

Individuals with intellectual disabilities and second language acquisition: A framework for  
approaching inclusive foreign language instruction

by

Natacha Hélène Gilberte Mally

B.S., University of Maryland University College, 2013

B.S., University of Maryland University College, 2017

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Approved by:

Major Professor  
Dr. Mary T. Copple

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## **Abstract**

Special education under the Individuals with Disabilities Education Act (IDEA) is aimed at providing each eligible child with an appropriate education tailored to their needs in order to be successful in life. Agreeing on what those needs are can be difficult for educators and parents. For some children the goal can be going to college or finding employment; for others, it is independent living. Even though inclusion and learning in the least restrictive environment is currently the norm in the American public-school system, where second language education is concerned, children with an Intellectual Disability (ID) do not receive the same opportunities as their typically developing peers. Instead of integrating children with an ID in existing world language classes, providing differentiated instruction, or offering different ways to obtain world language credit, language waivers are often automatically provided in order to ensure graduation. If parents express a wish to maintain a home language other than the main instructional language, they are generally discouraged by both the medical community and educational professionals, and the heritage language is not integrated in instruction. However, those recommendations are not always grounded in scientific research, but rather on assumptions, a lack of resources, or a failure to understand the need for world language education. This report synthesizes relevant research on the effects of learning a second language and explores the potential benefits for individuals with an ID. In addition, current teaching techniques are reviewed, and suggestions are provided for how teachers may want to adapt these techniques for language instruction with children with an ID.

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## **Dedication**

For Liam, whose strength and perseverance inspired me to write this report. Even though you struggle every day to do what others take for granted, you always do it with a big smile and you have a hug at the ready for everybody who needs one. Getting to where you are today has not been easy and you still have a long road to go before reaching independence, but you never give up and neither will I!

## Chapter 1 - Introduction

Many view knowing a second language (L2) in today's globalized world as a social, economic, or cultural necessity. For some people, it is a requirement to be successful in their careers and become productive members of society. Others see it as a means to learn about different cultures and build long-lasting relationships not only in their community, but also beyond their own country's borders. Understanding another's language can only be beneficial when forging agreements between countries or businesses across the world or when developing a more culturally relativistic view of the world. A "smaller" world also means more blended families or the possibility of having to move to a region where a different language is spoken. With companies and governmental agencies working at the global level, families cannot always choose where to live or how long they will remain in one location.

Research shows that it is important for children to be able to preserve their home language, as it helps with emotional and behavioral regulation and it keeps them connected to their family and culture (Toppelberg, Snow, & Tager-Flusberg, 1999). In the last few decades, the rights of minority-language students have been the subject of several court cases (Wright, 2010). These cases have helped bring attention to the need for and the right to bilingual and bicultural education in America. For example, in *Serna v. Portales Municipal Schools*, a landmark case regarding equal educational opportunity rights for English Language Learners, the U.S. Court of Appeals for the Tenth Circuit ordered the Portales Municipal School District in New Mexico to provide bilingual and bicultural education (*Serna v. Portales Municipal Schools*, 1974; Wright, 2010). The judgement included the accounts of several expert witnesses testifying to the damage that could be inflicted when the home language was neither acknowledged nor supported. Students whose home language and culture were rejected in school could exhibit

lowered self-esteem and have feelings of inadequacy. They could develop a negative mental attitude, become withdrawn, and refuse to participate in school, which in turn could lead to low achievement and frustration. English as a Second Language classes would not be sufficient to prevent the low attendance rates, discipline problems and high drop-out rates that could result from that frustration and developing a good self-image needed to be a priority (*Serna v. Portales Municipal Schools*, 1974). Current research still supports integrating the home language in educational settings. In their survey of research on, what they call, Dual Language Learners in preschool, Goldenberg, Hick, and Lit (2013) found that the use of the home language to teach academic skills while learning English did not impede English achievement. On the contrary, in some cases, the students became more proficient not only in their home language, but also in English. In addition, based on the students' frustration tolerance, assertiveness, and peer social skills, teachers viewed students, who could use their home language in school, more positively (Goldenberg et al., 2013). Besides these linguistic and emotional benefits, Goldenberg et al. also noted that maintaining the home language enabled the preservation of cultural and family values and communication (2013). Gorman confirmed that building on the L1 facilitates second language acquisition (SLA) and that depriving the child of their L1, which functions as their support system, has negative effects (Gorman & Consalvi, 2011).

Bilingualism also has numerous cognitive benefits, such as improvements in memory, flexibility, and executive functions (Wight, 2015). Cognitive benefits of bilingualism, effects on executive control (EC) in particular, have been documented by a variety of researchers. EC or executive functions are “top-down mental processes needed when you have to concentrate and pay attention” (Diamond, 2013, p. 1). The three core ECs are “inhibition [inhibitory control, including self-control (behavioral inhibition) and interference control (selective attention and

cognitive inhibition)], working memory (WM), and cognitive flexibility” (Diamond, 2013, p. 1). EC is essential to be successful in today’s society as it affects people’s reasoning, problem solving, and planning skills (Diamond, 2013). In their study on the bilingual effects on cognitive and linguistic development of 104 six-year-olds, Barac and Bialystok (2012) found that the bilingual children outperformed English-speaking monolinguals on a nonverbal EC task, which assessed task switching. All the children tested in this study had equivalent general cognitive abilities and psychomotor speed. In order to avoid the influence of socioeconomic status and cultural effects on EC, Barac and Bialystok used three groups of bilingual children, whose cultural and educational background differed. In addition, the languages each group of children spoke beside English varied in their similarity to English (Chinese, French, and Spanish). Even though the three bilingual groups differed in the factors described above, they all out-performed the monolingual children on the task switching task at similar rates, supporting the claim that language similarity and cultural and educational background does not influence the effect bilingualism has on nonverbal tasks (Barac & Bialystok, 2012).

In another study on the cognitive effects of bilingualism, Perani et al. (2017) found that lifelong bilingualism acts as a cognitive reserve (CR) proxy in Alzheimer’s dementia. CR “prevents cognitive decline and delays neurodegeneration” (Perani et al., 2017, p. 1690). Metabolic connectivity analyses on 45 German-Italian bilinguals and 40 monolinguals diagnosed with probable Alzheimer’s dementia and in the early stages of the disease showed that when the bilingual group was compared to the monolingual group, the people in the bilingual group had “increased connectivity in the executive control and the default mode networks” (Perani et al., 2017, p. 1690). This supports suppositions based on previous epidemiological evidence that bilingualism has a neuroprotective effect (Perani et al., 2017). Even though the monolingual

subjects were younger and had more education (another known CR proxy), the bilingual subjects still performed better on memory tasks and about the same on language tasks, indicating that “bilingual individuals with [Alzheimer’s dementia] compensate better for the loss of brain structure and function” (Perani et al., 2017, p. 1692) and that bilingualism protects more against cognitive decline in Alzheimer’s dementia than age and education do. With multiple studies showing that there is a 4- to 5-year delay in onset of dementia symptoms in bilinguals and bilingualism acting as a strong CR, Perani et al.’s statement on activating “social programs and interventions to support bilingual or multilingual education” (2017, p. 1694) as well as helping senior citizens maintain their L2 makes a lot of sense.

For individuals with intellectual disabilities (ID), learning an L2 goes beyond reasons of a more economic, educational, or leisurely nature. Depending on the individual’s circumstances, learning an L2 can significantly enrich their lives and make things easier in their home and community life. Individuals with ID often need someone to advocate for them in order to be able to access resources in their communities. This can range from being allowed on the local soccer team to receiving a truly appropriate public education as set forth in the Individuals with Disabilities Education Act (IDEA). In a 2015 amendment of IDEA, the U.S. Congress noted that, “Improving educational results for children with disabilities is an essential element of our national policy of ensuring equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities” (“About IDEA,” n.d.). Having access to language education is essential, as language is a tool that individuals with developmental disorders can use to maximize their social and adaptive functioning (Toppelberg et al., 1999). In addition, studies have shown that individuals with Down Syndrome (DS), a chromosomal disorder that results in an intellectual disability with language-learning difficulties, are at greater

risk than the general population of developing dementia (Kay-Raining Bird et al., 2005; Tyrrell et al., 2001). In their own study on 285 individuals with DS aged 35 and over, Tyrrell et al. found a prevalence of dementia of 13.3% (2001). On the other hand, according to the World Health Organization, dementia has a prevalence of 5% to 8% in the general population over the age of 60 (2019). Considering this higher prevalence of dementia (usually Alzheimer's dementia) in this specific population with ID, improving CR through bilingualism, as discussed above, becomes even more pertinent (Perani et al., 2017). Especially, seeing dementia leads to increased morbidity and mortality rates in individuals with DS (Tyrrell et al., 2001).

Unfortunately, parents of children with ID are often discouraged from exposing their child to an L2 (Edgin, Kumar, Spano, & Nadel, 2011; Gorman, B. K., & Consalvi, J., 2011; Kay-Raining Bird et al., 2005; Uljarevic, Katsos, Hudry, & Gibson, 2016; Ware, Lye, & Kyffin, 2015). A physician may claim a child with ID does not have the capacity to learn an L2 as the L2 would only confuse the child more and take cognitive resources away that he or she should be accessing for other functions. This attitude can often be problematic in a multilingual family and isolate the individual with ID from family and friends when the home and school language are not the same. As a speech language pathologist working with children with DS heading into an English only program, Consalvi wanted to capitalize on the 20 to 30 L1 words these children had learned in the first five years of their lives; however, parents who had been told not to use the L1 with their children anymore were worried that communicating with their child in their native language could negatively impact their child's education (Gorman & Consalvi, 2011). As there is limited availability of empirical research on the subject and the available research is not well-known, language choice in school is a difficult topic for a clinician; especially, when the child with ID comes from a language-minority background (Toppelberg et al., 1999).

However, research, as discussed above, shows that students, who are going to school in an L2 and who are in the process of learning this new language, advance more when they are allowed to use their L1 at first (Ware et al., 2015). In their review of 18 studies on heritage language instruction and individuals with neurodevelopmental disorders, Lim, O'Reilly, Sigafos, Ledbetter-Cho, and Lancioni found that “interventions incorporating heritage languages tend to have more favorable outcomes than those delivered solely in the majority language” (2018, p. 907). Nine of the 18 studies under review focused mainly on research done on individuals with ID, with some participants also having global developmental delay and/or autism spectrum disorder (ASD). These studies showed that interventions in the heritage language were, on average, 30% more effective than those provided in the majority language (Lim et al., 2018). However, less than 10% of the students in this group were receiving support in their heritage languages in school. If heritage-language based instruction had been available to these students, the studies might have found an even greater effect (Lim et al., 2018). As the goal is to maximize, not limit, communication and evidence does not support an obligatory monolingual approach, Gorman strongly recommends for parents to put unfounded recommendations forbidding the use of their native language with their children with special needs aside (Gorman & Consalvi, 2011).

My interest in this topic is not merely an intellectual exercise in order to still a thirst for knowledge in this subject; it is also driven by personal experience. My oldest son was diagnosed with Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) when he was approximately 3 years old. As he remained non-verbal, more testing was conducted and by the age of 5, moderate Mental Retardation and Attention-Deficit/Hyperactivity Disorder (ADHD) were added as diagnoses. Now at 19, his official diagnoses have been updated to moderate ID,

ASD, and ADHD. To this day, he remains largely non-verbal and only vocalizes highly frequent words such as “mama” (Flemish for “mom”), “ja” (Flemish for “yes”), “da” (for “dad”), and “co” (for “Coach”, his Special Olympics coach).

His IEP sets forward a Total Communication approach, which in his case means being supported through different means of communication, such as signing and gestures, body language, facial expressions, vocalizations, and Augmentative and Alternative Communication (AAC) devices (both low- and high-tech). His preferred method of communication is American Sign Language (ASL). It has been an uphill battle advocating for his right to use this form of communication. Even though his former paraeducator confirmed his knowledge of a vast vocabulary and his ability to engage in conversation, several educational administrators have tried, at certain times with success, to deny him ASL services and support, which stunted his growth and brought back the emotional outbursts and frustration he had experienced before being able to communicate. Justifications offered included the idea that ASL was meant only for the deaf and hard of hearing community and not for the non-verbal, that his struggles with fine motor skills would not enable him to form ASL signs perfectly– he might inadvertently sign something vulgar and find himself in a difficult situation – and that people in the community generally do not understand ASL, so he would be better off pointing at pictures to make himself understood through functional instead of conversational communication. One has to wonder if the latter two recommendations would also have been made to a member of the deaf and hard of hearing community, which has a long history of public advocacy and activism.

Individuals with ID have to rely mostly on advocacy done by family members and case managers. Luckily, he is now supported by a wonderful team and as everybody is on board with his choice of language, he is back on track. His current Speech Language Pathologist even

reported recently having to ask him to slow down when fingerspelling because he is so eager to communicate. In addition, she has noticed more attempts at vocalization. We have come a long way from educators wanting him to point at a picture of a toilet when he had to use the restroom.

Unfortunately, this has not been the only time people tried to dissuade me from using an L2 with my son. As many other parents, I was told to stop using my native language (Flemish) with my child with ID when we became a multilingual family. I had married my husband who only spoke English and we were supposed to move to the United States in the foreseeable future. As a young mother, afraid of possibly harming my child, I accepted the pediatrician and psychologist's recommendations without question, and we became an English monolingual family. This is a decision I regret now as it has affected my whole family. None of my children enjoy the benefits of bilingualism described above and it has become questionable if we will be able to move back to Europe once my husband retires from military service as was originally planned. In addition, I believe the isolation from family members back home my children experience is partly caused by the language barrier.

By now, it must be clear how passionate I am about the subject under review. The observations and recommendations below are based not only on academic literature, my education, training in the field, and my experiences as an educator, but also on my familiarity with ID as the mother of a son diagnosed with moderate ID, ASD, and ADHD. Working with my son and engaging with his classmates and friends in a variety of interactions has guided my discussion on pedagogical interventions for individuals with ID below.

## Chapter 2 - Literature Review

Certain facets of SLA in individuals with intellectual disabilities have been studied. The articles discussed below use different terminology to label the same special need, which has an onset in the developmental period of an individual (American Psychiatric Association [APA], 1994, 2013a). In 2013, the APA updated the term from ‘Mental Retardation’ to ‘Intellectual Disability (Intellectual Developmental Disorder)’ and classified it as a neurodevelopmental disorder in the fifth edition of their Diagnostic and Statistical Manual of Mental Disorders (DSM-5). With the name change, the DSM-5 also updated the criteria for the diagnosis by moving away from criteria mainly based on IQ scores to a more comprehensive assessment that also includes the impact the disability has on adaptive functioning (APA, 2013b). In the articles to be reviewed below, the terms mild, moderate, severe, and profound are used. These severity levels used to be based on the following ranges of intelligence quotient (IQ):

- mild: 50-55 to approximately 70
- moderate: 35-40 to 50-55
- severe: 20-25 to 35-40
- profound: below 20 or 25 (APA, 1993)

In current practice, clinicians need to also assess their clients across three domains: namely, conceptual, social, and practical. When looking at these domains, one can see how impairments in these skills can affect both SLA and first language acquisition. The conceptual domain includes skills such as language, reasoning, and memory. Interpersonal communication skills are part of the social domain, while the practical domain includes skills such as the ability to organize school and work tasks. While multiple terms are used in the research reviewed

below, this report will uniformly use the term ‘Intellectual Disability’ as the preferred term put forward by the American Association on Intellectual and Developmental Disabilities (2018).

### **Effects of SLA on Individuals with an ID**

Key research shows that learning an L2 does not negatively affect individuals with ID. Based on their systematic review of empirical research on multilingualism and neurodevelopmental disorders, Uljarevic et al. claim “there is no clinical, linguistic, or cognitive evidence to support routine recommendations of mono-language use for children with neurodevelopmental disorders who are from multilingual backgrounds” (2016, p. 1213). They suggest that instead of defaulting to a monolingual perspective, public policy as well as medical and educational professionals should support discussions about multilingualism with the people in the child’s life (Uljarevic et al., 2016). One of the studies Uljarevic et al. (2016) present to support this recommendation is Cleave, Kay-Raining Bird, Trudeau, and Sutton’s (2014) study on syntactic bootstrapping in children with DS. Cleave et al. (2014) presented their participants with a computerized receptive fast mapping task, where they had to identify unfamiliar nouns and verbs by means of the linguistic cues “a” and “ing”. Cleave et al. (2014) found that even though results showed performance differences between the participants with DS and their typically developing peers, there were no significant differences between the monolingual and bilingual participants in each respective group. This confirmed that while DS affected syntactic bootstrapping skills, bilingualism did not. Another study mentioned in Uljarevic et al.’s systematic review is discussed in more detail below.

As studies on SLA specifically in children with ID are limited and many children with DS are born into bilingual milieus, Kay-Raining Bird et al. (2005) studied whether children with DS could successfully acquire an L2. Kay-Raining Bird et al. (2005) compared the language

abilities of 51 children by dividing them into four groups. All children were in the beginning stages of their language development and were matched according to their developmental level; namely, a mental age ranging from 30.8 to 37 months. Two groups consisted of children with DS; the participants of one group were being raised monolingually, while the others were being raised bilingually. The other two groups were also divided between monolinguals and bilinguals, but they were composed of typically developing children. All children had to undergo The Preschool Language Scale, Third Edition (Zimmerman, Steiner, & Pond, 1992), to measure both receptive and expressive language skills, and the MacArthur Communicative Development Inventories (Fenson et al., 1993), to measure both verbal and signed lexicon. In addition, Kay-Raining Bird et al. (2005) took language samples of both L1 and L2 during free-play sessions, and they tested vocabulary comprehension in the L2. Results showed that the English language abilities of the bilingual children with DS were similar to those of the monolingual children with DS. There were also no significant differences recorded between the bilingual DS and typically developing groups, leading to the suggestion that the children with DS acquire an L2 at the same level as their typically developing control group. Kay-Raining Bird et al. (2005) conclude that raising children with DS in a bilingual environment does not cause any harmful effects and that insisting on raising them without exposure to an L2 is not supported by their findings. Future opportunities for research can be found in Kay-Raining Bird et al.'s observation that at the individual level, there was extensive variability in SLA success (2005). The reason for this variability is unknown and could provide valuable information towards supporting individuals with ID in their pursuit of SLA success.

Another key study in the field showed that learning an L2 does not cognitively adversely affect individuals with ID. Edgin et al. (2011) studied whether being exposed to an L2 affected

the broader cognitive functioning of children with DS between seven and eighteen years old. Edgin et al. (2011) divided their 41 participants in two groups: a monolingual group of 28 children and an L2 exposure group of 13. On average, participants in the L2 exposure group were exposed to an L2 for over four hours per day. Both groups corresponded in age, gender, mean IQ, and socioeconomic status and had to take “a validated battery of neuropsychological tests for use in children and adults with DS” (Edgin et al., 2011, p. 353). The results of the tests showed no differences in neuropsychological outcomes between the monolingual and the L2 exposure group. English language skills also did not suffer from being exposed to an L2. These results led them to conclude that since L2 exposure did not cognitively affect their participants with DS, the social benefits of knowing an L2 outweighed the extra efforts needed to teach an L2 to individuals with DS (Edgin et al., 2011). The cognitive difficulties children with DS experience are similar to those experienced by others with different sources of ID, meaning this study can be generalized for future research with other populations (Edgin et al., 2011).

### **L2 Teaching Techniques Applicable to Individuals with an ID**

Already existing modifications, accommodations, and techniques can be used to make SLA a successful endeavor for individuals with ID. Wight (2015) provides a list of L2 study curriculum alterations, which teachers could easily implement if they had the needed support from their facilitators. Her recommendations for teaching an L2 to native English-speaking students with learning disabilities include differentiation in learning activities, smaller class sizes, extra time to complete assignments, explicit instruction and learning strategies, a reduction in amount of content, regular review and repetition, and alternative assessments, such as portfolios. Harmer (2015) lists 10 ideas and techniques to successfully teach English as an L2 to students with special educational needs; most could be applied to courses that include individuals

with ID. He underlines the importance of focusing on each student's strengths instead of their perceived shortcomings and of including students with special needs in the mainstream class, which he sees as being "vitally important" to the students with special needs and as "a profound and important learning experience" for their typically developing peers (Harmer, 2015, p. 149). The classroom should be a calm and safe learning environment with straightforward routines and clear transitions; in addition, accommodations to lower anxiety, such as providing additional preparation time or permitting the use of cue cards should be in place (Harmer, 2015). In order to support students with memory problems, Harmer (2015) also recommends constant revisions and repetitions in addition to creating materials that are especially salient and making lessons a multi-sensory experience. The latter needs to be approached with caution though as comorbidities may make it difficult for certain students to successfully process multi-sensory input, turning techniques used in support of memory functions into distractions (Harmer, 2015). To personalize students' experiences in the language classroom, teachers need to know their students. They can achieve this by consulting other teachers and experts, paying special attention to their students, and communicating with their students about their experiences in class and their interests outside of class (Harmer, 2015).

Mohammadian and Dolatabadi (2016) underlined the importance of the method of instruction and proposed that including an affective factor as a teaching technique could be beneficial as it could influence levels of motivation, self-confidence, and anxiety. The participants in their study were 18 individuals with mild ID (based on IQ scores) aged between six and fourteen years old with a similar level of language development. They were randomly divided into two groups and after receiving a pre-test, they received a treatment, which consisted of 12 sessions of 30 minutes each over a duration of four weeks. The instructor used body

language and facial expressions to teach a list of 13 English imperative forms to both groups. With the experimental group, he also showed affection towards the participants. Affection was defined as exaggerated encouragement in the form of clapping, smiling, hugging, and kissing. In addition, mistakes were ignored. One week after the treatments had concluded, all participants received a post-test, which was the same as their pre-test. The mean score of the group who received the affective treatment was nearly three times higher than the group who did not receive the treatment leading to the authors' conclusion that teaching with affection has a considerable effect on SLA success of individuals with ID.

Reed (2013) examined whether explicit phonics instruction and sight word instruction could be successful techniques to teach individuals with mild ID. Her participants, English language learners between 13 and 15 years old, were randomly divided in two groups and received 20-minute sessions of either sight word or phonics instruction, every other day, for eight weeks. Both types of instruction were done in an explicit manner by the same special education teacher, who directly told the learners what the feature to be learned was. In phonics instruction, the participants were taught letter-sound connections through reading and writing. The participants were made to focus on orthographic patterns. In the other group, picture fading instruction was used as a means to explicitly teach sight words. At first, the teacher would show the participants words combined with pictures. Then, pairs of pictures were introduced, and the participants had to try to retrieve the word from memory. As sessions continued, the teacher gradually showed the pictures later until the participant could remember the word without seeing the picture. Analysis of pre- and post-tests showed that all four participants improved significantly after the treatment. Reed (2013) stated that the results did not show that one of the methods of instruction was more beneficial than the other, but both were more successful than

the regular practice the participants had been given thus far in their educational setting. Having been classified as early emergent readers, reading practice would usually consist of being read to and orally answering listening comprehension questions (Reed, 2013). In addition, on occasion, the students had to visually represent what they had heard by drawing pictures or tell a story based on visual prompts. Surprisingly, the teachers never made connections to written language and they never provided the students with the discussed materials in written format. A new study with a larger population could provide valuable information on whether a more explicit method of teaching an L2 to individuals with ID could be advantageous.

## **Chapter 3 - Proposed Pedagogical Interventions**

### **Rationale**

The studies discussed above demonstrate that individuals with ID can learn an L2 without adverse effects. However, despite the current inclusion philosophy prevalent in schools, students with disabilities are often exempted from learning an L2 (Wight, 2015). This is in part caused by a lack of instructional methods and materials available to educators to teach an L2 to individuals with disabilities and to create an inclusive L2 classroom (Wight, 2015). Other reasons why students with neurodevelopmental disorders have fewer opportunities to learn an L2 include an insufficient number of qualified personnel, such as teachers and therapists, and time conflicts, which lead to special education services being scheduled with a higher priority than language services (Lim et al., 2018). Furthermore, children with ID may already struggle with learning their first language. In the moderate to severe range, children with ID have significant language delays resulting from difficulties with pragmatics, semantics, syntax, morphology, and phonology (Bernstein Ratner, as cited in Toppelberg et al., 1999). Therefore, they need plenty of modified, high-quality language input in order to process language and be communicatively effective (Toppelberg et al., 1999). L2 teaching to beginners has to take a learner's language needs into account (Nation & Newton, 2009). Therefore, it is important for L2 teachers to understand what those needs are in addition to finding an L2 teaching approach that works best for their students with ID. Unfortunately, there is a lack of urgency in the education system to develop the needed methods and materials as SLA is not seen as a priority and there is a lack of data showing that students with special needs can successfully learn an L2 (Wight, 2015). The aim of this chapter is to offer guidance to L2 teachers and administrators by providing examples of differentiated instruction and highlighting existing resources that can be used to accomplish

L2 learning success for students with an ID and to motivate teachers to become reflective practitioners who conduct classroom-based, teacher-led action research.

### **Affective Factor**

Including an affective factor as a technique for teaching L2s to individuals with ID is an essential pedagogical intervention. Teaching with affection was shown to be very effective in Mohammadian and Dolatabadi's (2016) study. Anybody who has worked with individuals with ID knows that many are eager to please and can be easily motivated by social reinforcers, such as excessive praise. In my experience, individuals with ID tend to initiate physical contact and use it as a way to connect with other people. Teachers need to be aware of what their schools considers to be appropriate levels of physical contact with students. Some districts may have a strict no-touching policy, while others may find hugs acceptable. Not all teachers agree on this subject either. "Can I hug my students" is a trending conversation thread on many teacher forums, which shows that teachers instinctively want to show affection to their students but are not sure whether this is still acceptable in the current social climate. Research shows that affective, non-sexual touch has a variety of benefits. Affective touch helps maintain social bonds, decreases depression, reduces inattentiveness, makes social interactions easier, communicates and helps regulate emotions, promotes compliance, soothes and provides a feeling of safety, and increases self-esteem (Calmes, Piazza, & Laux, 2013; Cekaite & Kvist Holm, 2017; Field, 2010; Suvilehto, Glerean, Dunbar, Hari, & Nummenmaa, 2015). These characteristics of affective touch can not only stimulate learning, but also help manage behavior of students with ID in the classroom. In Mohammadian and Dolatabadi's (2016) study, kisses were part of the ways to show encouragement. It seems unlikely that this would be seen as acceptable behavior in a school in the United States. L2 teachers need to reflect on, within the

bounds of a school district's directives and the society they live in, how much physical contact they are comfortable with and on how they will react and redirect when their set boundaries are broken by their students. While, for an L2 teacher not used to working with individuals with ID, a seventeen-year-old towering adolescent looking for a hug may seem intimidating and unexpected at first, it is important not to overreact and remember the student's mental age. Depending on their home environment, that hug they are looking for may be the only form of affection they will receive that day. Thinking about how one would react when a five-year-old would do the same, should guide teachers' actions and reactions.

The constant use of excessive, yet genuine praise, high fives, and facial expressions of happiness provide instant rewards, which will strengthen the bond with and motivate the students. Depending on the severity of the ID, some teachers may prefer adding an additional token rewards system, which are prevalent in Elementary education; however, teachers should anticipate that this concept may be too abstract for their students and may make their relationship with their students primarily transactional. Adibsereshki, Abkenar, Ashoori, and Mirzamani (2015) studied the effect of tangible reinforcement and social reinforcement on female students with ID aged 13 to 17. Tangible reinforcers are concrete items, such as edibles and toys, while social reinforcers are more abstract. They include positive attention and expressions of approval and praise, such as saying "Awesome job" or smiling and clapping (Smith, n.d.). Adibsereshki et al. (2015) found a significant difference in the academic achievement scores of the students who received reinforcers, with students receiving tangible reinforcers outperforming those who received social reinforcers and both groups outperforming the students who did not receive reinforcers. Even though this study showed tangible reinforcers to be more effective than social reinforcers where academic achievement scores were concerned, teachers also need to take into

account the practicality of tangible reinforcers. Edibles may not be appreciated by the students' parents or may be limited because of dietary restrictions. In addition, having students become used to tangible reinforcers may become a costly affair and behavior may become even more difficult to manage when a preferred tangible reinforcer is not available on a certain day. Social reinforcers also work, and smiles or high fives are safe, free, and always available.

## **Instructional Design for Mixed Abilities**

### **Explicit and Implicit Approaches**

When developing resources for teaching an L2 to students with ID, it is important to evaluate both explicit and implicit approaches to instruction. Memory is part of the conceptual domain that can be impaired because of ID (APA, 2013b). It is not evident whether both implicit and explicit memory systems are equally affected. Explicit learning translates into heavy demands on working memory, which may be too taxing when individuals with ID learn an L2. Implicit learning, on the other hand, does not take away from the central attentional resources (Ellis, 2009). However, material presented in an implicit way may not be salient enough to be noticed and internalized. Some researchers believe that learning without noticing is possible, while others believe that if there is no conscious awareness, learning cannot happen (Ellis, 2009). However, a case can be made for a distinction between implicit instruction and implicit learning. While the teacher may be using certain materials in order to present input in an implicit manner, the students, being in a classroom, are aware that they are supposed to be learning something. So, a certain level of awareness and intentionality will always be present.

As always when there is a perceived dichotomy, one should proceed with caution. It does not have to be either/or. Using a balanced approach is a viable third solution. Based on the characteristics of ID, a teacher's initial assumption may be that implicit instruction makes more

sense when teaching students with ID; however, Reed (2013), as discussed above, found that students with ID greatly benefited from explicit phonics and sight word instruction. In her research review, Wight (2015) also discerned that explicit phonological and syntactic instruction improved the knowledge of phonology, vocabulary, and verbal memory for students with disabilities. Thus, language teachers need to ask themselves which parts of the language curriculum are better learned explicitly, and which ones are better learned implicitly (Ellis, 2009). In his review of available research pertaining to frequency effects on language processing and acquisition, Ellis (2002) suggests a combination of the two approaches, with the introduction of certain concepts being done explicitly and students consciously working with the input, followed by ample opportunity to encounter many exemplars of the newly learned forms through implicit exposure. Explicit instruction can significantly speed up L2 learning, while frequency (implicit by nature) is of the utmost importance to language processing and mapping form to function (Ellis 2002).

Teaching body parts lends itself well to an approach which combines explicit instruction with implicit exposure. Parts of the body are high frequency words that should be taught in entry level L2 classes (Nation & Newton, 2009). This topic also lends itself well to differentiated instruction; especially in German, where the reflexive pronouns used in sentences to express daily hygiene activities change case depending on whether the body part is mentioned or not (For example, *Ich rasiere mich* [accusative] versus *Ich rasiere mir die Beine* [dative] – “I’m shaving” versus “I’m shaving my legs”). An explicit approach will contain direct instruction with scaffolding, practice, and repetition. The goal is to keep the students’ interest by offering an assortment of activities that all students can enjoy (Nation & Newton, 2009). Words for the most common parts of the body can be used in picture games, such as in a body parts Bingo game, and

action games, such as in “Simon Says” (Nation & Newton, 2009). As the class progresses in the unit, the students can be grouped according to ability and focus on different aspects of this topic. Some students can keep working on processing the new vocabulary, while others can try to discover the grammatical rule affecting the reflexive verbs in grooming rituals by examining contextualized data where the reflexive pronouns have been made salient. This way, a rigorous program can be maintained for all students.

### **Task-Based Instruction**

After this combined explicit and implicit approach to instruction, language teachers could consider a collaborative task-based activity to provide more practice and thus many exemplars. Group achievements can be very encouraging to students with ID. Creating a music video together could be an exciting way to solidify previously learned vocabulary and encourage strengthening of form-function connections. Many students with ID enjoy dancing and listening to music; Karaoke is a favorite activity for both verbal and non-verbal students alike. Music videos in a variety of languages can easily be found online. For example, DD Company’s Minidisco offers a variety of Dutch, English, French, German, and Spanish music videos for free on several YouTube channels. These types of videos can provide a compelling way to engage with an L2; especially, because the students may already be familiar with many of the songs in their L1.

It is however problematic that the songs that would be appropriate for beginner’s L2 learning are mostly geared at younger children. Many of the videos feature young children or have animations favored by young children. While these videos may be perfect for a Foreign Language in Elementary School experience, they are not that appropriate for a World Language Program in a secondary school. The language level of the videos featuring adolescents is usually

too difficult to be used in a beginners L2 classroom. Students creating their own music videos could be a solution to this problem.

In connection to our unit on body parts, “Head, Shoulders, Knees, and Toes” is a simple, but fun song most students are familiar with already. Examples of versions in Spanish (*Cabeza, Hombros, Rodillas y Pies*) and in German (*Kopf, Schulter, Knie und Fuß*) can easily be found online. This song contains eight commonly mentioned body parts, and thus does not overload the students with too much vocabulary. In order to make their own music video, the class can be divided into mixed abilities groups. The students manage their own project and assign each member of the group a specific task. Students can be talent, director, screen writer, prop master, editor, choreographer, and so on. The students can let their creative side shine in many different ways. For example, students with musical talent could change the arrangement of the song or play their own instruments; technically inclined students could enhance the video by adding art, created by another student with drawing skills, or picture stills in support of the vocabulary



**Figure 3-1 Music Video Still Image**

mentioned in the song as can be seen in Figure 3.1. This can easily be done with free software such as Apple’s iMovie or Blackmagic Design’s DaVinci Resolve. No matter what role they have, each student will hear the song over and over again providing lots and lots of

exemplars. The more active approach to learning new vocabulary could also appeal to the more kinesthetic learner. After the projects have been completed, the groups share their videos in

class and the students will hear the song multiple times again. When it is time to do an assessment of the unit, students can use their music video as a review tool. This is useful not only for the students with ID, who may or may not be able to read, but also for their typically developing peers who prefer a more visual or auditory style of learning. Other video projects in this unit could be considered, for example, students who have been working on the grammatical aspect pertinent to this subject, as described above, could make videos about their daily morning routines.

This type of project-based learning aligns with the Kansas Curricular Standards for World Languages and integrates World Languages with 21<sup>st</sup> Century Skills as students, amongst others, make connections to other disciplines through the L2, use the L2 beyond the classroom, present and share their work, successfully collaborate and assume responsibility as a group for their work, use their communications skills in different contexts, analyze and solve problems, show creativity, use digital technology, adopt different roles and use their strengths to further the group, finish tasks without constant oversight, and show initiative and leadership (World Language Standards Review Committee, 2017; Partnership for 21<sup>st</sup> Century Skills, 2011). Task-based teaching in this manner provides a learning environment enriched with input where the students learn the target structures experientially while focusing on their task, i.e. making their video (Ellis, 2009). By combining explicit instruction and implicit exposure, students “have the best of both worlds” (MacWhinney, as cited in Ellis, 2002, p. 175).

### **Gamification**

Gamification, one of the latest trends in education, seems to be here to stay. The use of gaming elements, such as earning badges, leaderboards, competition, checkpoints and levels, avatars, and experience points has invaded classrooms. So have digital games and mobile

applications. In elementary schools, digital platforms and applications, such as Prodigy, Freckle, Zearn, Istation, and Classdojo are used for instruction, assessment, or classroom management on a daily basis. Even Minecraft has found its way into the elementary classroom with their education edition. Gamification has been embraced by secondary schools as well, even though it has not permeated them as much as it has elementary schools. Commonly used tools in secondary schools are Kahoot, Quizlet, and Lyricstraining.

Several studies have demonstrated that game- and video-based instruction improves learning performance. Lin et al. (2012) found that through the use of computer games and videos their participants improved their math scores with the game-based group outperforming the video-based group. Chang, Wu, Went, and Sung (2012) discovered that to solve fraction problems their experimental group who used a game-based problem-solving module outperformed their control group who used a traditional paper-based approach. In a study on mobile game-based learning, Huizenga, Admiraal, Akkerman, and ten Dam (2009) found that students who played a mobile history game learned significantly more than those who received project-based instruction.

A positive result was also found when using game-based learning in L2 education. Liu and Chu (2010) found that the participants in their experimental group, who used game-based learning materials through the Handheld English Language Learning Organization learning environment, which includes augmented reality technology, consistently performed better in listening and speaking tasks than their counterparts in the control group, who used non-gaming learning materials, such as CD and MP3 players, a digital voice recorder, and printed materials. The content material only differed in manner of delivery (Liu & Chu, 2010). Results of a survey taken after the study showed the students in the experimental group had been more motivated to

learn. They enjoyed being immersed in the multimedia materials and preferred it over a regular textbook (Liu & Chu, 2010). They also felt more comfortable talking to the virtual learning tutor than to their teacher and they liked how they could keep repeating the same conversation over and over until they felt more secure (Liu & Chu, 2010).

The results of Liu and Chu's research show how gamification can help in differentiation. Students do not learn at the same rate and, unfortunately, teachers are not always able to keep working on the same subject until every student is equally familiar with the materials. In addition, students have different learning styles, and it is not self-evident that a teacher can teach in a manner that appeals to every student. In an inclusive L2 classroom these traditional problems are amplified. Students with ID may not be able to read or write, and they may struggle with fine motor skills. Using instructional materials where answers to questions can easily be selected and that use visual and auditory elements can help circumvent these types of issues. Luckily, there is now a variety of technology available that can be used to make language learning interactive and lets teachers easily differentiate instruction and assessment. Multiple suggested tools are listed in Appendix A and two possible applications are presented below.

### **Metaverse**

GoMeta's Metaverse is an augmented reality platform that can be used to differentiate instruction and assessment in the L2 classroom. An account for Metaverse Studio can be made online for free at <https://studio.gometa.io/landing>. Once logged into Metaverse Studio, one lands on a dashboard where experiences, such as scavenger hunts, games, quizzes, stories, tours, and geocaches can be made. Characters, pictures, videos, audio, text, polls, and media walls can be added to experiences. To view the experiences, students will need access to a device that supports iOS or Android applications. An account is not needed to view experiences in the

application. Metaverse has a variety of tutorials available both on their website and on YouTube. While it may take some time to create a Metaverse experience from scratch, it is possible to clone someone else's published experience and modify it to suit individual needs. A Google Sheets link with published Metaverse Breakouts for a variety of school subjects is listed in Appendix A.

Metaverse can be used to make alternative assessments. The QR code in Figure 3-2 can be scanned to obtain access to this Metaverse experience that was made as an alternative summative assessment for a 4<sup>th</sup> grade German FLES experience. This experience is public and can be cloned and adapted to a class' or an individual's specific needs. For example, by changing the audio files, this could be used for a Spanish class. This experience is an example of a breakout where students have to use their knowledge to receive numbers they will need to enter a code in an alarm keypad to get access to a reward. In this case, the reward is obtaining access to a media wall where all the pictures the students have been taking during the assessment have been uploaded.



**Figure 3-2 Metaverse Experience Invitation**

This experience was specifically made for the school it was going to be used in. The avatar leading the students through the assessment is the school's mascot. The blue background seen in Figure 3-3 is replaced by what is in the students' environment (their reality) when used on the mobile application. There are 12 questions total: three on colors, three on body parts, three on shapes, two on animals, and one on feelings. They represent high-frequency words usually taught in a German class for beginners. The students have to listen to the questions and choose one out of three possible answers to advance. When the students choose the wrong answer, they hear a sound indicating failure and they receive the same question again. When the students choose the correct answer, they receive a happy tune and they are asked to take a picture of an item representing their answer. For example, when *rot* is the correct answer, they have to take a picture of something red. After each theme, the students receive a number they need to note for later use. The students can keep trying until they get the correct answer, making this a low-stakes assessment. The teacher can still verify the progress of their students by checking the media wall where all the uploaded pictures are labeled with the username on the device that uploaded them. Once all the questions have been answered, the students enter the collected numbers in a specific order (see Figure 3-4). The alarmcode is dictated, so students who did not note the numbers during the assessment can still continue the experience. The students can keep trying until they find the correct combination. This type of assessment is perfect for a classroom with students with ID as the students do not have to be able to read or write to do the assessment. This activity also requires minimal use of fine motor skills.

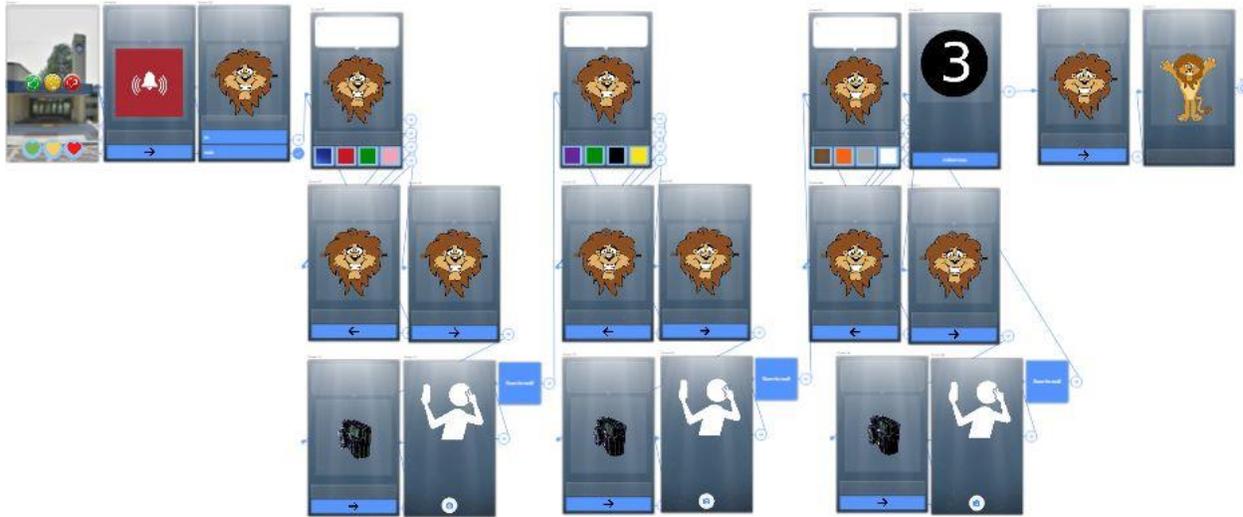


**Figure 3-3 Metaverse Experience Sample Question**



**Figure 3-4 Metaverse Experience Code Input**

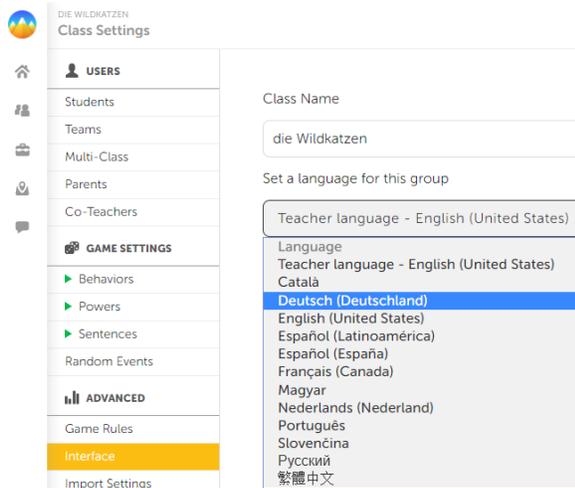
With metaverse, the possibilities for differentiation are endless. Experiences as the one above can be adapted to the level of the students. By providing students with a different QR code, the whole class can use the same interface with different content. The experience can also be modified to fit with students' interests. A student's favorite anime character can lead them through their personal experience. By cloning the experience storyboard, this can technically be done for each individual student. There are also opportunities to activate prior knowledge, for example, by adding a familiar song used during instruction before questions pertaining to certain subjects. In the exemplified Metaverse experience, the tune for "Head, Shoulders, Knees, and Toes" plays for 20 seconds right before the section with the questions on parts of the body. So, this could be a good place to insert the video the students made themselves while working through that unit. The storyboard also has other useful features; for example, the teacher can direct the application to use the front- or rear-facing camera depending on what needs to be photographed, eliminating another issue a student with ID might encounter while using this application.



**Figure 3-5 Metaverse Experience Partial Storyboard**

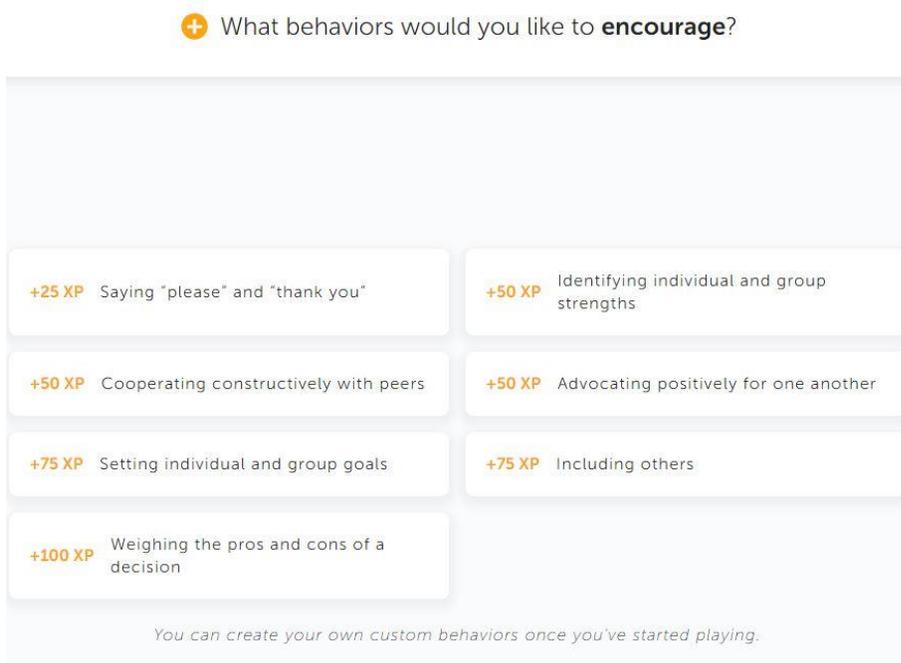
## Classcraft

Classcraft is a digital platform that supports classroom management and differentiation. It is available in 12 languages, to include the more commonly taught L2's in America; namely, Spanish, German, and French. As can be seen in Figure 3-6, the teacher can change the language of each classroom they manage in the class settings making it so that once the students log into their Classcraft classroom, everything is in the target language.



**Figure 3-6 Classcraft Class Language Settings**

When setting up their class, teachers must first make some choices. They can use the general profile with default settings for behaviors, sentences, powers, random events, and game rules. They can also choose to focus on Positive Behavioral Interventions and Support, “a multi-tiered approach to social, emotional and behavior support” (Positive Behavioral Interventions & Supports, 2019) or social emotional learning skills. Customization is still possible after making this choice. The teacher can choose, for example, which kind of behaviors will be rewarded or punished and how many experience points (XP) students can gain or lose for exhibiting these behaviors. Cooperating constructively with peers, including others, and advocating positively for one another are available examples of set behaviors to be encouraged (Figure 3-7).



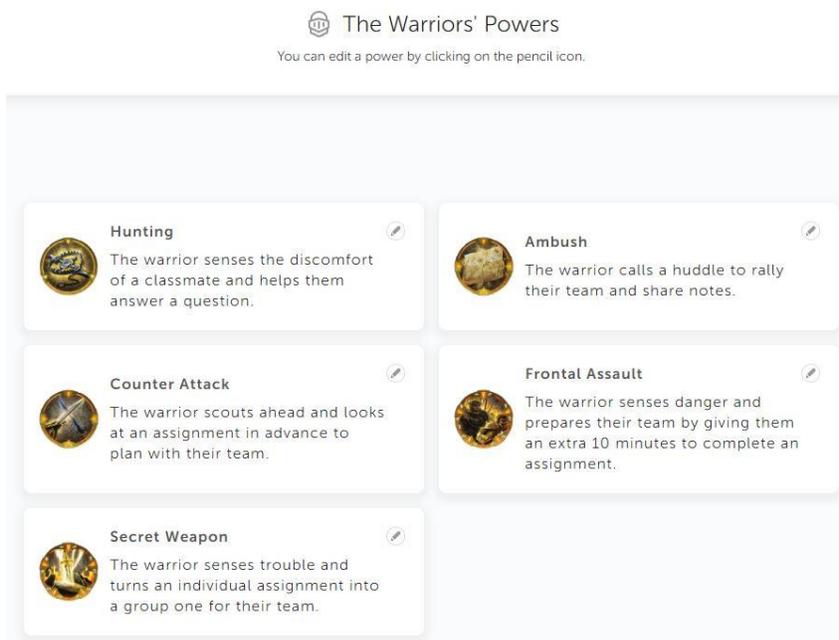
**Figure 3-7 Classcraft Behavioral Settings**

When students sign up, they get to choose the type of character they would like to be. They can choose between Warriors, Mages, and Healers (Figure 3-8). The characters have different powers, strengths, and weaknesses and need to work together in order to succeed

(Figure 3-9). To level up their character, students need to collect XP. They can do this by following the class' set behavior goals, getting good grades, working together, and successfully completing activities, such as Boss Battles, quests, objectives, and assignments. The more they level up, the more power points and gold pieces they earn. Power points give students the opportunity to unlock more powers and with gold pieces, they can buy new outfits to customize their character. Classcraft also includes parents by giving them the opportunity to give gold pieces to the students when they do their homework or household chores. The program guides teachers through the set-up with tutorials every step of the way.



**Figure 3-8 Classcraft Sample Characters**

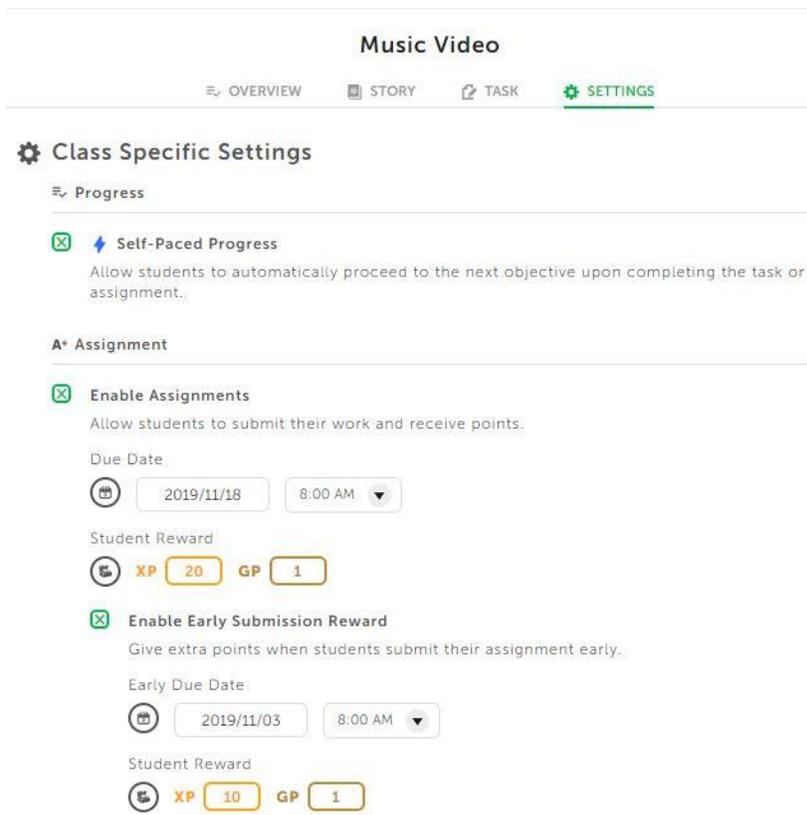


**Figure 3-9 Classcraft Sample Powers**

Classcraft makes it possible for students to follow their own paths. The teacher can create a map with quests, or they can go to the free marketplace where other teachers have shared their quests. English, French, and Spanish pre-made quests are currently available. As more quests get added, the world becomes bigger. The assignments are easily imported, and the students can access them on the map (Figure 3-10). When creating quests, teachers can choose their objectives, add a story (i.e. instructions), and enable an assignment to be uploaded by a certain due date (Figure 3-11). The teacher can also assign student rewards in the assignment settings. Differentiation is possible because teachers can control progression between objectives and thus decide whether the student may advance to the next assignment automatically or not. When students fail objectives, they may be guided via a different path on the map where more information or practice is available. When they succeed, they may be guided to more challenging assignments. Another useful feature of this type of instruction is that when students miss class, they can work through the materials from home.



**Figure 3-10 Classcraft Sample Map**



**Figure 3-11 Classcraft Assignment Settings**

Gamifying learning in classrooms makes it easier to teach an inclusive classroom. It provides numerous benefits to students with ID; especially, because the teacher is able to personalize the experience. In addition to motivating both students with ID and their typically developing peers, gamification provides a variety of opportunities to adapt the curriculum and makes it easier on students with ID to process the materials. If a student is unable to read, an avatar can read to the student; if a student is unable to write, buttons can provide an easy way to indicate choices. Gamification also makes it possible to provide adapted materials to students with ID without them feeling isolated. Through personalization, they can use the same tools as their typically developing peers and they are not singled out or treated differently in the classroom. Everybody uses the same media with materials adapted to their level, giving all students in class the best opportunities to learn and to succeed.

## Chapter 4 - Discussion

It is clear that learning an L2 has become a necessity in today's globalized world. More and more children are exposed to multiple languages both in their educational setting and in their communities. The research discussed above clearly supports that there are no detrimental effects on individuals with ID who are exposed to a bilingual environment. On the contrary, allowing individuals with ID to participate in language learning activities with their peers can instill a sense of accomplishment instead of isolation. Relationships with family members can be more natural if they can communicate with their loved ones in their native tongue and they can become productive members of society by mastering the local language.

While this report focuses on students with only ID, it is important to mention that co-occurrence with other neurodevelopmental disorders does not change the provided recommendations. It is common for students with ID to also be diagnosed with ADHD or ASD. Language teachers supporting the notion of an inclusive language program have to take into account that their students may be coming from a self-contained classroom for children with special needs, which is not homogenous. These types of classes cater to a large range of ages and needs. After reviewing 50 empirical studies, which were published in peer-reviewed journals, Uljarevic et al. (2016) found that "there is little evidence to support the widely held view that multilingual exposure is detrimental to the linguistic or social development of individuals with neurodevelopmental disorders" (p. 1205). Their research confirmed that in addition to individuals with ID, those with Communication Disorders and ASD can also benefit from SLA programs. For example, Uljarevic et al. conclude after their review of ten ASD studies that multilingualism provides a "positive effect on communication and social functioning" (p. 1212). This is vital information since one of ASD's principal symptoms is

“persistent deficits in social communication and social interaction across multiple contexts” (APA, 2013a, p. 50). These findings make SLA an important factor to consider when discussing appropriate educational needs at students’ Individualized Education Program (IEP) meetings at school.

More research with larger groups of participants is instrumental because it could potentially convince clinicians and educators to support SLA in individuals with ID and those with other neurodevelopmental disorders. As the teaching community waits on additional research in order to develop the most effective instruction methods to teach an L2 to students with ID, teachers can begin to improve their instruction through action research. This will not only empower the teacher, but also translate into improved and more inclusive services. It is important to remember that the goal of the teachers’ action research is not to compare L2 acquisition results between individuals with ID and their typically developing peers. Instead, the focus should be on the effects different teaching approaches and techniques, materials, settings, timings, and assessments have on the students with ID depending on their different characteristics. These can include, but are not limited to, age, severity of ID, L1 test results, and the communication approach used by the student (e.g. Total Communication). Teachers also need to decide which research questions are most relevant to the needs of their students. For example, action research questions may be quite different when the students with ID in the L2 classroom are verbal or non-verbal.

After students are given ample time to overcome the learning/practice effect, data needs to be collected and analyzed. The collected data will make it possible to assess the rates of success for every student with ID after certain accommodations have been made and make it possible for teachers to make instructional decisions for each individual in their class based on

their reflections and the evaluation of their own research. Analyzing the collected data is the step in action research that teachers, who may be inexperienced researchers, are the most worried about (Mertler, 2019). However, analysis will reduce the amount of collected data and make it easier to work with (Mertler, 2019). Depending on the type of data collected, teachers will need to use different analysis processes. Qualitative data may need to be coded first; Mertler (2019) suggests using computer software programs to objectively organize and categorize narrative data. Descriptive or inferential statistics may be needed to analyze quantitative data (Mertler, 2019). This may sound intimidating at first; however, teachers can begin with smaller scale action research projects for their own use as to become more comfortable with data analysis before starting to share their results with other educators. Analysis of results and reflection thereupon makes it possible for teachers to keep adapting their instructional approaches and develop new research questions making action research cyclical in nature (Mertler, 2019). For example, results from an action research cycle on how to teach could lead to questions on what to teach (or the other way around). By alternating instructional approaches and foci and reflecting on their experience, professional educators can immediately take action and adapt their instruction without having to wait on data, which may never come, from the research community.

Parents who first receive their child's ID diagnosis often turn to experts concerning what is in the best interest of their child. Attitudes based on false assumptions may lead to unsubstantiated advice or a lack of confidence when dispensing advice; therefore, it is important for parents to keep advocating for their child by informing themselves, challenging assumptions, and questioning recommendations given to them by the medical and educational community. The call for teachers to engage in action research above aims to add to these recommendations by investigating which method of teaching positively affects individuals with ID the most. By

sharing data on L2 learning success and outcomes of different instructional approaches, teachers and facilitators should be able to adapt their curriculum and teaching practices in order to include all children with special needs. By creating an inclusive classroom through these types of modifications and accommodations, a child with ID will be able to receive what is his legal right; namely, the same opportunities to learn as his typically developing peer.

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## **Appendix A - Additional Resources**

### **Intellectual Disability Resources**

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### **Educational Resources for an Inclusive L2 Classroom**

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