

# MULTIPLE INTELLIGENCES AND MOTIVATING COLLEGE STUDENTS WITH DISABILITIES

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## ABSTRACT

*This reflective paper attempts to frame Multiple Intelligence Theory in the context of motivating college students with disabilities with the intent that actionable steps can be taken by a postsecondary instructor to improve teaching methods for the benefit of all of their students. The discussion focuses on the literature review but also incorporates professional experiences before proposing the conclusions. The implications for postsecondary instructors are discussed, and recommendations for future research are also included.*

*Keywords: disabilities, education, motivation, Multiple Intelligence Theory, postsecondary, teaching*

## INTRODUCTION

Multiple Intelligence Theory is still an emerging field 35 years after Howard Gardner first proposed the theory (Temple et al., 2018). Addressing multiple intelligences seems to have the potential to make a positive impact on students with disabilities (Singh et al., 2017; Vasal et al., 2017). Motivation is one of the most positive factors of using multiple intelligences. However, studies can be conflicting or unclear as to what a teacher should do to harness that potential for students. Therefore, teachers need to reflect upon the broader focus of a literature review in the context of their own experiences to arrive at actionable steps that they can take to help students take advantage of the benefits that Multiple Intelligence Theory offers. The purpose of this reflective paper is to explore the relationship of Multiple Intelligence Theory to teaching college students with disabilities.

## MULTIPLE INTELLIGENCE THEORY

Howard Gardner (1983) originally proposed seven different intelligences in his Multiple Intelligence Theory: verbal, logical, musical, visual, kinesthetic, interpersonal, and intrapersonal. Sixteen years later, he added the naturalist intelligence for a total of eight (Gardner, 1999). He also proposed the existential intelligence at that time (Kane, 1999; Visser et al., 2006), but it was not accepted as one of the intelligences until 2009 (Menevis & Ozad, 2014).

The nine intelligences have most recently been described as follows (Jeyshankar, 2019; Rahimi-Pordanjani et al., 2019):

- **Verbal**—the ability to understand and use spoken and written communication. This is also known as Linguistic Intelligence.
- **Logical**—the ability to understand and use logic and numerical symbols and operations. This is also known as Mathematical Intelligence.
- **Musical**—the ability to understand and use such concepts as rhythm, pitch, melody, and harmony. This is also known as Rhythmic Intelligence.
- **Visual**—the ability to orient and manipulate three-dimensional space. This is also known as Spatial Intelligence.
- **Kinesthetic**—the ability to coordinate physical movement. This is also known as Bodily Intelligence.
- **Interpersonal**—the ability to understand and interact well with other people.
- **Intrapersonal**—the ability to understand and use one's thoughts, feelings, preferences, and interests.
- **Naturalist**—the ability to distinguish and categorize objects and phenomena in nature.

- **Existential**—the ability to contemplate phenomena or questions beyond sensory data, such as the infinite and infinitesimal. This is also known as Spiritual Intelligence.

Researchers have also recognized other types of intelligences as well, some of which directly correspond to one or more of Gardner's nine intelligences (Handa, 2018) or less directly to these nine (Baltaci, 2017; Mohammadi & Izadpanah, 2018). Handa (2018) draws a direct connection between social intelligence and both of Gardner's interpersonal and intrapersonal intelligences. Mohammadi and Izadpanah (2018) recognize that emotional intelligence is often explored alongside social intelligence. Finally, Baltaci (2017) describes cultural intelligence, another type of intelligence that is similar to emotional intelligence, interpersonal intelligence, intrapersonal intelligence, and social intelligence.

#### IDENTIFYING MULTIPLE INTELLIGENCES AND DISABILITIES

Whether one believes in everyone having varying levels of each type of intelligence or in having a certain combination of the nine intelligences, the prevalence of (dominant) multiple intelligences in students with disabilities should be of interest to educators (Baggerly, 2019). For example, one study estimated that about 60,000 business majors are diagnosed with a specific learning disability (SLD), attention-deficit/hyperactivity disorder (ADHD), or autism (Landin, 2017). This is relevant because (dominant) multiple intelligences are often correlated with disabilities (Najafi et al., 2017). In other words, students with a disability often score lower in intelligences related to their disability. For example, students with ADHD often score lower in logical, interpersonal, and intrapersonal intelligences, so business professors who tend to use those types of strategies may find that those students struggle more than they would if a more diverse set of strategies were used (Landin, 2017; Najafi et al., 2017).

Even taking disabilities into account, the nine intelligences are not equally distributed across the population (Al-Qamash, 2012). Interpersonal intelligence was the most prevalent intelligence in a study done by Al-Qamash (2012). This was followed by visual intelligence, naturalist intelligence, existential intelligence, verbal intelligence, logical

intelligence, musical intelligence, and intrapersonal intelligence, respectively. A difference between genders in some studies favored females, but the opposite was found in other studies (Jeys Shankar, 2019). Finally, Al-Qamash (2012) showed differences based on the type of disability. For example, those with dyscalculia were lower in logical/mathematical intelligence, and those with dyslexia were lower in verbal intelligence. In a similar line of inquiry, other researchers compared multiple intelligence results to IQ (Singh et al., 2017). Logical intelligence, musical intelligence, and spatial/visual intelligence are correlated with IQ, but all three also relate to mathematics, which IQ tests tend to weigh more heavily than some of the other intelligences.

The next topic that needs to be addressed is identifying if a student has a disability. Classroom teachers are in the best position to first notice the possibility that a student may have a disability and recommend further testing of a student that may have a disability, such as dyslexia, based on a discrepancy between verbal performance and written performance (Juneja, 2018). Then other professionals, such as a school psychologist, can conduct an assessment to confirm or reject an official diagnosis. If an official diagnosis is confirmed, additional professionals like a special education teacher can assist the classroom teacher in providing appropriate materials. This support is essential because while classrooms teachers are good at determining students' strengths and weaknesses, they can struggle more with designing and implementing strategies to meet those needs if they are not given support (Gürkana & Doğanay, 2019).

One problem that remains is how a student is diagnosed whether they have an official disability or not. A number of researchers criticize the dual discrepancy/consistency (DDC) model used to determine if a student has a specific learning disability (Beaujean et al., 2018). They claim the DDC model is flawed for three main reasons: (1) it requires that test scores have properties that they fundamentally lack, (2) there is a lack of experimental utility evidence supporting its use, and (3) there is evidence supporting the inability of the method to identify accurately SLDs. To settle the debate, more research needs to be done to support the validity and reliability of the DDC

model or to find an alternative assessment with the desired validity and reliability to identify students with an SLD.

Likewise, valid assessments need to be used to identify a person's multiple intelligences (MI). The Self-efficacy Inventory for MI-Revised (SIMI-R) is one valid assessment for determining a student's multiple intelligences (Tovar et al., 2018). Interpretations of assessments like these depend in part on the researcher's theoretical framework. Some researchers believe that everyone has some of each of the multiple intelligences, so these assessments are used to measure how much of each intelligence a person has (Bayram & Keskin, 2019; Chao-Fernandez et al., 2020; Nugroho & Suparno, 2018). Others believe that individuals have different intelligences, not different levels of each intelligence, so these assessments are used to label individuals by which intelligences they have or do not have (Singh et al., 2017). This is an area where more research is needed before more definite conclusions can be drawn.

#### **STUDENTS WITH MULTIPLE INTELLIGENCES AND DISABILITIES**

A number of tests exist to measure the effect of multiple intelligences and disabilities (El-Banna, 2019; Papatga & Ersol, 2016). A common measurement is reading comprehension (Marquise, 2015; Smyth, 2019; Stevens, 2014), and if a student has a reading disability, proper multiple intelligence instruction can improve their reading comprehension (El-Banna, 2019; Papatga & Ersol, 2016). If instruction only focuses on verbal intelligence, reading comprehension often will not improve, whether the student is at the elementary, junior high, or collegiate level (Marquise, 2015; Smyth, 2019; Stevens, 2014).

Besides reading comprehension, several other achievement tests exist to measure the effect of multiple intelligences and disabilities (Chao-Fernandez et al., 2020). For example, mathematics achievement is another common measurement (Al-Zoubi & Al-Adawi, 2019; Morales et al., 2016). Multiple intelligence(s) instruction has been shown to improve mathematics achievement scores (Morales et al., 2016), even when students are diagnosed with dyscalculia (Al-Zoubi & Al-Adawi, 2019).

The benefits of multiple intelligences extend

beyond academics to improving behavior as well (Morales et al., 2016). Multiple intelligence instruction helped deaf students outperform the control group in terms of career self-efficacy in Rahimi-Pordanjani et al. (2019). Games that incorporate multiple sensory experiences were seen to promote better social skills (Chao-Fernandez et al., 2020; Papanastasiou et al., 2017). These positive behaviors often serve as a means to achieve better academic success.

Finally, of course, multiple intelligence instruction has also been shown to improve the multiple intelligences themselves. The therapy based on a computer-game that was used in a previously mentioned study also improved multiple intelligences in addition to behavior and social skills (Chao-Fernandez et al., 2020). Nugroho and Suprano (2018) focused on verbal intelligence activities to promote further verbal intelligence growth in students with hearing impairments. Bayram and Keskin (2019) worked with adults who had physical handicaps and initially found that logical intelligence was stronger in men than women; however, they also found that adults who reported participating in sports had higher logical intelligence scores than those who did not across both genders. Whether more men than women reported playing sports or not, this suggests that playing sports can help to develop logical intelligence in adults.

#### **MULTIPLE INTELLIGENCES AND MOTIVATION**

Like behaviors, motivation can serve as the means to an academic end. However, motivation can also be an end in itself. As mentioned before, computer-game based music therapy not only improves behaviors and multiple intelligences, but it also improves motivation and self-awareness (Chao-Fernandez et al., 2020). Tsai and Tang (2017) also found motivation to be closely linked to improving other skills as well. They researched using problem-based learning in their work with postsecondary students. The results showed that problem-based learning improved not only the students' motivation but also their engagement and problem-solving abilities.

The final study uses motivation as an end in itself. Hood and Caruthers (2016) wanted to use multiple intelligence instruction to improve the lives of people living with mental illness. Their strategy was called strengths-based therapy and it

incorporated Multiple Intelligence Theory to help people to identify and focus on their strengths instead of their illness. Mental illness typically is not a condition that one cures, but it is a condition that one learns to live with. By using multiple intelligences to identify and focus on strengths, the person with mental illness is more motivated to take control of their own story and no longer be defined by mental illness.

## DISCUSSION

This literature review provides a broad overview of disabilities and multiple intelligences, but there are certain aspects of disabilities that are specific to the postsecondary setting. Disabilities are usually identified in the K–12 setting, so students with disabilities who come to college do not need to be reevaluated. Universities can use previous records, like a student's Individualized Educational Plan, to inform what type of accommodations can and should be made for the student. Modifications are not typically made for college students, and accommodations may change how the student is taught or assessed on content, such as giving the student extended time to finish a test. Modifications change the content that is taught or assessed, so that students with severe disabilities may participate in the regular K–12 setting by having a reduced amount of content to study. College students are responsible for mastering all of the content of a course whether they have a disability or not. Although a student may notify an instructor that they have a disability, a department at the university such as Student Services usually assumes responsibility to notify the instructor and help provide any necessary accommodations.

Two dominant schools of thought on multiple intelligences are apparent in the literature. One is to identify students' multiple intelligences in order to match strategies to meet those needs. The second school of thought is to address all of the intelligences with all of the students, so that everyone's needs will be met in that way.

Matching students' multiple intelligences to instructional strategies has a number of advantages. One case study of a student with autism showed how identifying multiple intelligences in the student helped the teacher create inclusive materials, which indicated that multiple intelligences should play a larger role in special education in the future because

it can help the student in school and on the job (Vasal et al., 2017). Another study of students ages 12–16 compared multiple intelligences to IQ and concluded that tapping into students' intelligences can maximize learning (Singh et al., 2017). Baggerly (2019) conducted a similar study with equal success using high school seniors. Mullen (2017) supports this finding, asserting that teachers at all levels, including the collegiate level, can and should make the ethical decision to do what is best for each individual student based on the student's needs, strengths, and weaknesses.

On the other hand, if a student's multiple intelligences are misdiagnosed, a system that matches diagnoses with strategies may not be as good as using all strategies with all students. A number of studies support the use of Universal Design for Learning (UDL) because it can differentiate instruction based on students' strengths and weaknesses such as multiple intelligences (Swafford & Giordano, 2017). Furthermore, using UDL or a similar approach that addresses all of the multiple intelligences would avoid treating students with disabilities who need differentiated instruction differently than students without disabilities (Ravi & Xavier, 2009). For example, university art students benefited from such an approach to learning information literacy more than the traditional approach (Appleton et al., 2017). All of these studies support the assertion that instruction at the postsecondary level can and should be more inclusive (Dewsbury, 2017). However, there is a downside to this approach as well. Using all of the strategies with all of the students is often seen as a watered-down approach compared to a more targeted strategy (Piltan, 2016), and teachers in these types of classrooms often do not at first differentiate based on students' needs.

## CONCLUSION

Given the two options, it seems like this is an either/or decision on how to best help university students with disabilities in terms of multiple intelligences. Should professors use all the methods with all the students or use those strategies that match the multiple intelligences of their students? Like most difficult questions, the real answer lies somewhere in the middle and favors a both/and response instead of an either/or response. I like to expose my students to all of the strategies based on all of the intelligences, so both they and I have a

similar basis of understanding. With that foundation in place though, I feel it is appropriate to allow students to choose from among options that address various multiple intelligences because they can then make a more informed decision than they could at the beginning of class.

This is also a good way to address a misdiagnosis in terms of multiple intelligences. Diagnostic assessments can make mistakes and indicate a preference for a certain intelligence or way of learning. However, the student knows that is not right and another type of intelligence is stronger or more preferred. The student's background knowledge on multiple intelligences from the beginning of the class allows that decision to be more informed than it otherwise would have been.

Specifically, some intelligences are easier to incorporate into a course than others, like the verbal, logical, and spatial intelligences. Verbal intelligence is one of the easiest to incorporate because every course uses words to communicate whether they are spoken or written. Likewise, logical intelligence is often a part of any course, whether numbers are involved or not, because students are encouraged to support their statements with evidence. Finally, visual documents can be used to further illustrate a point, e.g., a diagram, chart, or political cartoon.

Other intelligences, such as musical, kinesthetic, naturalistic, or existential intelligences, are more difficult to incorporate or take a less direct route to incorporate. Occasionally, a song available online could be used to illustrate a point, or a physical task may be required to teach or show mastery of a concept. In contexts where religion is appropriate to discuss, spiritual intelligence can provide useful insights. Finally, there may be connections to the environment in a given topic. No matter how the above seven intelligences are used, interpersonal and intrapersonal intelligences can be included with them. Interpersonal intelligence is activated in group discussions or projects, while intrapersonal intelligence lends itself more towards personal journals or other self-reflective activities.

### IMPLICATIONS

The purpose of this reflective paper is to address the relationship between multiple intelligences and motivating postsecondary students with disabilities. However, the implications can extend beyond that narrow focus. Education courses are unique because

their means mirror their ends to a great extent. The teacher is teaching how to teach, so incorporating multiple intelligences into any education course would be beneficial whether you are teaching about multiple intelligences or using multiple intelligences to teach other concepts. This would be true whether working with students with disabilities or not.

Each discipline tends towards certain intelligences more than others (Appleton et al., 2017; Viness et al., 2017). English majors tend to be strong in verbal intelligence. Math and science majors, similar to chemistry and physics majors, tend to be more logical. Music majors are typically musical. Art majors tend to be strong in visual intelligence. Sports management majors tend to be more kinesthetic. Psychology majors are typically strong in both interpersonal and intrapersonal intelligences. Biology majors tend to be strong in naturalist intelligence. Finally, philosophy and religious studies majors tend to be more existential.

The last implication is simply teaching in different contexts outside the postsecondary setting. The first one that comes to mind is teaching K–12 because these principles are applicable at any level. The second one that comes to mind, especially writing this in the midst of the COVID-19 crisis, is teaching online or in a blended situation versus in a traditional classroom setting. No matter the delivery or level, the potential benefits of teachers using multiple intelligences with their students to improve motivation and learning are great.

### RECOMMENDATIONS

My recommendations for future research would echo those of other researchers. The first priority would be to focus on the effects of multiple intelligences on motivation with different age groups, i.e., the K–12 population instead of the postsecondary population (Baltaci, 2017; El-Banna, 2019; Rahimi-Pordanjani et al., 2019). The second priority would be to see the effects on different disciplines and majors rather than on just learning in general (El-Banna, 2019; Landin, 2017; Pilten, 2016). The third priority would be to research the effects of specific disabilities instead of disabilities in general (El-Banna, 2019; Vasal et al., 2017). The final priority would be to research the effects of specific intelligences rather than the general effects of using all nine (Handa, 2018).

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