Centering Mental Health and Wellbeing in Practices of Mentoring Undergraduate Research

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Introduction

For at least the last decade, there has been increasing concern about mental health and wellness in college students (Lipson et al., 2019). For example, there have been significant increases in college students reporting anxiety and depressive symptoms and diagnosis, as well as suicidal ideation (Lipson et al., 2019; Lipson et al., 2022). Internationally, college and university campuses have shared in this growing mental health crisis. A large literature review across 40 countries by Rotenstein et al. (2016) showed depressive symptoms impacting over a quarter of medical students. These mental health concerns were enhanced due to the COVID-19 pandemic and the restrictions that resulted from the need for social distancing and isolation (Lee et al., 2021; Wilson et al., 2021; Xiang et al., 2022). This increased concern for mental health in adolescents has led the U.S. Surgeon General and the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, and Children's Hospital Association (U.S. Department of Health and Human Services, 2021) to declare this a crisis and national emergency.

A recent study found that 87% of faculty and staff reported that they believe that students' mental health had worsened as a result of the COVID-19 pandemic (Boston University School of Public Health et al., 2021). The pandemic has also reshaped the undergraduate research experience, including shutting down data collection completely or moving it to virtual spaces when possible (Forrester, 2021; Hall et al., 2021). With this in mind, it would be beneficial if proactive, evidenced based approaches were used to improve college student mental health. To improve mental health in college students, it is important to keep in mind that mental health is not synonymous with mental illness or the absence of mental illness. It should be embraced as a positive construct that individuals work to improve in the same way they do with physical health. The best way to see this is through the definition set forth by the World Health Organization (Pan American Health Organization, n.d.):

> "Mental health is a state of well-being in which an individual realizes [their] own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community."

This definition portrays a positive view of mental health where "we are better able to connect, function, cope and thrive" (World Health Organization, 2022, p. xiv). What is lacking from this definition is the discussion about anxiety and depression, the focus of many conversations about mental health. Notwithstanding diagnosis of mental illness, all people should seek out opportunities to enhance their mental health or the health of others. This paper will discuss two frameworks, the

Act-Belong-Commit for Mental Health (Donovan and Anwar-McHenry, 2014) and the Salient Practices Framework for Undergraduate Research Mentoring (Shanahan et al., 2015). When considered together, these two frameworks can be implemented in college students conducting undergraduate research to help prioritize their mental health.

The theory linking mentored undergraduate research using the Salient Practices Framework to enhanced wellbeing is based on an understanding of the psychology of student motivation (Walkington & Ommering, 2022). Two key ideas underpin this linkage, one relating to the nature of the research (in terms of content and process) and the other relating to student needs (their motivations and underlying psychological needs). The first is Wald and Harland's (2017) work on the importance of authenticity in undergraduate research. Wald and Harland (2017) proposed that ownership, responsibility, and care characterize authentic research. At the undergraduate level, this translates to ownership of the research question, responsibility for the work involved, and care for peer learners. Beyond the authentic characteristics of the research itself, understanding what this means for individual students engaging in the research is crucial. The second element is the psychological needs of the students and how undergraduate research experiences have the potential to meet them. Working with the intrinsic motivation of individual students is central to satisfaction needs. Ryan and Deci's (2017) self-determination theory reveals how student's feelings of autonomy, relatedness, and competence as they engage in research help explain how students are motivated by research that meets their basic psychological needs. The quality of mentoring can be of crucial importance. As Walkington and Ommering (2022) explain, the ten salient practices and twelve tips (Ommering et al, 2020) can guide mentors in embedding authentic undergraduate research opportunities for all students. Similarly, this article argues that the Act-Belong-Commit model provides a simple framing of the ten salient practices to map out ways to act, belong, and commit for wider wellbeing of the undergraduate mentees.

Act-Belong-Commit for Mental Health
One public health, research-based model for helping people become more mentally healthy is the Act-Belong-Commit (ABC) framework (Donovan & Anwar-McHenry, 2014). This framework has been implemented in Western Australia and Denmark as a comprehensive public health campaign with positive impacts on varying populations (Hinrichsen et al., 2020; Donovan et al. 2016). Act-Belong-Commit provides an excellent, simple, and easy to understand model that can be applied to undergraduate research and many other contexts for undergraduate students. In this model, *Act* translates to staying active (e.g., physical, spiritual, social). *Belong* refers to staying connected to friends, family, and others through your activities. *Commit* encourages people to do activities that are meaningful to them. Holistically, this framework is about building habits people can engage in to improve their mental health. It is about what you do to be engaged, find community, and find challenge and purpose (Nielsen et al., 2021; Santini et al., 2021).

This challenge and purpose piece is aligned with best practices in student development to support belonging and college success. In the table below, examples are given on how undergraduate research can be used to help promote mental health if framed within the context of the Act-Belong-Commit framework (see Table 1). It is known that engaging in mentored undergraduate research and inquiry can be an important and transformative college experience and leads to student success (Kuh, 2008; Vandermaas-Peeler et al., 2018). The pandemic reshaped the undergraduate research experience challenging traditional research models and forced researchers to move projects and mentoring to the virtual environment and resulted in innovative ways to maintain connections between researchers (Chandrasekaran, 2020; Forrester, 2021; Hall et al., 2021). The combination of a changing mental health landscape of college students and the challenges to the undergraduate research model has increased the need for more holistic mentoring practices. Incorporating best

practices to help students be successful includes supporting mental health and meeting their needs at the moment.

Table 1. *Act-Belong-Commit in Action through Undergraduate Research*

	Descriptor	Example
Act	Do Something	Engage in Undergraduate Research
Belong	Do Something with Someone	Discuss and conduct research with a team of students, faculty, and community partners working toward shared goals; have a group identity (e.g., lab name)
Commit	Do Something Meaningful	Present and publish research results; learn skills that will translate to future graduate schools and jobs

Salient Practices Framework for Undergraduate Research Mentoring
A literature review conducted by Shanahan and colleagues (2015) identified ten salient practices of undergraduate research mentoring. This evidence-based mentoring framework, henceforth referred to as the salient practices framework, has been identified as a way to provide inclusive, high quality mentoring for students (Shanahan et al., 2015). These practices (https://www.centerforengagedlearning.org/salientpractices/; also Table 2) have been demonstrated to be useful in a wide variety of disciplines (Allocco & Pennington, 2022; Moore et al., 2020; Shawyer et al., 2019; Walkington & Rushton, 2019), as well as contexts such as global (Allocco et al., 2022; Hall et al., 2018) and virtual environments (Hall et al., 2021). These practices have also been found to be of great value in co-mentored experiences (Ketcham et al., 2017; Ketcham et al., 2018). More recently, these practices have been implemented with the mental health and wellbeing of the undergraduate researchers in mind (Hall & Ketcham, 2021, 2022; Walkington & Ommering, 2022). See Table 2 for tips and relevant strategies for how these individual practices can be implemented.

While thinking about how to implement the practices in day-to-day interactions with research students, it is worth standing back and looking at the practices as a whole. There are components that tend to happen early in engaging students in the research stage (ACT), that then expands into the research community and builds autonomy (BELONG) and ultimately takes time and investment (COMMIT). Below is a way to think of the intersection of the Salient Practices Framework and the ABC model holistically that may be valuable as mentors intentionally build a positive culture for their students through their offering undergraduate research experiences (Figure 1). Salient practices 1–3 can be viewed as an **Act** in the ABC Framework and can be used to help students build confidence in the research process. Salient practices 4–6 and 9 represent **Belong** and can be used to build community. The rest of the salient practices can be seen as **Commit**. They are important in building purpose and important translatable skills for future graduate school or jobs. Movement through these frameworks while not linear is intentional, progressive, and process oriented.

ACT - Building Self-Efficacy
The salient practices can be implemented to help build confidence and self-efficacy among mentees. This is probably most crucial in the early stages of research, when the researchers are unsure of what they are doing and trying to learn skills necessary to be successful. Specifically, practices 1

(strategic pre-planning), 2 (setting clear and scaffolded expectations), and 3 (teaching technical skills) are easy ways to help students learn the necessary skills to be a researcher and develop an increased self-efficacy and confidence (Bandura, 1977). While these practices are important throughout the research process, these are especially important in the early stages of the research project and can help build autonomy from the student. One way that mentors can think about the integration of these salient practices is through the incorporation of learning contracts and syllabi (Abdel-Qader, 2004; Mabrouk, 2003). Another supplemental practice related to developing confidence is salient practice 7 (increasing ownership over time). Within self-efficacy theory (Bandura, 1977), it is known that one of the strongest predictors and ways to build self-efficacy is through past mastery experiences. This increase in autonomy given to students will be valuable for increasing confidence and ability to be successful in their research and is important for mentors to be able to do (Walkington et al., 2020).

Table 2. *Salient Practices of Undergraduate Research Mentoring Framework Applied Specifically to Supporting Student Mental Health*

Salient Practice	Application to Support Mentally Healthy Undergraduate Researchers
1. Strategic pre-planning	This is a place to identify student goals and expectations and set-forth a research plan. It is beginning to have students articulate their abilities and skills they bring to the project.
2. Set clear and well-scaffolded expectations	Setting expectations for the project and typically semester by semester allows space for the student to examine their load and responsibilities. Discussing how to fit research into the schedules and dedicate time to components that are self-paced.
3. Teach technical skills necessary to do research in the discipline	A focus on skill development strengthens a student's abilities and gives them confidence. This can lead to autonomy for certain aspects of the project and facilitate productivity throughout the research process.
4. Balance rigorous expectations with emotional support	Checking in on students collectively each week to have honest conversations about the normal stresses of the semester and how to continue prioritizing research. Students sharing challenges and successes as a community is a valuable tool to show that this is normal in the research process.
5. Build community among scholars	Setting aside space for journal clubs, practicing presentations, and learning skills together gives students a place to belong. The community is often sustained beyond the mentoring structure.
6. Dedicate time to one-to-one mentoring	This is a space to build a mentoring relationship that often extends beyond research to career conversations and other support that the student may need.
7. Increase student ownership over time	Multi-semester projects allow students time to gain and practice skills. As students gain confidence, they are able to lead and take more ownership of their project and become experts on their research topic.
8. Support students' professional development	This extends beyond career development and includes facilitating network building. Partnering with the student on their strengths and challenges and how to build a growth mindset. Helping students articulate the transferable skills they learned as part of research to internships, graduate and professional skills.
9. Create opportunities to learn mentoring skills	To support community, productivity, and professional development, providing structure for students to mentor each

	other is valuable. This can be centered around learning technical skills, co-writing, or talking about career preparation.
10. Encourage students to find opportunities to disseminate research	The commitment it takes to disseminate research in a public forum gives students opportunities to talk about their work giving them a sense of pride and accomplishment.

Figure 1. *Mentoring for Mental Health*
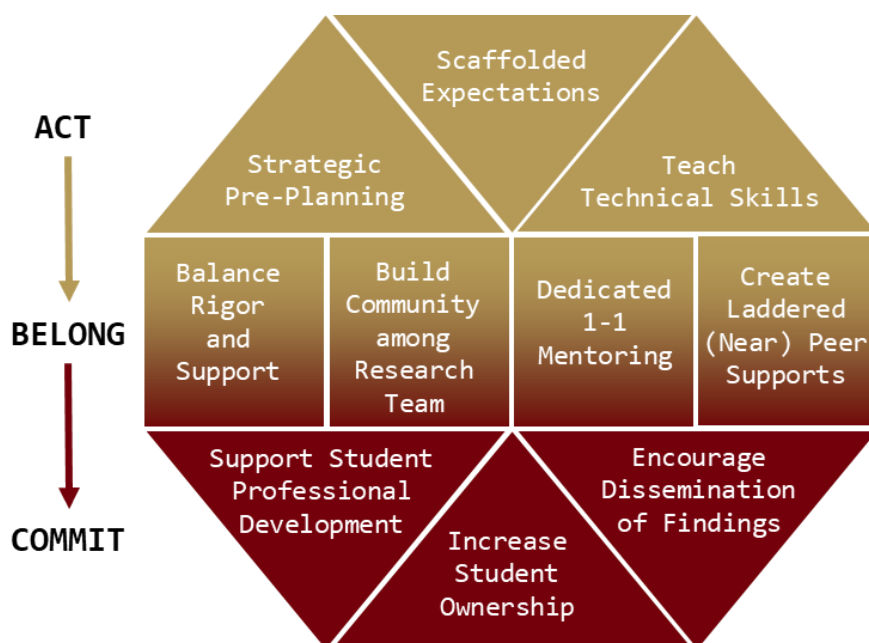
Belong - Building Community

Doing something with someone (Belong) can be inherent with the research process. When considering how to create a community of undergraduate researchers, it is important to think about building this sense of belonging between student researchers and how to foster this between mentor and mentee. Finding time to dedicate to one-to-one mentoring (salient practice 6) is crucial to helping build a relationship between mentor and mentee. Mentors may want to consider asking about the wellbeing of the student before launching into questions and discussion about the research and research process. Table 3 provide some examples with guiding prompts that mentors can adapt and use in these conversations. Once this relationship has been formed, it becomes easier for mentors to provide emotional support for their mentees and to balance rigor within the research process (salient practice 4).

Community formation is at the core of salient practice 5. This is perhaps more easily done in traditional lab models where students may be working with the same mentor on the same research project, but it may also be cultivated where researchers are at the same stage of research projects or form cohorts in different ways (e.g., honors fellows; but also see Allocco & Pennington (2022) for a cohorted model with intensive mentoring among faculty related to multifaith projects). Community can also be built when students are co-mentored by faculty (Ketcham et al., 2017, 2018), or when students are introduced to other departmental faculty in various contexts (e.g., journal clubs and other professional development opportunities; see Hall et al., 2021 for further exploration of this idea). Similarly, salient practice 9 (peer mentoring) is an excellent way to build community among

students. Many mentors have created ways for more experienced students to mentor less experienced students in an "apprenticeship model," which is at the heart of this practice (Allocco & Pennington, 2022; Vandermaas-Peeler et al., 2011).

Table 3. *Examples of Guiding Prompts for Conversations*

1	What have been some of your most meaningful experiences this semester?
2	Are you finding places and people to connect with authentically on campus? Where?
3	Talk to me about your major and why you have chosen this? Minors?
4	Do you occasionally do something specifically to find peace and make room for just letting the mind flow? If so, what?
5	Are you a member of any clubs or organizations, and if so, why?
6	Is there anything we should talk about taking off your plate?
7	Can you think of a way in which you can help strengthen a sense of meaning and purpose in your everyday life?
8	What is your goal or what do you hope to achieve with this research experience?
9	What steps do you need to take to achieve these outcomes as you balance your other responsibilities and commitments?
10	What are ways you can talk about this experience to an employer or graduate program?

Commit - Activating Purpose and Career Development
Students often report their undergraduate research experience as one of the most meaningful college experiences Many spend multiple semesters or years being involved in the project from articulating interests, to formulating research questions, to designing methodology, to collecting and analyzing data, and to drafting into presentations and publications. It often is central in their applications and interviews as they apply for jobs, graduate programs, and fellowships. Part of the mentoring process is getting students to the point where they see both the value of what they have done and how it translates to their next academic and career goals. They have shown dedication and taken ownership of their project (salient practice 7). They have engaged in professional development opportunities (salient practice 8), including experiences they sought out (e.g., grant writing workshops, career centers), or asked for support to connect to (e.g., conferences, potential graduate school mentors or alumni). Their projects have progressed to the point where they can disseminate their findings (salient practice 10) in public forums, including presenting at local and disciplinary venues. Some students go on to prepare manuscripts for publication. No matter where students head after their undergraduate experience, they have a sense of confidence and see themselves as researchers in their own right and partners in this work. They have an awareness of how research and the research process can be valuable and integrated into their career goals. While they may or may not conduct research in the future, they are prepared to identify, synthesize, and utilize research that may be meaningful to their careers and lifelong learning.

Conclusion
In the past five years, there have been many events and global challenges (e.g., COVID-19, climate change, political unrest) that have caused high degrees of uncertainty and influenced mental health,

especially in college students. These events have exacerbated an already rapid decline in mental health of college students and have become an increasing topic of concern for those in higher education. Walkington and Ommering (2022) explored how curriculum embedded research experiences coupled with a mentoring pedagogy can together enhance authenticity in research, increasing student motivation and wellbeing. By providing students with authentic research experiences, students' intrinsic motivation is triggered as basic psychological needs are met. This paper discusses an example of how mentoring undergraduate research through the combined lens of two different frameworks (e.g., Act-Belong-Commit and Salient Practices Framework) can be done with great intentionality to support the mental health and wellbeing of undergraduate researchers. This paper has provided some tips and relevant strategies on how to enhance mentoring practices to support mental health and wellbeing. If these frameworks are integrated into practice, students should be able to be more productive and flourish in their roles as undergraduate research scholars.

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