

Mental health promoting communities of online learning

Natalie Frandsen, RN, MN, PhD Candidate

E: nfrandsen@uvic.ca



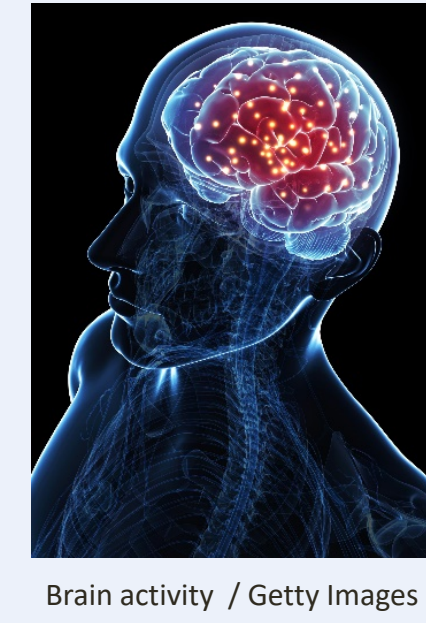
Introduction

The number of students enrolled in higher education with mental-health-related issues is increasing (American College Health Association [ACHA], 2016; Kucirka, 2017; Marsh & Wilcoxon, 2015) alongside growing numbers of students taking courses online (Donovan et al., 2019; Ostrowski et al., 2017). Between 2007 and 2017, mental-illness diagnoses rose from 22% to 36% among college students (Lipson et al., 2018). The learning challenges and subsequent academic performance issues experienced by students with mental-health-related disabilities studying online is not well understood (McManus et al., 2017). However, we can postulate potential factors drawing from learning theories, the relationship between mental-health-related symptoms and academic performance, and learning design.

Influences on Learning

Executive Functioning

Executive functioning encompasses cognitive processes inclusive of three inter-related skills: *working memory*, *inhibitory control* and *cognitive flexibility* (Diamond & Ling, 2016). From these, other executive functions are built, such as problem-solving, controlled attention, fluency, abstract thinking, reasoning, meta-cognition, self-regulation, planning, and sequencing complex actions (Chan et al., 2008; Diamond & Ling, 2016; Hammar & Årdal, 2009). Executive functions allow a person to plan for the future, reflect on the past, complete tasks in a timely manner, sustain effort over time, manage emotions and effectively socialize with others (Centre for ADHD Awareness Canada [CACCAC], 2021; Gilbert & Burgess, 2008; O'Rourke et al., 2018; Parker & Boutelle, 2009).



Brain activity / Getty Images

Learning Design in Online Environments

Designing for learning involves making evidence-based decisions about developing learning outcomes, assessment tasks, learning activities and content resources (Dalziel, 2016). Online learning (commonly called e-learning and distance learning) has existed for decades, although the COVID-19 pandemic has highlighted this type of learning environment (Barbour et al., 2020). "Online learning" is not a homogenous modality within technology-mediated environments. Common iterations of online learning include asynchronous, synchronous and blended.

Mental Illness and Academic Performance

"Mental illness" refers collectively to all mental disorders. Mental illnesses affect the way people think, feel and behave, often in combination. Mental illnesses can have a profound impact on a person's life because the symptoms affect functioning in social, work and educational activities (APA, 2020). Like other health issues, mental illnesses are the result of complex interactions of various economic, genetic, social, psychological and biological factors known as the determinants of health (DOH) (PHAC, 2016; 2020). In 2016, one-quarter of post-secondary students in Canada reported having been diagnosed or treated for at least one mental health condition in the last 12 months, with anxiety and depression being the most common (American College Health Assessment, 2016).

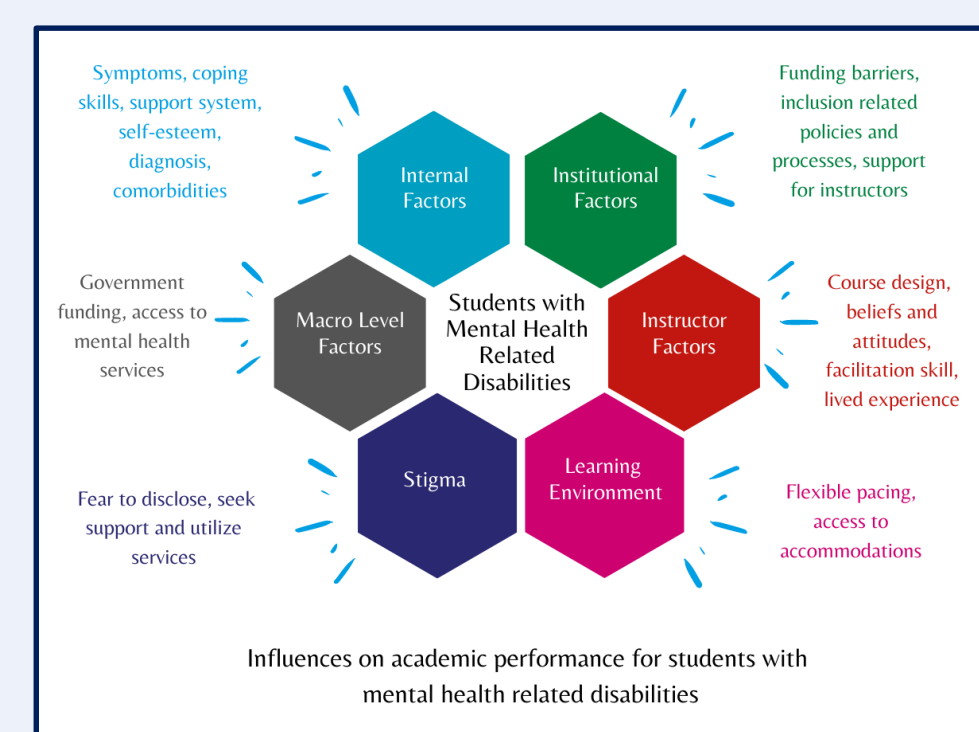


Mood & Anxiety Disorders

Mood disorders are characterized by elevated or depressed moods, resulting in alterations in the way a person thinks, feels and behaves (Government of Canada, 2006; PHAC, 2016). The prevalence of mood disorders among Canadians between the ages of 18–34 years was 11.7% in 2019 (Statistics Canada, 2021). It is estimated that 12.6% of Canadians over the age of 14 will experience a mood disorder at some point during their life (Pearson et al., 2018). Major depressive disorder, bipolar disorder, dysthymic disorder and perinatal depression are the four main types of mood disorders (PHAC, 2016).

Anxiety is a normal response to stress and can be helpful in certain situations (i.e., acute stress enhances performance). What differentiates anxiety disorders (AD) from anxiety or nervousness is the intensity and impact of feelings (Anxiety Canada, n.d.; Centre for Addictions and Mental Health [CAMH], 2021a). ADs are characterized by excessive and persistent feelings of apprehension, worry and fear that affect behaviours, thoughts, emotions and physical health (PHAC, 2016). Statistics from the World Health Organization (WHO), indicate a 12-month prevalence rate of 11.7% for college students (Auerbach et al., 2016). The main types of anxiety disorder: generalized anxiety disorder, post-traumatic stress disorder, social anxiety disorder, specific phobias (e.g., to spiders), obsessive-compulsive disorder, agoraphobia and panic disorder (PHAC, 2016).

Influences on Academic Performance for Students with Mental-Health-Related Challenges



Opportunities to Improve Academic Performance

Mental Health Continuum Model

Health-promoting universities and colleges infuse health into their daily operations and academic mandates (Okanagan Charter, 2015). Positive mental health is the capacity of people to feel, think and act in ways that enhance enjoyment in life and allow them to deal with life's challenges (PHAC, 2014). The Mental Health Commission of Canada (MHCC) created the mental-health continuum model to show the full spectrum of mental health. The model provides a clear representation of the range of mental wellness. The continuum allows individuals to identify indicators of declining or poor mental health in themselves and others, stresses that individuals can move bi-directionally along the continuum, and teaches appropriate actions at each point along the continuum (MHCC, 2018). This model can be useful for course designers, instructors and students with or without a diagnosed mental disorder. The action items listed under the "healthy" and "reacting" points on the continuum are practical from the perspectives of mental health promotion and learning design. For example, courses can be designed to break larger assignments and concepts into "chunks," which aligns with what we know about scaffolding (Reiser & Tabak, 2014) and mental-health promotion.

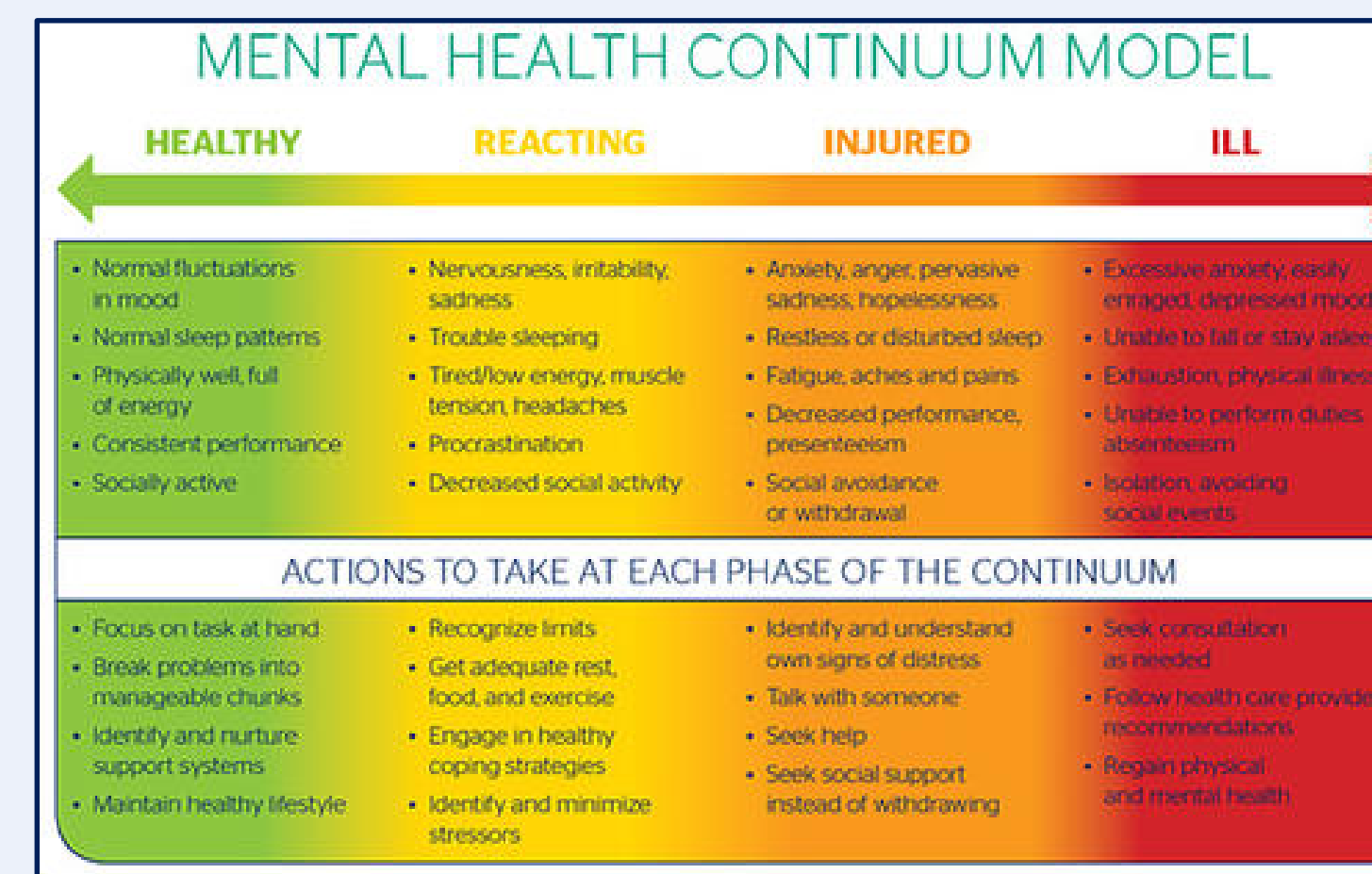
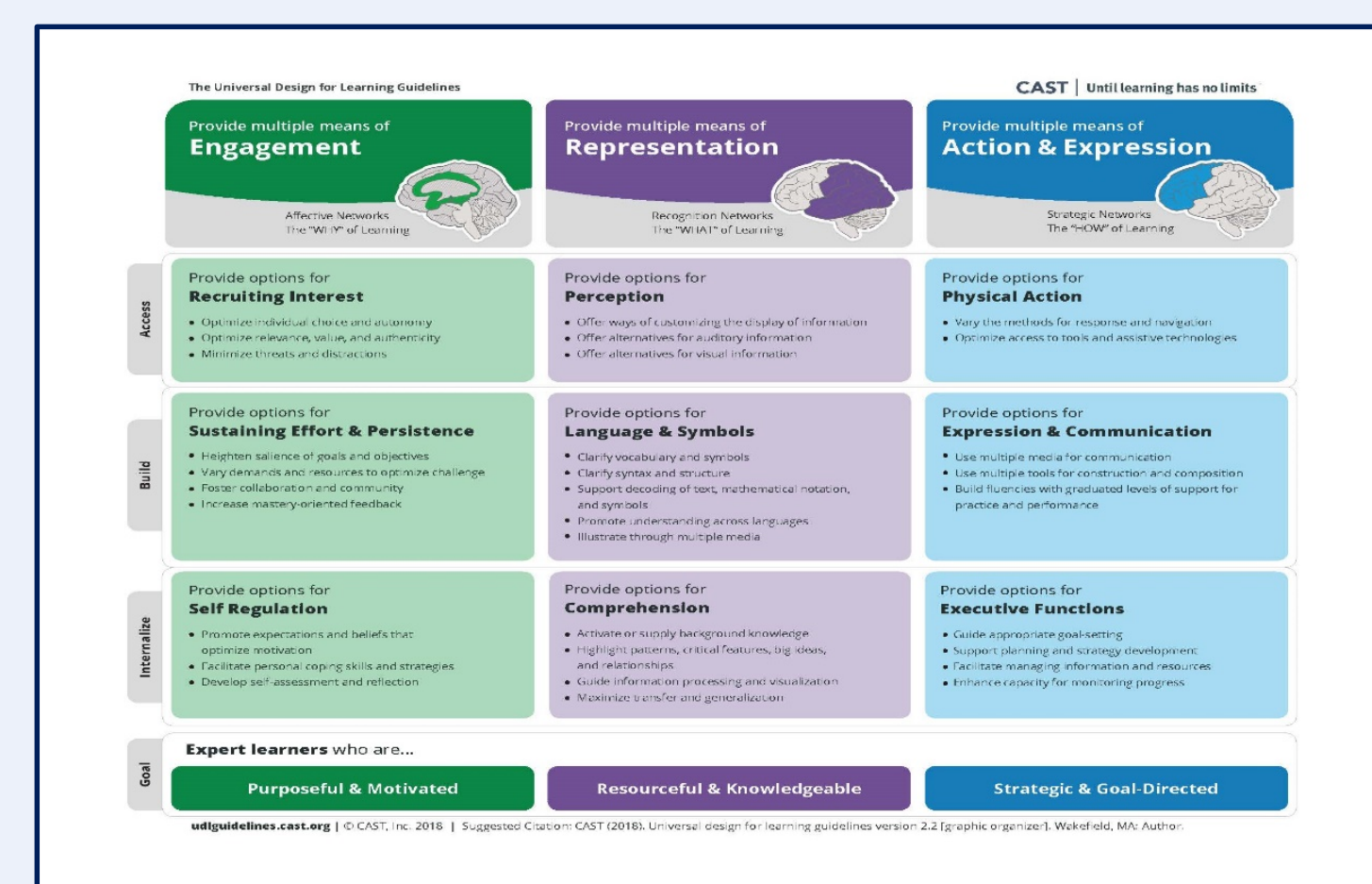


Figure 1: Mental Health Continuum Model. Reprinted from <https://theworkingmind.ca/working-mind>. © 2013 MHCC.

Universal Design for Learning (UDL)

The UDL Framework was created in the 1980s, widely adopted and recently revised (Centre for Applied Special Technologies [CAST], 2021). UDL is an effective philosophy, framework and set of principles for creating and delivering course materials to diverse students while improving the learning process for all students (Capp, 2017; Hall, Meyer & Rose, 2012). Developed based on research focused on the nature of learning, the framework provides guidance to optimize teaching and learning for all people. There are nine UDL guidelines based upon three main principles: providing multiple means of engagement, representation and action/expression (CAST, 2018). Given what we know about how people learn, effective learning-design principles and the learning challenges related to mental-health-related disabilities, integrating UDL into our design decisions will promote learning while mitigating some of the challenges experienced by students with mental-health-related disabilities.



Mental Health Promoting Learning Designs

Given how fundamental executive functioning is to learning, and how the three core executive-function skills (i.e., inhibitory control, working memory and cognitive flexibility) are impacted by mood and anxiety disorders, we have the opportunity to design learning environments that limit elements that impair executive functions and enhance elements that support them. While educators do not have complete control over the learning environments in which they teach, they do have some degree of influence on design elements (e.g., assessment tasks, learning activities, course content). For example, to reduce the demands on working memory (to preserve or promote reasoning, problem-solving and attentiveness), live lectures should be recorded and transcribed for future viewing. To reduce cognitive-flexibility demands (and preserve or promote problem-solving and goal-achievement), minimize "the unexpected" by articulating clear expectations. To reduce demands on inhibitory control, break up large assignments into smaller tasks and limit superfluous information from course sites. To promote development of the three core executive-function skills, thereby reducing the impact of mental-health-related symptoms, create online-learning environments where students develop confidence through social inclusion and supportive and regular feedback. Where possible, scaffold learning through progressive cognitive challenges and integrate physical activity into learning activities. Table 1 illustrates possible linkages between common online-learning engagement activities and mental-health-related performance issues.

Executive Functioning Consideration	Mental Health Promoting Design
Promote reasoning, problem solving and attentiveness by reducing demands on working memory	→ Record and transcribe live lectures → Permit "video-off" for students in synchronous lectures/labs → Provide access to course materials and assessment information @ start of course → Provide asynchronous discussion options
Preserve or promote problem solving and goal-achievement by reducing cognitive-flexibility demands and minimizing "the unexpected"	→ Articulate clear expectations in course syllabus → Offer choices within assignments (e.g., choose 2 of the following 4 questions) → Offer choice for online discussion posts (e.g., text, audio, video, infographic)
Develop the three core executive-function skills, reducing the impact of mental-health-related symptoms	→ Create and participate in engaging online learning environments → Promote social inclusion → Be supportive and relational → Provide regular and constructive feedback → Provide opportunities to "fail" (i.e., iterative assessment) → Consider scaffolding across the suite of assessments (e.g., weekly discussion posts contribute to a larger assignment)
Reduce demands on inhibitory control	→ Break up large assignments into smaller tasks → Limit superfluous information from course sites → Offer flexibility in timing for discussion posts (e.g., post between Monday and Thursday) → Use timed tests judiciously

Future Research

Healthy Built Learning Environment

Given the complex and intersecting influences on students within online learning environments, we would benefit from learning from disciplines that take a macro-view of environments. Within the field of public health, the concept of "healthy built environment" is embraced. The "built environment" refers to human-made or -modified physical surroundings in which people live, work and play (BC Centre for Disease Control [BCCDC], 2020). This concept is worthy of consideration for the design of future online-learning communities. According to the literature, a key factor in the success of healthy-built-environment initiatives is shared understanding of the important influence that our environment has on population health, and the role each stakeholder has to play (BCCDC, 2020). With some minor revisions to the following description of the healthy built environment, there is an opportunity to use this to inform our learning designs." A key factor in the success of *healthy built learning environment* initiatives is shared understanding of the important influence that our environment has on population health, *learning*, and the role each stakeholder has to play."

Conclusions

Canadian university students are reporting significant impacts of mental-health-related issues on their academic performance (ACHA, 2016), with anxiety (32.5%), depression (20.9%) and stress (42.2%) being the most common causes. As more students continue to study online (either by choice or by necessity), it is imperative that educators, learning scientists and learning-design professionals understand the assets, needs and challenges of their students, as well as the full range of opportunities afforded by the tools and technology at our disposal. Through careful consideration of assets and challenges, we can choose the appropriate technology, design the most engaging online communities, draw from the most relevant pedagogy and facilitate the best learning outcomes. The global pandemic presents an unprecedented opportunity for those working in the field, not only to understand the limits and possibilities of online learning, but also to propel the field forward. My research will capitalize on this unique set of circumstances to advance our understanding of learning design for optimal mental health. Drawing from foundational concepts about learning, learning design and mental health promotion, I summarized key features of mood and anxiety disorders in relation to potential challenges and opportunities within online learning environments.

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