Effects of Mental Health on Student Learning

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Abstract

Learning can be hindered by students' mental health. Given the increased reports of mental health concerns among college students, it is imperative that we understand how best to provide supports to this population to help them learn and succeed. This is particularly significant given the body of research that demonstrates how mental illness may negatively affect student success and degree persistence. In order to best serve this growing population, there are possible supports that can be provided in the classroom embedded into current practices and learning opportunities for all students across the board. This article addresses the connections between learning and mental health, practical takeaways for practitioners, and directions for future research.

Effects of Mental Health on Student Learning

Mental health, although not a new concern, has become increasingly acceptable to discuss in recent years. A growing body of research about college students' mental health concerns underlines the need for educators to consider how mental health might affect students and what courses of action are available. This is imperative given how mental illness may hinder student success (Breslau, Lane, Sampson, & Kessler, 2008; Cranford, Eisenberg, & Serras, 2009; Elion, Wang, Slaney, & French, 2012; Keyes, Eisenberg, Perry, Dube, Kroenke, & Dhingra, 2012; Thompson, Connely, Thomas-Jones, & Eggert, 2013). Even though mental health supports exist on many campuses, research shows that these are often insufficient to meet the demands of the student population (Reetz, Barr, & Krylowicz, 2013; Novotney, 2014).

No research exists on the connection between students in developmental education and mental health; this is problematic given the rising numbers of college students reporting mental health concerns, something that may hinder the success of students placed into developmental education. Nonetheless, there exist links between learning and mental health that should be explored in detail to better understand how instruction can benefit students with mental illness.

There are learning-related supports, such as metacognition, that can be taught in classrooms. This large construct encompasses skills, processes, and awareness related to how one thinks (Dinsmore, Alexander, & Loughlin, 2008; Eccles & Wigfield, 2002; Pintrich, 2012; Zimmerman, 2012). By learning how to understand how one's mind works, it is possible that students experiencing issues of mental health could benefit from learning strategies and theories that integrate metacognition (Miller & Markman, 2007; Park, Edmondson, & Lee, 2012; Sironic & Reeve, 2012; Van Nguyen, Laohasiriwong, Saengsuwan, Thinkhamrop, & Wright, 2015; Walker, Wingate, Obasi, & Joiner, 2008). For instance, building metacognitive awareness could be part of learning about one's learner characteristics, one's learning orientation, and self-regulation (Eccles & Wigfield, 2002; Dinsmore et al., 2008; Nist & Holschuh, 2012; Nist-Olejnik & Holschuh, 2014; Pintrich, 2004, 2012; Zimmerman, 2012). Each of these presents a possible way for students who struggle with mental health to build better coping strategies.

Before examining how learning theory can be implemented to benefit college students with mental health concerns, it is important to understand the impetus behind this area of research. To build such a foundation, the present condition of mental health in postsecondary institutions will be explicated. Then, phenomena related to the interaction between mental health and college demands will be explored, potential solutions for educators will be discussed, and suggestions for future research will be presented.

The State of Mental Health in Colleges

Postsecondary students are reporting a variety of mental health concerns (American College Health Association, 2014; Center for Collegiate Mental Health, 2013; Novotney, 2014). As shown in Table 1, anywhere from 1.3% to 92% of a random sample of college

students reported some kind of mental health concern during the spring semester of 2014 (American College Health Association, 2014). Of most concern might be the percentage of students who report feeling hopeless, overwhelmed (with or without anxiety), and so depressed they struggle to function; these numbers represent the most commonly studied mental illnesses in college students: depression and anxiety (Breslau et al., 2008; Castro & Rice, 2003; Cranford, Eisenberg, Serra, 2009; Elion et al., 2012; Gnilka et al., 2013; Hamdi & Iacono, 2014; Schrick, et al., 2012; Serras et al., 2010).

Table 1

College Students' Self-reported Mental Health Symptoms

Variable[a]	**Male (%)**	**Female (%)**
Hopelessness	40.1	51.5
Feeling overwhelmed	77.7	92.0
Very lonely	52.2	64.7
Very sad	52.8	68.4
Difficulty functioning due to depression	28.0	35.6
Overwhelming anxiety	42.4	60.9
Considered suicide	7.9	8.8
Attempted suicide	1.3	1.4
Engaged in SIB[b]	4.6	8.0

Note. Data represent a random sample of undergraduates from 140 schools. *N* = 66,887. Adapted from "Undergraduate Reference Group Executive Summary: Spring 2014," by American College Health Association, 2014. [a]Self-reported as present within the past 12 months. [b]Self-injurious behavior.

According to reports by the American College Health Association (ACHA), Center for Collegiate Mental Health (CCMH), and the Association for University and College Counseling Center Directors (AUCCCD), statistics such as these have been steadily increasing (Novotney, 2014). As more postsecondary students grapple with mental health concerns, greater demands are placed on campus services, particularly counseling services; in 2013, AUCCCD reported that approximately one third of surveyed counseling centers needed waiting lists due to the volume of students seeking services

(Reetz, Bar, & Krylowicz, 2014). According to the CCMH 2013 report, college students receiving on-campus counseling attended an average of five appointments. Across the 132 institutions of higher education surveyed, this added up to approximately 350,000 total individual counseling appointments (CCMH, 2013), something that doesn't indicate a necessarily overwhelming number of appointments per counseling center, but the impetus behind the need for wait lists still remains. Data from AUCCCD and CCMH emphasize the need for campus mental health services to address the increasing needs of students.

Table 2

College Students' Self-reported Mental Health Diagnoses

Variable[a]	**Male (%)**	**Female (%)**
Anxiety	7.8	17.4
Bipolar Disorder	1.3	1.5
Depression	7.5	14.2
Insomnia	3.0	4.3
Panic Attacks	3.2	8.7
Schizophrenia	0.4	0.1
Depression and Anxiety	4.7	10.4

Note. Data represent a random sample of undergraduates from 140 schools. *N* = 66,887. Adapted from "Undergraduate Reference Group Executive Summary: Spring 2014," by American College Health Association, 2014.
[a]Self-reported as present within the past 12 months.

As seen in Table 2, ACHA's spring 2014 report of students' self-reported mental health diagnoses demonstrates the prevalence of anxiety and depression: 4.7% of males and 10.4% of females reported a diagnosis of both anxiety and depression (ACHA, 2014). This equates almost 10,100 college students diagnosed within the calendar year prior to spring semester 2014 (ACHA, 2014), a number that is staggering when considering the N of 66,887 students does not even begin to represent how many college students might be diagnosed in a given year across the nation. In addition, the CCMH 2013 report showed increasing numbers of college students reporting having attended counseling, taken medication, or been hospitalized

for mental health concerns between the 2010-2011 and 2012-2013 academic years. They also found an increase across reported self-injurious behavior, suicide ideation, and suicide attempts (CCMH, 2013). Most notably, there was an 6.5% increase in suicide ideation (CCMH, 2013). Data from CCMH (2013) also indicates a smaller increase in suicide attempt (from 7.9% to 8.8%) and self-injurious behavior (21.8% to 23.2%). Although these increases are marginal, they still demonstrate a steady rise in suicide attempts and self-injurious behavior in college students, something that should be mediated as these are serious issues. The full complement of data is presented in Table 3.

Table 3

College Students' Self-reported Mental Health Concerns

	2010-2011 (%)	**2012-2013 (%)**	**% increase**
Attended counseling[a]	45.2	48.7	3.5
Taken medication[a]	31.0	32.9	1.9
Hospitalized[a]	7.0	10.3	3.3
SIB[b] without suicidal intent	21.8	23.2	1.4
Suicide ideation	23.8	30.3	6.5
Suicide attempt	7.9	8.8	0.8

Note. Data for the 2010-2011 academic year represent a sample of 97 institutions with 82,611 counseling clients; 2012-2013 data represent a sample of 132 institutions with 95,109 counseling clients. Adapted from "Center for Collegiate Mental Health 2013 Annual Report," by Center for Collegiate Mental Health, 2013.

[a]These items are specifically for mental health concerns. [b]Self-injurious behavior.

Mental Health and Academic Success

Mental illness has been found to relate to decreased academic success and degree completion (Breslau et al., 2008; Cranford et al., 2009; Elion et al., 2012; Keyes et al., 2012; Thompson et al., 2013). The most frequently studied mental illnesses studied in connection to academic success are depression and anxiety, often as mediated by perfectionism, meaning there is an interaction between types of

perfectionism, depression, and anxiety. The following section will address these issues in females; it is worth noting that the extant literature has not explored this issue in males.

Depression, anxiety, and perfectionism in women

Perfectionism, defined in a multitude of ways, may lead to both depression and anxiety in women of all ethnic/racial groups who attend college (Castro & Rice, 2003; Elion et al., 2012; Gnilka, Ashby, & Noble, 2013; Schrick, Sharp, Zvonkovic, & Reifman, 2012; Walker, Wingate, Obasi, & Joiner, 2008). Although women across ethnicities and races may feel pressure—either internal or external—to present perfectionism, the co-occurrence of perfectionism and depression or anxiety varies among these groups (Castro & Rice, 2003; Elion et al., 2012; Gnilka et al., 2013; Schrick et al., 2012; Stoeber et al., 2014; Walker et al., 2008). In particular, African-American and Asian-American women tend towards maladaptive perfectionism at greater rates than European-American women (Castro & Rice, 2003; Elion et al., 2012; Walker et al., 2008).

Maladaptive perfectionism, the reluctance or inability to accept that one cannot always achieve perfection, relates to depression and suicide ideation in African-American women in connection with acculturative stress, something facing racial/ethnic minorities who have to balance home culture with academic (i.e., more White) culture (Elion et al, 2012; Polanco-Roman & Miranda, 2013; Walker et al., 2008). For both African-American and Asian-American women, maladaptive perfectionism relates to depression and suicide ideation in connection with desire to please others such as family members (Castro & Rice, 2003). These findings have additionally been linked to lower engagement and academic performance as measured by GPA (Castro & Rice, 2003; Elion et al., 2012; Gnilka et al., 2013; Renshaw & Cohen, 2014; Schrick et al., 2012; Stoeber et al., 2014).

Although these measures do not capture the nuance of the participants' educational experiences, they are indicative of the potential issues a subpopulation of female students could encounter. Concerning maladaptive perfectionism in particular, links can be drawn to learning theory via learner characteristics and attribution theory, here referring to what variables students attribute their success or lack thereof to. A student's learner characteristics include

variables such as intelligence, learning ability, interest, and stress and time management (Bransford, as cited by Holschuh, n.d.; Nist-Olejnik & Holschuh, 2014); it can be posited that maladaptive perfectionists may exhibit low interest in the face of academic adversity, as this is a common symptom of mental illnesses like depression, as well as poor stress and time management skills (Miller & Markham, 2007; Park et al., 2012; Van Nguyen et al., 2015).

Another component that could function to benefit or be detrimental to student learning and success is attribution theory, which includes part of learner characteristics (Eccles & Wigfield, 2002; Holschuh, Nist, & Olejnik, 2001; Zimmerman, 2012). Attribution theory explains the steps involved in students' attributions for their relative academic success; those who attribute their success or failure to external, uncontrollable forces, such as teachers or luck instead of individual effort and ability, are less likely to strive either to master material or perform well (Eccles & Wigfield, 2002; Holschuh et al., 2001). Maladaptive perfectionists, through their pursuit of an appearance of complete control and success (Castro & Rice, 2003; Crocker et al., 2009; Elion et al., 2012; Gnilka, Ashby, & Noble, 2013; Schrick et al., 2012; Sironic & Reeve, 2012; Stoeber et al., 2014; Walker et al., 2008), seem unlikely to have a mastery learning orientation, as this requires a student to wish to improve regardless of grade (Eccles & Wigfield, 2002; Zimmerman, 2012). The learning orientation perhaps seen most predominantly in these students is performance approach (i.e., learning to perform well on assignments, not learning to master a subject), although this has not been investigated. Performance approach could apply because students with this orientation strive to prove themselves academically to others (i.e., in order to impress); adding to the outward appearance of perfection could explain this approach to learning (Eccles & Wigfield, 2002; Zimmerman, 2012).

Self-regulation as part of the college transition

Self-regulatory skills, processes one can use to work towards a goal (e.g., behavioral, cognitive, metacognitive), can be applied inside and outside of the classroom, much like metacognitive awareness of learner characteristics and learning orientations (Dinsmore et al., 2008; Pintrich, 2004, 2012; Zimmerman, 2012). In theory, if students

build self-regulatory skills and use them strategically, they will learn more optimally and experience greater success than if they did not self-regulate; researchers have investigated how self-regulation relates to college student mental health and college adjustment (Belch, 2011; Crocker et al., 2009; Miller & Markman, 2007; Park et al., 2012; Van Nguyen et al., 2015; Zimmerman, 2012). Although results haven't been identical across studies given the varying research questions and designs, there is an indication that the use of self-regulatory skills assists in both areas (Belch, 2011; Park et al., 2012; Van Nguyen et al., 2015).

For example, Van Nguyen, Laohasiriwong, Saengsuwan, Thinkhamrop, and Wright (2015) found a statistically significant negative correlation between depression and student self-efficacy, help-seeking, and metacognitive awareness regarding optimal study times and areas. It is possible, though not definitive, to draw the conclusion that self-regulatory skills are beneficial to student mental health when implemented (Crocker et al., 2009; Miller & Markman, 2007; Park et al, 2012; Van Nguyen et al., 2015). A similar conclusion regarding successful transition to college can be drawn from Park, Edmondson, and Lee's (2012) study, as they found a statistically significant correlation between use of self-regulatory processes and adjustment to college, here defined as positive mental health (e.g., low levels of stress or anxiety, high self-esteem, no issues with academic performance) maintained over the first year of college.

Given that self-regulation comprises using forethought (e.g., setting goals), self-observation, and self-reflection (Dinsmore et al., 2008; Pintrich, 2004, 2012; Zimmerman, 2012), it is not surprising that these skills are important to a successful transition to college. All students, not limited to those with mental health concerns, can benefit from application of these self-regulatory skills, particularly as it relates to their stress, time management, and ability to be flexible to meet the demands of varying situations (Bransford, as cited by Holschuh, n.d.; Nist & Holschuh, 2012; Nist-Olejnik & Holschuh, 2014; Park et al., 2012; Pintrich, 2004, 2012; Van Nguyen et al., 2015; Zimmerman, 2012). These skills can be used to succeed in academics as a way of making the learning process active, effective, and continual (Bransford, as cited by Holschuh, n.d.; Nist &

Holschuh, 2012; Nist-Olejnik & Holschuh, 2012; Pintrich, 2004, 2012; Zimmerman, 2012). If applied outside of the classroom—to situations like those students with mental illness might face, such as building a positive self-image—self-regulatory processes could prove fruitful in managing everyday concerns that could interfere with learning (Belch, 2011; Crocker et al., 2009; Park et al., 2012; Van Nguyen et al., 2015).

Uniting Learning Theory and Mental Health: Suggestions for Practice

In and of itself, mental health issues cannot be eradicated; college students will likely continue to encounter some kind of mental illness, diagnosed, undiagnosed, long-term, or temporary (ACHA, 2014; Belch, 2011; Breslau et al., 2008; CCMH, 2013; Novotney, 2014; Reetz et al., 2014). Given its prevalence in college student populations, student mental illness is a problem educators may need to be prepared to face, and strategically integrating learning strategies and theories into the classroom may provide students with some tools they can use (Crocker et al., 2009; Elion et al., 2012; Miller & Markman, 2007; Park et al., 2012; Polanco-Roman & Miranda, 2013; Van Nguyen, 2015; Walker et al., 2008). This learning process will require will and effort on the part of the student as well as the educator (Nist & Holschuh, 2012; Pintrich, 2012). If students can learn these strategies, transfer them from academic to nonacademic (i.e., mental illness-related) settings, and adapt them to specific situations, they have the ability to apply learning theory to learning about and understanding themselves as well as flexible tools for students to use in the classroom (Committee on Developments in the Science of Learning, 2000; Pintrich, 2004, 2012; Zimmerman, 2012).

The overarching theme within the myriad theories and strategies students can use to ameliorate the effects of mental illness on academic performance is metacognition (Crocker et al., 2009; Elion et al., 2012; Renshaw & Cohen, 2014; Sironic & Reeve, 2012; Park et al., 2012; Polanco-Roman & Miranda, 2012; Van Nguyen et al., 2015; Walker et al., 2008). Coming to understand one's learner characteristics and orientation alongside how to self-regulate learning all involve a requisite amount of self-awareness: all three necessitate

attention to the self, particularly how one functions and thinks (Dinsmore et al., 2008; Eccles & Wigfield, 2002; Muis & Franco, 2009a, 2009b; Nist & Holschuh, 2012; Nist-Olejnik & Holschuh, 2014; Pintrich, 2004, 2012; Zimmerman, 2012). This forms a starting point for teaching transferrable (i.e., academic to the academic/mental health interaction), flexible skills to students. Metacognitive awareness, however, seems most promising as a way to improve how students experience mental illness across various settings when metacognition becomes one part of a larger picture of learning and self-management strategies (Crocker et al., 2009; Elion et al., 2012; Sironic & Reeve, 2012; Park et al., 2012; Van Nguyen et al., 2015; Walker et al., 2008). Regardless of the approach, it is imperative that instructors are explicit in their explanations of how self-regulatory and metacognitive skills can transfer from academic to nonacademic contexts.

The Role of Metacognitive Awareness in Learning and Mental Health

Metacognitive awareness, thinking about one's thinking, undergirds all of these learning strategies (Committee, 2000; Dinsmore et al., 2008; Eccles & Wigfield, 2002; Flavell, as cited by Dinsmore et al., 2008; Nist & Holschuh, 2012; Nist-Olejnik & Holschuh, 2014; Pintrich, 2004, 2012; Zimmerman, 2012). Because it encompasses awareness of oneself, how one's mind works, and what strategies work best for that individual (Muis & Franco, 2009a, 2009b; Pintrich, 2004, 2012; Zimmerman, 2012), metacognition is a prime example of a potential strategy applicable to the issue of college students experiencing mental illness and their learning processes. If the information is delivered in a not-heavily-contextualized manner, students can be shown the possibility of how it can apply to their everyday lives and potentially make that cognitive transfer (Committee, 2000; Zimmerman, 2012).

If students with mental health concerns are able to transfer metacognitive skills to their everyday lives, they have tools to both assist them in academics and their personal lives (Crocker et al., 2009; Elion et al., 2012; Sironic & Reeve, 2012; Park et al., 2012; Polanco-Roman et al., 2013; Van Nguyen et al., 2015; Walker et al., 2008). This depends upon two conditions: (a) effective instruction about

metacognition and (b) students' likelihood of applying it outside of academic contexts (Committee, 2000; Nist & Holschuh, 2012; Pintrich, 2012; Zimmerman, 2012).

Effective instruction in learning theories or strategies such as metacognitive skills requires that both the instructor and student take an active approach towards the material (Pintrich, 2012). Such instruction should be explicit—explicating what metacognition is and how students can use it in different situations (Committee, 2000; Nist & Holschuh, 2012; Pintrich, 2012; Zimmerman, 2012). It should also be conducive to students' development of transferability of knowledge to other contexts like the everyday (Committee, 2000). In order to accomplish this, instructors likely need to demonstrate how metacognition applies across situations because students might not make the cognitive leap themselves as novice learners (Committee, 2000; Muis & Franco, 2009a, 2009b; Nist & Holschuh, 2012; Pintrich, 2012; Zimmerman, 2012). This practice should further assist students in the transfer process because of its lack of precise context; when information is too highly contextualized, students are less likely to be able to transfer it to or modify it for different situations (Committee, 2000; Muis & Franco, 2009a, 2009b; Nist & Holschuh, 2012; Pintrich, 2012; Zimmerman, 2012).

Part of this explicit instruction in transferring the strategy could be how it applies to common issues like stress. Given the stigma attached to and the sensitive nature of mental illness, it would be desirable to couch its applicability in terms of a symptom all students experience: stress. Again, to keep the idea of flexibility open, this application would need to be presented as one use, not the definitive use (Committee, 2000).

If applied in mental health contexts, students' metacognitive awareness could assist them in seeing their learner characteristics, their learning orientations, and their self-regulatory skills (Belch, 2011; Crocker et al., 2009; Elion et al., 2012; Park et al., 2012; Polanco-Roman & Miranda, 2013; Sironic & Reeve, 2012; Walker et al., 2008; Van Nguyen, 2015). This could be the first step towards effecting change in one's approach to learning and functioning optimally in the context of experiencing mental illness. Students could come to define their learner characteristics through careful

observation and reflection, particularly time and stress management, perhaps leading them to consider whether these characteristics are changeable as well as how they could be changed (Belch, 2011; Crocker et al., 2009; Eccles & Wigfield, 2002; Holschuh, Nist, & Olejnik, 2001; Miller & Markman, 2007; Moore, 2007; Nist & Holschuh, 2012; Nist-Olejnik & Holschuh, 2014; Pintrich, 2004, 2012; Zimmerman, 2012). If students are able to apply these theories to their mental health concerns, it seems possible they could discover the importance of help-seeking in this situation, perhaps leading them to utilize campus resources (Belch, 2011; Crocker et al., 2009; Miller & Markman, 2007; Park et al., 2012; Van Nguyen et al., 2015; Zimmerman, 2012). Use of metacognitive awareness could also provoke student thought about how college students with mental illness view themselves. By considering one's personal characteristics and autonomy or agency in creating change in them, perhaps a belief in agency could be sparked (Eccles & Wigfield, 2002; Moore, 2007; Nist & Holschuh, 2012; Zimmerman, 2012).

Furthermore, when viewed in both academic and nonacademic contexts, examining one's learner characteristics could form a bridge to discussing and evaluating one's learning orientation. In the case of perceived need for perfectionism among women (Elion et al., 2012; Polanco-Roman & Miranda, 2013; Sironic & Reeve, 2012; Walker et al., 2008), the learning orientations present are likely performance approach in maladaptive perfectionists and mastery approach in adaptive perfectionists (Eccles & Wigfield, 2002; Zimmerman, 2012). Maladaptive perfectionists seem less apt to modify their behaviors in response to adversity, thus they may strive to succeed because they want validation (Crocker et al., 2009; Elion et al., 2012; Polanco-Roman & Miranda, 2013; Walker et al., 2008; Zimmerman, 2012). This means students who are maladaptive perfectionists are more likely to take a performance approach in the classroom, seeking only to impress and perform well, whereas adaptive perfectionists are more apt to adapt their learning strategies with a goal of mastery learning. The key here is that adaptive perfectionists, as opposed to maladaptive perfectionists, are more likely to engage in deeper learning.

As with learner characteristics, learning orientations should be

discussed in detail to foster internalizing the concept (Committee, 2000; Nist & Holschuh, 2012; Pintrich, 2012; Zimmerman, 2012). Individual orientations could be defined and accompanied by general characteristics and/or a scenario to provide a general basis for talking about learning orientations. It would be desirable to ask students to spend time reflecting, perhaps with guided questions, on their learning orientations (Committee, 2000; Nist & Holschuh, 2012; Pintrich, 2004, 2012; Zimmerman, 2012). A potentially effective tool to deepen students' required thinking and application could be asking students to consider if/where their learning orientations differ. This could demonstrate how context informs learning approaches. If internalized and transferred from a classroom to everyday situation, being aware of how one approaches learning could influence maladaptive perfectionists to consider their learning orientations and perhaps how and when they are beneficial or detrimental (Committee, 2000; Crocker et al., 2009; Eccles & Wigfield, 2002; Elion et al., 2012; Holschuh et al., 2001; Moore, 2007; Nist & Holschuh, 2012; Sironic & Reeve, 2012; Walker et al., 2008; Zimmerman, 2012).

A larger system encompassing the two previous constructs is self-regulation (Eccles & Wigfield, 2002; Pintrich, 2004; Zimmerman, 2012). Both learner characteristics and learning orientations fall under the forethought phase of self-regulated learning as defined by Zimmerman (2012). Zimmerman's forethought phase includes the construct "learning goal orientation" (p. 221), another way of phrasing how one approaches learning (e.g., as a performance-approach or mastery-approach student). It also includes students' beliefs about their self-efficacy, what their performance outcome will be, and their interest level for the task at hand, which are components of learner characteristics (Bransford, as cited by Holschuh, n.d.; Nist & Holschuh, 2012; Nist-Olejnik & Holschuh, 2014; Pintrich, 2004; Zimmerman, 2012).

Recommendations for Research

Although literature exists where researchers have explored the link between mental health and college performance, more investigation is needed because this is not a curable issue that will disappear. College student mental health will likely remain part of the conversation about the challenges that students face. Some

researchers actively seek approaches to ameliorate the problems posed by mental illness from an institutional or cultural approach but not from a learning-centered approach. Educators and students alike could benefit from additional research in terms of how to present solutions inside the classroom.

Because of the chance that mental illness will extend beyond one semester, assuming the individual has successfully internalized and integrated what they learned about learning outside of the classroom, it would benefit all parties if longitudinal research was conducted. This could explore how well the strategies taught are retained and used by students in nonacademic settings. Conducting such research would serve two purposes: to evaluate the efficacy of teaching how these metacognitive skills apply outside of class and to investigate how long the strategies are retained and whether they're successfully applied.

Before recommending that instructors across the board implement learning theory instruction aimed at transferring knowledge to outside-of-school situations, it would be necessary to test the hypothesis that such knowledge is being transferred and applied. If the tools presented to students experiencing mental illness are not being used, then instruction would need to be recalibrated and its effects researched again.

Then, if the reliability and validity of the instruction was established, it would be desirable to examine its effects over multiple semesters, perhaps starting with the first year of college. During the first year, students may need to make substantial adjustments to succeed (Belch, 2011; Park et al., 2012). Teaching and researching the efficacy of metacognitive awareness as applied to mental health could provide insight into how learning theory can be used to help students function and develop in the nonacademic realm as well as in the classroom.

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