2L makes some direct and instantaneous feedback possible, the environment is not well suited for traditional feedback modes, such as graded assignments or written comments. Unlike traditional classroom management systems like [Blackboard](#), which are designed to accommodate both inquiry and the exchange of feedback through multiple public and private forums, 2L currently offers no such features. These features are an essential aspect of contemporary online learning practices and benefit all students immensely; they keep class members connected to both the instructor and one another, allowing them to recall previous statements and feedback offered by others as needed. However, there is no comparable mechanism for asynchronous collaboration and exchange in 2L, which operates in real time only. Educators planning to use 2L will need to develop mechanisms for providing this kind of feedback either in concert with 2L or outside of it, so that LD students can receive the benefits of

constant feedback. If this issue is not resolved in the course design process, many instructors will find themselves using feedback methods that do not mesh well with a course's use of 2L or that do not align with the needs of LD students. Moreover, instructors need to be careful to find ways of teaching that capitalize upon 2L's multifaceted nature rather than simply translating existing face-to-face techniques into this medium (Cross, O'Driscoll, and Trondsen [2007](#)).

Finally, the communication technologies available within the 2L environment have their own limitations and can present problems for some users. For example, for LD students who need more time to read or process information, synchronous chatting in 2L can be problematic, as it requires users to negotiate multiple chat windows in order to differentiate topics. It is difficult for instructors to manage or limit this visual clutter (Robbins [2006](#)). Although audio and visual avenues of communication are available in 2L, additional hardware is necessary for audio communication. Using 2L through only one mode of communication would not utilize the full potential of the environment to provide LD students with various media for communication and learning. When used optimally, 2L's multifaceted communication allows LD students as well as the class at large to receive information in the form best suited to their abilities and needs. However, the limitations of these media and the challenges they represent for LD students are a significant drawback of 2L. This could be mitigated by bringing students together in the classroom to work together in 2L. An assignment structured in this way would accentuate the collaborative and visual potential of 2L while offering a traditional discussion format more accessible to LD students.

In order to properly address 2L's limitations in use with LD students, instructors need to create a 2L environment that provides scaffolded learning, regular feedback, multiple forms of communication, and unique and creative content. So designed, a 2L environment may benefit LD students who struggle with more traditional learning formats. In addition, instructors should be aware that LD students may require more time than other students to acquaint themselves with the 2L environment.

Conclusion 2L offers exciting new possibilities for higher education, promising to allow educators and students to access experiences available only in this virtual realm. These possibilities could bring enormous benefits to LD students who often struggle in the traditional classroom. The imperative to accommodate students with learning disabilities remains an urgent issue in education, and as 2L begins to play an increasingly significant role in higher education, it is essential that the needs of LD students be considered. 2L does not come without challenges for the LD student, but properly designed and implemented 2L environments could become powerful tools for addressing many of the challenges LD students face in higher education.

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