THE EFFECTIVENESS OF THE MODIFIED "THREE GOOD THINGS" INTERVENTION ON WELL-BEING FOR COLLEGE STUDENTS WITH AND WITHOUT DISABILITY

By

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ABSTRACT

This study examined the feasibility and effectiveness of a modified *Three Good Things* gratitude intervention in promoting well-being among college students with and without disabilities. Using a randomized controlled design, participants completed pre-, post-, and one-month follow-up assessments. Results from Repeated Measure Analysis of Variance revealed statistically significant improvements in well-being, resilience, and perceived stress, with differential effects across time and groups. Several elements of the PERMA model—particularly Positive Emotions, Relationships, Meaning, and Accomplishment—demonstrated notable change, especially with time-by-group interactions. Both students with and without disability demonstrated benefit from participating in the study. Qualitative data from participants' daily reflections and open-ended feedback provided further insight into the perceived benefits, engagement patterns, and areas of personal growth associated with the intervention. The daily reflections illustrated the positive impact of the intervention to establish lasting changes in participants' personal growth and academic success, especially when participants integrated the practice into daily routines. The study also demonstrated high feasibility through digital delivery, structured reminders, and supportive communication. Findings have implications for counseling, higher education, and future research on accessible and inclusive gratitude interventions.

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CHAPTER 1: INTRODUCTION

This chapter provides a comprehensive introduction to this dissertation. This chapter introduces the issues and challenges faced by college student population, including those with disabilities. Delving into their well-being, this chapter briefly reviews existing interventions, with a particular focus on the "Three Good Things" gratitude intervention within the framework of positive psychology. This chapter also introduces the purpose of the study, outlines the research questions, and emphasizes the significance of this study. Additionally, this chapter includes a concise overview of the research methodology.

Statement of the Problem

The primary goal of higher education was to enhance students' potential in a wide range of skill areas, thereby enabling them to achieve the ultimate goal of making valuable contributions to society as active citizens (Brolin & Gysbers, 1989). Considering societal progress, the future society will need more individuals with higher education degree in order to meet the expanding demand in the workforce (Lara & Pande, 2001). Traditional college students are defined as those who have earned a high school diploma and currently enroll in college full-time (Caruth, 2016). In this current study, college students are defined as individuals who are enrolled in institutions of higher education, such as universities or colleges, pursuing postsecondary degrees, including undergraduate and graduate degrees. Upon entering higher educational settings, college students often hold high expectations of achieving remarkable success in both their academic pursuits and personal growth. However, such expectations may inadvertently give rise to heightened stress and anxiety levels, ultimately impacting their overall well-being throughout their higher education journey (Heins et al., 1984). Therefore, it is crucial for higher education institutions to provide a supportive environment and resources to help

students navigate and manage these challenges, fostering a positive and nurturing learning environment that promotes both academic achievement and personal well-being.

Challenges Faced by College Students

While the high prevalence of mental health issues was observed among college students (Baik et al., 2019), the well-being of college students has been a concerning public health issue in recent years. Increasing numbers of college students experience heightened stress and mental health issues, such as depression, anxiety, eating disorders, and suicidality (Eisenberg et al., 2013). Well-being was determined to predict student success and retention, as well as their physical health, academic performance, and interpersonal functioning (Coffey et al., 2016; Kitrow, 2003). Thus, persistent low well-being may lead to reduced motivation and commitment to continuing college education for students, which may lead to the decision to drop out of college (Baik et al., 2019).

Efforts were being made by researchers to seek a deeper understanding of how the psychological issues among college students, available support services, and the school environment could reduce stress and promote the well-being of college students (Baik et al., 2019). Even though various programs and resources might already be implemented into higher education institutions, many students found it hard to access or to understand the effectiveness of those resources (Browne et al., 2017), especially when the resources or programs were provided to all groups of students, there might be concerns on the appropriateness to certain populations. For example, groups of minority students, such as students with disabilities, have a higher risk for stress, low well-being, or dropout (Hong, 2015; Larcombe et al., 2016). As a consequence, those students might have fewer opportunities for full college experiences, successful employment (Newman et al., 2011), or citizenship activities (Richard et al., 2016)

For individuals with disabilities, it has been approved that obtaining a postsecondary degree can enhance their vocational outcomes (Chan et al., 2020; O'Neill et al., 2015). Thus, more students with disabilities are entering college after completing high school (Fleury et al., 2014). However, college students with disabilities were found to experience lower levels of well-being compared to those without a disability (Alós Cívico et al., 2021). Despite the availability of mental health services and traditional support systems (Leahy et al., 2010), college students with disabilities remain vulnerable to experiencing low levels of well-being (Tansey et al., 2018).

The well-being of college students with disabilities is influenced by various factors, including types of disability, gender (Emerson et al., 2020), and the different challenges they face. These challenges encompass various aspects, including inadequate preparation during their transition from high school to college (Francis et al., 2018), difficulties in establishing and maintaining peer relationships (Cai & Richdale, 2016), navigating environmental barriers (e.g., physical accessibility, inaccessible technology; Macdonald et al., 2018), practicing executive functioning (e.g., time management, planning, and organization; Cai & Richdale, 2016; Dryer et al., 2016), managing co-occurring health issues (e.g., depressive and anxious symptoms; Anastopoulous & King, 2015; Barkley et al., 2008; Blase et al., 2009; Macdonald et al., 2018), safeguarding the confidentiality of their disabilities (Anastopoulos & King, 2015), obtaining necessary accommodations (e.g., extended time for exams and assistive technology; Cai & Richdale, 2016), preparing for future employment (Sung & Conner, 2017), and fulfilling financial obligation (Murray et al., 2013). Those challenges exacerbate the risks to the well-being and life satisfaction of college students with disabilities (Mullins & Preyde, 2013).

Well-being Focused Interventions for College Students

With different interventions developed and implemented in the school settings, ranging from kindergarten to college, multiple effective strategies were identified for enhancing student's well-being, happiness (Koydemir & Sun-Selisik, 2016; Liu et al., 2021; Seligman et al., 2005; Uliaszek et al., 2016; Waters, 2011), and solution-focused thinking (Atad & Grant, 2021). Interventions that were developed specifically for college students differed with various delivery methods. These interventions include individual and group settings, and can be either self-administered or instructional, or some take place in-person, while others are facilitated through online platforms (Huang et al., 2018). Common interventions are cognitive behavioral interventions, mindfulness-based interventions, positive psychology interventions, and attention/modification interventions (da Silva et al., 2022; Huang et al., 2018). Positive psychology was one of the major interventions that have been studied within school settings in the past decade, given its popularity and effectiveness (B. W. Smith et al., 2021; Koydemir et al., 2016; Lambert et al., 2019). Studies have consistently found small to medium effectiveness in participants' well-being following these positive psychology interventions (Carr et al., 2021).

Many positive psychology interventions were established based on PERMA framework. PERMA stands for five different measurable elements for well-being: (P) Positive emotion, refers to the feeling of pleasant life, happiness, gratitude; (E) Engagement, refers to the degree of focus an individual puts into specific activities; (R) Positive Relationship, refer to the positive social interaction with others; (M) Meaning, refers to action that belongs to or serves the things that are bigger than individual-self; (A) Accomplishment, refers to making progress toward the goal and the dedication of accomplishment. Each of the five PERMA elements is defined and

measured independently of other elements and research shows that the improvement of each element has led to an increase in overall well-being (Seligman, 2011).

Specifically in the college setting, positive psychology interventions were consistently demonstrated their effectiveness in improving college students' well-being, happiness, and reducing negative emotions (B. W. Smith et al., 2021; Seligman et al., 2005). Positive psychology interventions were proved to be effective when delivered through online platform (Liu et al., 2021), in-person instruction (B. W. Smith et al., 2021), and through robot machine (Jeong et al., 2020) among college students. Especially with the advancement of technology and the popularity of positive psychology, increased attention has been directed toward exploring the implications of these interventions in college settings.

The implementation of well-being-focused positive psychology interventions among college students yields multifaceted advantages. One of the major positive outcomes is to empower students with effective coping mechanisms to navigate the stress of college life (Chessman & Taylor, 2019). In addition, through fostering resilience, college students were also equipped to be able to bounce back from life stress (Carver, 1998; Wolf et al., 2018) and contribute to a more adaptive response to the demands of college life. Furthermore, college students with higher levels of well-being are found to have better physical health and academic performance (Coffey et al., 2016). Research shows that having higher confidence in academic abilities and better physical health leads to a more satisfying experience among college students (Gómez-Pinilla & Hillman, 2013). In addition, college students with efficient well-being support were found to experience less anxious feelings or loneliness and demonstrate higher self-esteem (Eisenbarth, 2012).

Various types of positive psychology interventions commonly address topics such as strength, resilience, gratitude, and developing optimism, flow, and forgiveness (Parks & Layous, 2016; Parks & Schueller, 2014). As gratitude emerges as an essential element within these interventions, it demonstrates its consistent effectiveness in enhancing happiness and well-being (Brown & Wong, 2017), as well as its availability to modification (Peterson & Seligman, 2004). Especially for college students, fostering a grateful mindset will not only enhance their appreciation for positive aspects of life but also foster positive emotion, positive relationships, experience of engagement, and a sense of meaning and achievement, which all contribute to well-being. Studies further found that incorporating gratitude practices will also foster heightened life satisfaction among college students (McCullough et al., 2002), as they navigate the complexities of their academic journey with resilience, positivity, and a more holistic approach.

Gratitude Interventions

Gratitude intervention is a common type of positive psychology interventions. Gratitude is defined as a positive experience individuals have in expressing appreciation for things or people in their lives (Emmons & McCullough, 2003). The ultimate goal of gratitude intervention is to increase individuals' experiences in recognizing and being thankful for things in their lives (Carson et al., 2010). Gratitude has gained significant popularity in society and has become a widely recognized strategy for self-help and self-improvement. Research has shown that gratitude interventions have a positive correlation with an individual's positive emotions (Mccullough et al., 2002) and life satisfaction (Carson et al., 2010) and are negatively associated with an individual's perceived stress (Killen & Macaskill, 2015), thereby contributing to their overall well-being. Several studies demonstrated that gratitude interventions (e.g., Gratitude

letters, Gratitude visits, and Gratitude journals) are largely associated with well-being, positive affect, life satisfaction, substance abuse, and stress (Cregg & Cheavens, 2021; Watkins 2014; Wood et al. 2010).

The "Three Good Things" intervention is one of the popular gratitude interventions due to its characteristics of cost-effectiveness and readily implementable. Seligman and colleagues (2005) developed this intervention by asking participants to write down "Three good things happened during the day" and "Why did it happen to you?". Participants were asked to complete it every day for a week in order to foster positivity. This intervention has been proven to be effective in increasing participants' levels of happiness and well-being, as well as reducing negative feelings (Seligman et al., 2005; Gander et al., 2013).

Researchers are currently exploring the underlying mechanisms linking gratitude interventions to well-being, revealing encouraging findings. For instance, individuals who express gratitude are more inclined to encounter positive emotions and higher life satisfaction, while experiencing fewer negative emotions compared to those who demonstrate lower levels of gratitude (McCullough et al., 2002). Gratitude interventions help individual cultivate a more positive self-perception, greater self-compassion, and increased self-acceptance (Petrocchi & Couyoumdjian, 2016). These interventions are particularly advantageous for college students, enhancing their overall well-being and college experience, while also acting as a protective factor against stress (Cregg & Cheavens, 2021). Especially during transitional periods, such as graduation and entering the workforce, practicing gratitude can foster happiness and acceptance. By fostering a grateful outlook, college students may find it easier to embrace uncertainty, transition, and face the future with a more optimistic mindset (Cregg & Cheavens, 2021).

Various positive psychology interventions have been implemented among college students, and many of them have been proven to be effective in enhancing their college experience, well-being levels, and academic performance (Jeong et al., 2022; Lambert et al., 2019; Liu et al., 2021). Additionally, positive psychology interventions have shown some efficacy in enhancing the well-being of individuals with disabilities, such as individuals with schizophrenia or depression (Braga et al., 2021; Walsh et al., 2018) and individuals with chronic pain (Braunwalder et al., 2022). Yet, there is still paucity of literature regarding the efficacy of positive psychology interventions, including gratitude intervention (Davis et al., 2016), on how college students with disabilities might benefit from these interventions or if any modification/adaptation is needed. There is also a scarcity of research examining how college students with disabilities may benefit similarly or differently from gratitude interventions in a college setting when compared to their peers without a disability. These indicated the potential benefit for specifically college students with disabilities. Considering the aforementioned challenges faced by college students, especially those with disabilities, in academic, personal, and vocational aspects (Sung & Conner, 2017), enhancing the level of gratitude experienced by college students with disabilities might be beneficial for their overall well-being and contribute to a more positive college experience. Implementing gratitude interventions, such as the "Three Good Things" intervention to cultivate positivity can potentially empower college students with disabilities, adopt a positive mindset, and improve their overall well-being and happiness levels.

Purpose of the Study

The purpose of this proposed study was to examine the feasibility and efficacy of the modified gratitude intervention "Three Good Things" in promoting the well-being of college students with and without disabilities. It also examined any differential effects on the well-being

between students with and without disabilities after they participate in the intervention. Given the exploratory nature of this study, and recognizing that different disability types may elicit varied responses, participants with diverse disability types were included and analyzed as a single group to provide a broad understanding of the intervention's impact among college students with disabilities. The "Three Good Things" intervention was chosen for this study because it establishes a habit that enables individuals to engage in regular, yet relatively uncomplicated, and modest instances of positive emotion, fostering opportunities for reflection (Rippstein-Leuenberger et al., 2017). In addition, the "Three Good Things" intervention is cost-effective and readily implementable among individuals and at group levels.

Research Questions

The research questions in this proposed study are as follows:

Research Question 1: How does the modified "Three Good Things" intervention affect the well-being of college students with and without disabilities?

Research Question 2: Are there any differences in the effect of the modified "Three Good Things" intervention between college students with and without disabilities?

Research Question 3: What are the perceptions and experiences of the modified "Three Good Things" intervention among participants?

Research Question 4: What recurring themes and insights emerge from the content of the modified "Three Good Things" intervention among participants?

Significance of the Study

Although the well-being of college students is impacted by different factors and there are different support programs established for this population, these resources can be time-consuming or too burdensome for students to apply to their daily lives (Zehner et al., 2022). The

significance of this study is to first address the gaps and limitations of the current literature on well-being-focused positive psychology interventions among college students, especially when considering college students with disabilities. Second, this study deepens understanding the application of Well-being Theory within college student population. Meanwhile, this study was able to offer practical insights and feedback of ongoing well-being needs of this population, particularly students with disabilities. Ultimately, this study provided college service providers with a potential strategy that can better support the overall well-being of college students with and without disabilities.

Brief Summary of Study Methodology

To address the research questions, this researcher conducted a randomized control trail intervention study with repeated measures. Following approval by the Institutional Review Board (IRB) at Michigan State University (MSU), this researcher distributed flyers that include study information to recruit MSU students as participants. Participants were invited to complete a survey with sections on demographic information, well-being, resilience, and perceived stress level before the intervention, after the intervention, and at one-month follow-up. Quantitative data was analyzed using descriptive statistics and Repeated-Measure Analysis of Variance (ANOVA). Participants were also asked about their experience and feedback with the intervention during both post and follow-up surveys. The qualitative data, participants' feedback and content of the "Three Good Things" from all participants, were also analyzed using thematic analysis to identify common themes.

CHAPTER 2: LITERATURE REVIEW

To explore and answer the research questions in this study, it is important to review the related literature comprehensively, including scholarly literature that covers the key concepts of this study. This chapter summarizes the literature on the well-being of students in higher education settings and related factors that contribute to their well-being. Additionally, challenging situations countered, and barriers faced by college students with disabilities were be highlighted. It then introduces the different types of interventions with a focus on well-being improvement within school settings with a highlight of positive psychology interventions. Finally, this chapter describes the various gratitude interventions, particularly Three Good Things intervention, along with the limitations and gaps in the current literature.

Well-being among College Students in Higher Education Settings

Well-being can be understood as individual's overall life satisfaction and experience of more positive affect and less negative affect (Diener et al., 2017). Well-being could have impact of different life aspects, including academic, employment, emotions, and relationships (Cabrera & Donaldson, 2023). For college students, their well-being is closely related to their physical health and academic performance (Coffey et al., 2016). Students who maintain well-being despite challenges and stress are often more resilient and tend to have a better overall college experience (Valladolid, 2021). Recognizing the significant influence of well-being on students' academic success and overall college experience, higher education institutions have put effort in creating and maintaining campus climate that support student well-being.

Higher education institutions have recognized that relying solely on campus counseling centers was insufficient to address all students' mental health needs. Instead, a collaborative effort involving multiple stakeholders is necessary to provide comprehensive support (Woodruff

& Boyer, 2024). This realization has led to the implementation of various initiatives aimed at promoting student well-being. For example, implementing interventions that focus on empowering students with effective coping mechanisms (Chessman & Taylor, 2019) and fostering students' resilience (Carver, 1998; Wolf et al., 2018).

While college life is commonly viewed as a period of joy and fulfillment, it may also be a period with challenging events and full of obstacles (Gungor et al., 2021). Due to high expectations from society, family, and themselves (Heins et al., 1984), college student population was found to experience heightened stress and anxiety, lonely, low self-esteem (Eisenbarth, 2012), engaging in substance use (Deasy et al., 2014), and suicidal tendencies (Campos et al., 2014). Experience and learning in higher education not only impact an individual's college life but also have a lasting impact on later adulthood (O'Shea et al., 2023). Common mental health issues were also reported among college students, such as depression, anxiety, eating disorders, and suicidality (Campos et al., 2014; Eisenberg et al., 2013). Actually, almost half of the college students have considered dropout with a major reason of mental stress (Danzger, 2018). While well-being is a critical concern for all college students, those with disabilities may face additional challenges that require targeted support

Factors Affecting Well-being of College Students with Disabilities

For individuals with disabilities, it has been shown that obtaining a college degree can enhance their vocational outcomes, including monthly earnings compared to those without a college degree (Chan et al., 2020; O'Neill et al., 2015). Thus, more individuals with disabilities are entering college after completing high school (Fleury et al., 2014). In the 2019-2020 academic year, about around 21% of undergraduates and 11% of graduate students were reported as having disabilities (National Center for Education Statistics, 2023). The most frequently

reported disabilities among college students in the United States are learning disability, attention-deficit/hyperactivity disorder (ADHD), mental illness/psychiatric conditions, and health impairment/condition (Raue & Lewis, 2011). However, there is also a specific number of students who choose not to disclose their disability status (Singh, 2019). Considering various systemic, institutional, and personal factors, currently approximately half of college students with disabilities complete their degree, and those who do often take longer to graduate compared to their peers (Hong, 2015; Sniatecki et al., 2015).

While students with disabilities face barriers in higher education, many of them hold strong resilience and other protective factors that support their well-being. Resilience has consistently been identified as a strong predictor and source of well-being and life satisfaction (Bajaj & Pande, 2016; Connor & Davidson, 2003). For college students with disabilities, resilience supports a better transition from high school, a better academic outcome (Murray et al., 2013), and an overall more satisfying well-being (Bajaj & Pande, 2016). Resilience was found to be positively correlated with active coping, self-efficacy, and negatively correlated with stress among the college students (Li, 2008; Park & Bae, 2015).

History, Legislation, Policy

Across past decades, higher education settings have made efforts and progress to create more inclusive and accessible environments for individuals with disabilities (O'Shea et al., 2023). Under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act of 2008, individuals with disabilities were protected from discrimination and were able to seek a better life quality. In addition, the Individuals with Disabilities Education Act specifically focuses on the education of students with disabilities. Thus, students, including

college students with disabilities were supported to receive disability-related services and accommodations in educational settings.

The purpose of disability services in higher education settings is to mitigate the social and academic challenges faced by college students, facilitating a more satisfying academic experience, reducing dropout rates (Dong & Lucas, 2016), and increasing graduation rates (Pingry O'Neill et al., 2012). Depending on the disability diagnosis and available resources, students with disabilities will have access to accommodations, including extending test time, notes taken, alternative exam format and location, and adaptive technology (Barber, 2012). Studies showed that students who registered for disability-related services earlier or received longer service were more likely to have better academic performance (Blasey et al., 2023). However, the under-utilization of disability services has been a consistent concern (Newman et al., 2011).

Challenges Faced by College Students with Disabilities

Even though being supported, college students with disabilities were found to lag in college experiences (Fabian et al., 2009; Lapan, 2004; Webb et al., 2014). It is hard to pinpoint one single factor that can completely predict college success for each student (Attewell et al., 2011). Factors such as personal characteristics, environmental engagement, and environmental characters might all have an impact on one student's success, including students with disabilities (Lightner et al., 2012; Tinto, 2012). In general, individuals with disabilities are still hesitant to attend college or able to obtain employment compared to peers of similar age (O'Shea et al., 2023). Thus, lower graduation rates were reported for college students with disabilities (Hong, 2015), about only half of college students with disabilities obtain their degree (Sniatecki et al., 2015), or they were found to spend longer time than peers to complete college (Wessel et al.,

2009). As a consequence, college students with disabilities might have fewer opportunities for full college experiences, successful employment (Newman et al., 2011), and citizenship activities (Richard et al., 2016). Through the navigation of skill learning, college students with disabilities might encounter stressful experiences or challenges that would negatively impact their well-being (Blasey et al., 2023; Newman et al., 2011; O'Shea et al., 2023). Sections below describe those experiences and challenges in more detailed.

Transition. For college students with disabilities, the learning and vocational transition precursor process might also be challenging (Newman et al., 2011; Sung & Conner, 2017; Wolf, 2001). Due to their disabilities, they might require more effort to learn with limited access to necessary resources (Lindstrom-Hazel et al., 2004). Especially for students who have been receiving educational support in high school, a more initiative and proactive approach is needed for them to seek disability services in higher education (Francis et al., 2018). Family members and friends of college students with disabilities might also have low expectations for their college success and provide insufficient support (Moon et al., 2012). College faculty and staff might not be aware of the support and services needed for this population (Sniatecki et al., 2015). College students with disabilities might also have poorer interpersonal skills to socialize with peers (Cai & Richdale, 2016; Shaw-Zirt et al., 2005) and have generally unsatisfied life experiences with lower quality of life (Grenwald-Mayes, 2001).

Academic. Student's academic outcomes may be reflected through student's GPA or time needed to graduate (Blasey et al., 2023), which could be influenced by various personal and institutional factors. For college students with disabilities, factors such as their disability type, received disability service, campus accessibility, and campus climate collectively play crucial roles in influencing their success in higher education (Blasey et al., 2023; Lightner et al., 2012).

In addition, with the recent COVID-19 pandemic and technological development, virtual learning has posed additional challenges to their academic success, including a lack of access to technology equipment, virtual recourses, or previously provided service (Porter et al., 2021). More specific and additional attention is needed for the academic success of college students with disabilities (Newman et al., 2021). Identified supports from previous studies include education about disability legal rights, access to available services (Walker & Test, 2011), and disability training for faculty (Newman et al., 2021).

Health. Among college student population, health has always been an essential priority (O'Shea et al., 2023). Disability-related symptoms were also found to be negatively impacting college students with disabilities, affecting their ability to engage in necessary physical exercise and impacting their overall quality of life (Kwon et al., 2020). For instance, college students with specific diagnoses, such as ADHD and psychological disabilities, were found to have lower education satisfaction (Blasey et al., 2023; Newman et al., 2011). Some other potential health concerns are substance usage, risky sexual behaviors (Bernert et al., 2012), and co-occurring mental health issues (Francis et al., 2022). Specifically, co-occurring mental health conditions (e.g., anxiety and depression; Anastopoulos & King, 2015; Blase et al., 2009; Macdonald et al., 2018) also carry intersection implications with student's primary diagnosis. For instance, a student with learning disabilities might concurrently combat anxiety, in turn, adversely impact the student's ability to learn (Francis et al., 2022). In general, appropriate involvement in health care for both mental and physical aspects will help college students with disabilities to have a better college experience as well as navigate stigmas (Yeager et al., 2022).

Disclosure. In order to access the accommodations offered by higher education institutions, students with disabilities must navigate several crucial and unavoidable steps, with

the disclosure of their disability diagnosis being the necessary step (O'Shea et al., 2023). Despite the presence of established precautions and confidentiality structures (Anastopoulos & King, 2015), many college students with disabilities still hold concerns regarding potential information leaks, distrust of institutional staff, the stigma associated with disabilities, and a general lack of knowledge about disability laws and confidentiality (Mamboleo et al., 2020). Researchers demonstrated that the process of disclosing disabilities is the major reason for the underuse of disability services among college students with disabilities (Blasey et al., 2023). It was also demonstrated that students who did not attend high school transition training were less likely to register for disability service in higher education settings (Lightner et al., 2012).

Future Employment. Although different services, such as mental health counseling, vocational rehabilitation counseling, and career counseling services (Romano et al., 2009), have been provided to college students with disabilities, and the employment outcomes are increasing (Newman et al., 2009), continued effort is needed to meet the ongoing vocational needs of college students with disabilities. For example, university faculty might have limited awareness about disability accommodation or hold a poor attitude toward supporting students with disabilities (Sniatecki et al., 2015), which might eventually impact a student's self-efficacy and confidence in pursuing a career in their chosen field of study. There have been concerns from college faculty that providing accommodation to certain students might be risking academic integrity and rigor (Beilke & Yssel, 1999). Those concerns brought the disability service in the college setting into an uncertain situation, where students with disabilities might not be able to receive needed support or get prepared for future accommodations in the work field.

Given all the aforementioned barriers that college students with disabilities face, in addition to unknown barriers that have not yet been addressed by researchers and scholars, it is

critical to provide continuing and effective support to this population (O'Shea et al., 2023), including those who choose to not disclose their disabilities (Burgstahler & Moore, 2008). The goal of supporting this population is to eventually reduce the dropout rates and shorten the graduation time, ultimately improving their college experience (Blasey et al., 2023; Koch et al., 2018). Thus, the development of crucial skills and executive functioning, such as time management, and the establishment of new relationships (Cai & Richdale, 2016; Dryer et al., 2016), including a support system with peers and faculty, are essential (Dvořákovà et al., 2019).

Conceptual Framework of Well-Being

Well-Being Theory. The conceptual framework of this study, Well-being Theory, is an essential part of Positive Psychology. In 2000, Seligman and Csikszentmihalyi proposed the need for positive psychology that aims to understand people's strengths and what constitutes human flourishing, to balance psychology's historical focus on addressing pathology and mental deficits. Unlike previous attempts to focus on human potential such as humanistic psychology, Seligman and Csikszentmihalyi (2000) placed a strong emphasis on grounding the positive psychology approach in science and empirical research. Since an individual's life and happiness are impacted by both internal and external factors, the Well-being Theory was developed to promote overall positive experiences in an individual's life (Seligman, 2011).

The Well-being Theory was initially established with three different elements, including positive emotion, engagement, and meaning (Seligman, 2002). Later, Seligman (2011) added two additional elements to the theory, they are relationship and accomplishment. All five elements (PERMA: **P**ositive emotion, **E**ngagement, **R**elationship, **M**eaning, **A**ccomplishment) in total make the Well-being Theory valuable by providing a framework for understanding how to improve well-being through each element (Seligman, 2018). Each of the five elements is defined

and measured independently of other elements and many people will pursue the element just for their own sake. The improvement of each element will lead to an increase in overall well-being (Seligman, 2011).

Positive Emotion. Positive emotion refers to the experience of a pleasant life and happiness, extending to feelings of gratitude and love (Seligman, 2012). Positive emotion is considered one of the key indicators of individual's well-being (Coffey et al., 2016) as it will drive people's thoughts, promote resilience, and reduce negative feelings (Fredrickson et al., 2003). Positive emotion was also determined as a predictor for individual's life satisfaction, such as workers (Donaldson et al., 2021) and students (Kern et al., 2015; Lai et al., 2018). Positive emotion was also negatively associated with various negative well-being outcomes, such as stress (Donaldson & Donaldson, 2020; Trigg, 2021) and burnout (Lakioti, 2020). Specifically for adolescents, their positive emotion was also linked to depression and anxiety symptoms (Kern et al., 2015; Lai et al., 2018). College students who experience more positive emotions were observed to adapt more easily to college life and the learning environment (Trigwell et al., 2012), thus achieving higher life satisfaction (Smedema et al., 2015).

Engagement. Engagement refers to the degree of focus an individual puts into specific activities and the experience of flow (Seligman, 2011). Flow experiences involve being fully absorbed and skillfully engaged in an activity that one finds inherently valuable (Csikszentmihalyi, 1990). The experience of engagement was found to be related to several well-being factors, including life satisfaction (Donaldson & Donaldson, 2020; Kern et al., 2015; Lai et al., 2018), job satisfaction (Dreer, 2021), stress (Donaldson & Donaldson, 2020), and burnout (Lakioti, 2020). In student populations, a higher level of engagement is associated with increased academic commitment and performance (Engeser et al., 2005; Kuh et al., 2008; Umucu, 2017).

More specifically, college students who experience higher levels of engagement were found to dedicate more time to their studies, resulting in higher grades (Kuh et al., 2008).

Relationship. refers to the positive social interaction with others, including being cared about and connecting with others (Seligman, 2011). Relationships can be viewed as an essential part of human happiness and promoting natural relationship is beneficial to overall health (Farmer & Cotter, 2021). Maintaining supportive relationship might act as a protective factor, protecting individuals from the negative effects of stress (Whillans et al., 2017) as well as maintaining healthy practices (Farmer & Cotter, 2021). Relationship is positively related to individual's life satisfaction (Donaldson & Donaldson, 2020; Kern et al., 2015) and positive affect (Leontopoulou, 2020). For individual who has lack of positive relationship, they might be more likely to experience stressful feelings (Donaldson & Donaldson, 2020), depressive and anxious symptoms (Trigg, 2021). College students with robust relationship support were found to experience greater happiness, leading to higher life satisfaction and improved academic performance (Cheng et al., 2012; Diener & Seligman, 2002; Smedema et al., 2015).

Meaning. Meaning refer to an action that belongs to or serves the things that are bigger than individual self (Seligman, 2011). Individuals usually seek meaning in life because it provides them with a sense of fulfillment (Tansey et al., 2018). Higher levels of meaning have been linked to life and job satisfaction, as well as reduced stress and burnout among individuals (Cabrera & Donaldson, 2023; Donaldson & Donaldson, 2020; Kern et al., 2015). Meaning was also associated with academic performance and social relationships among college students (Arvig, 2006; DeWitz et al., 2009). For college students, pursuing meaningful activities might not only be related to academic goals but also involve a connection with the community. For example, meaning was found to be largely increased due to the engagement of college students

in community activities and supporting others (Baumeister et al. 2012; S. A. Smith et al., 2021). Moreover, most college students enter higher education institutions to obtain degrees, so that they can achieve career goals in the future (Chan et al., 2020; O'Neill et al., 2015). Thus, the element of meaning is also important to college student' population.

Accomplishment. Accomplishment refers to making progress toward the goal and the dedication of accomplishment (Seligman, 2011). Achievement may contribute not only to individual happiness but also to eudemonic well-being, centered around a sense of purpose or personal growth (Farmer & Cotter, 2021). Accomplishment have been found to be negatively associated with psychological distress, such as stress and burnout (Donaldson & Donaldson, 2020; Lakioti, 2020). However, it was also positively related to life and job satisfaction (Cabrera & Donaldson, 2023).

Overall, well-being was demonstrated to predict college students' physical health and academic performance (Coffey et al., 2016). For instance, college students with poor well-being might also face challenging academic outcomes, such as course failure, dropout, as well as low-grade point average (Bleck et al., 2023). Moreover, each of the five elements of well-being might also be presented differently for college students and their well-being might also vary due to differences in individual characteristics (e.g., gender, sexual orientation, and personal traits; Jeong et al., 2020; Soria & Horgos, 2021) as well as environmental factors (e.g., institutional support; Baik et al., 2019).

Related Variables & Measurement Instruments

Well-being

Individual well-being is commonly measured by several instruments, such as the PERMA-Profiler (Butler & Kern, 2016), the Flourishing Scale (Diener et al., 2009), the General

Well-being Schedule (Fazio, 1977) or using the tripartite model of the Subjective Well-Being, including life satisfaction, positive affect, and negative affect (Diener, 1984). Among the array of instruments available, the PERMA-Profiler (Butler & Kern, 2016) was developed based on the well-being theory of positive psychology. Also, it measures not only a participant's overall well-being but also provides specific measures for each of the five pillars of well-being (e.g., positive emotion, engagement, relationship, meaning, and achievement; Seligman, 2002). Additionally, the PERMA-Profiler (Butler & Kern, 2016) was widely used within college student population (B. W. Smith et al., 2021; Prasath et al., 2021) and individuals with disabilities population (Nebrida & Dullas, 2018; Umucu, 2021). Thus, to have a comprehensive understanding of participant's well-being with the implementation of the intervention, the PERMA-Profiler was be used for this study to assess participant's well-being.

Resilience

Resilience is defined as one's ability to adapt from a difficult experience and able to bounce back (Carver, 1998). It was believed that resilience is a changeable trait that could be reflected through an individual's developmental process (Luthar, 2006). Resilience was proven to impact various well-being related factors, such as life satisfaction, stress, and social support (Yıldırım & Tanrıverdi, 2021). In general, resilience is an essential factor in maintaining individuals' well-being (Wolf et al., 2018), especially when facing life adversities or stress. Several previous studies also proved that individual's resilience was positively correlated to the well-being's PERMA framework (Huppert & So, 2013; Karreman & Vingerhoets, 2012). Resilience was also among the common measured outcomes in gratitude intervention studies (Calleja et al., 2024).

Among college students, the levels of resilience were associated with stress (Helou et al., 2019), eating behavior (Thurston et al., 2018), anxiety, and depression symptoms (Gloria & Steinhardt, 2016). The effect of resilience was also vitally impacting student's college adjustment, including the academic stress (Cole et al., 2015; Hartley, 2011). Resilient students were believed to have more positive characteristics, including optimistic and adaptive coping strategies when faced with stress (Bonanno, 2008). Those students are more likely to experience greater enjoyment, fulfillment, and life satisfaction (Yıldırım & Çelik Tanrıverdi, 2020).

The Brief Resilience Scale (Smith et al., 2008), the Student Resilience Survey (Lereya et al., 2016), and the Connor-Davidson Resilience Scale (Connor & Davidson, 2003) are commonly used instruments to measure resilience. The Student Resilience Survey (Lereya et al., 2016) is a valuable instrument that is specifically designed for a student population with good psychometric properties. However, it contains 47 items across 12 subscales, which could potentially pose a burden, particularly considering this study while various variables will be measured. The Connor-Davidson Resilience Scale (Connor & Davidson, 2003) was also an excellent instrument and was proved to have good psychometrics properties (Gonzalez et al., 2015). It focuses more on the resources to support resilience growth, and the Brief Resilience Scale (Smith et al., 2008) directly measures one's ability to be resilient (Ye et al., 2022). The Brief Resilience Scale (Smith et al., 2008) was also widely used among college students (Lorenz et al., 2022; Umucu et al., 2018; Yıldırım & Çelik Tanrıverdi, 2020), including college students with disabilities (Enrique et al., 2019). Thus, the Brief Resilience Scale was selected in this study to measure individual's resilience.

Perceived Stress

Common stressors experienced by college students are sleep disturbance, anxiety, and relationships (Hartson et al., 2023). The stress level that college students experience is not consistent and changes over time. For example, students might experience more stress during the senior year than at the beginning of college life (Neufeld et al., 2020), while some others might find it more stressful to navigate first-year colleges (Çınar-Tanrıverdi & Karabacak-Çelik, 2023). Increased stress level during the developmental transition period from high school to college and adulthood may lead to reduced well-being (Hartson et al., 2023). Thus, supporting student's well-being has become a priority in many higher education settings (Chessman & Taylor, 2019).

Individual's stress level is usually assessed by using measures such as the Daily Inventory of Stressful Events (Almeida et al., 2002); the Perceived Stress Scale (Cohen et al., 1983; Cohen and Williamson, 1988), and the Student-Life Stress Inventory (Gadzella, 1994). Among all three, the Perceived Stress Scale remains one of the most popular instruments to measure stress. It has also been utilized among the college student population (Enrique et al., 2019; Lorenz et al., 2022; Tansey et al., 2018). Specifically, different versions of the Perceived Stress Scale were used, including the 10-item version, the four-item version, and the original 14-item version (Cohen & Williamson, 1988). The 10-item version was created after eliminating four low-factor loading items from the original version and was proven to have satisfactory internal consistency (Chaaya et al., 2010) and being used among individuals with disabilities (Lee, 2022; Wieckiewicz et al., 2022). Given its widespread use, satisfactory psychometrics, and applicability to both the college student and individuals with disabilities populations, the Perceived Stress Scale-10 (Cohen & Williamson, 1988) was chosen to be utilized in this study to measure participant's perceived stress.

Interventions in School Settings

General Interventions

To promote the well-being of college students and better support their adjustment to college life, various interventions were designed, developed, and implemented. These interventions encompass a range of approaches, including physical exercise, psychotherapy, mindfulness, art therapy, and others targeting various aspects such as anxiety, depression, destress, or burnout (Huang et al., 2018) Interventions implemented in higher education include individual and group setting (D'Souza et al., 2021), and can be either self-administered or instructional, or some take place in-person, while others are facilitated through online platforms (Huang et al., 2018).

Various studies have explored the effectiveness of interventions in supporting college students. A meta-analysis demonstrated that psychological interventions were effective in reducing the depressive symptoms of college students (Cuijpers et al., 2016). Specifically, cognitive behavioral therapy (CBT) and mindfulness-based interventions demonstrated effectiveness for both anxious and depressive symptoms (Huang et al., 2018), with CBT interventions showing a medium to large effect size (Hofmann et al., 2012). In addition, Mindfulness intervention was proven to significantly decrease stress levels among college students while simultaneously enhancing their stress management skills and overall well-being (Boyd & Alexander, 2022; Falsafi, 2016; Gu et al., 2018). For college students with disabilities, a peer mentoring program was found to be effective, particularly when students have increased access to available accommodations, thereby facilitating a more supportive and enhanced college experience (Lombardi et al., 2020). Nonetheless, positive psychology interventions have emerged as a popular topic of study among college students' population due to their potential to

enhance college students' academic performance (Browning et al., 2018; Mofidi et al., 2014), life satisfaction (Cregg & Cheavens, 2021; Schutte & Malouff, 2019), and overall well-being (Boyd & Alexander, 2022; Enrique et al., 2019). In the section below, a variety of positive psychology interventions are described in more details.

Positive Psychology Interventions

Unlike clinical psychology, positive psychology is mostly focused on positivity and strengths (Jeong et al., 2020). Positive psychology interventions were developed to improve positivity and happiness for individuals with long-term effects (Sin & Lyubomirsky, 2009), with topics including savoring, gratitude, kindness, empathy, optimism, and strength (Parks & Layous, 2016). Practitioners have adopted the model and developed a number of well-being focused interventions such as positive psychotherapy (Seligman et al., 2005), PERMA training in workplaces (Norrish et al., 2013), wellness coach programs (Bleck et al., 2023) and positive psychology course in higher education settings (B. W. Smith et al., 2021), books about positive psychology exercises (Lyubomirsky, 2008), and robotic coach (Jeong et al., 2020). Different factors were also being identified to promote a sustain positive outcomes among individuals who engaged in positive psychology interventions, such as awareness, coping strategies, habits, character strengths, and relationships (Rusk et al., 2018).

Furthermore, positive psychology interventions have shown efficacy in enhancing the well-being of individuals with disabilities, such as those with schizophrenia or depression (Braga et al., 2021; Walsh et al., 2018) and individuals with chronic pain (Braunwalder et al., 2022). Additionally, while positive psychology originated in Western countries, studies have revealed the effectiveness of these interventions in diverse cultural environments (Lambert, 2019),

highlighting their cross-cultural applicability and relevance. These indicated the broad applicability across different populations and cultures, including minorities.

In general, positive psychology interventions were found to be empirically effective in improving well-being, life satisfaction, positive emotions, and solution-focused thinking among college students (Atad & Grant, 2021; Lambert et al., 2019). In college settings, positive psychology interventions were implemented in various formats, including course-like intervention (B. W. Smith et al., 2021) and online intervention (Koydemir et al., 2016); with different durations ranging from short-term (e.g., 2 weeks; Renshaw & Rock, 2018) to long-term (e.g., 14 weeks; Lambert et al., 2019), as well as different numbers of components (Davis et al., 2016; Liu et al., 2021). Despite these variations, studies have consistently found small to medium effectiveness in students' well-being improvement following these interventions (Carr et al., 2021). For example, despite the typical decline in well-being experienced by college students throughout the semester (Barker et al. 2018), students who participated in a positive psychology intervention reported an increased sense of well-being (B. W. Smith et al., 2021). Below are some common positive psychology interventions that have been implemented among college students.

Hope Interventions. Hope has been a strong predictor for indicating individual's well-being (Butler & Kern, 2016). Previously, hope interventions were proven to be effective among patients with diverse health needs (Bartley et al., 2019; Chan et al., 2020). Hope intervention was also found to be associated with a better college experience. To examine the effectiveness of hope intervention, several studies were conducted using various formats, including smartphone-based (Berg et al., 2020; Daugherty et al., 2018) and face-to-face intervention (Feldman & Dreher, 2012). For example, Feldman and Dreher (2012) conducted a 90-minute single session

for college students, resulting in an increase of hope as well as a heightened sense of life purpose. More specifically, hope intervention might also be beneficial to college students from marginalized or underrepresented groups (Dixson, 2023). It was believed that the hope interventions could strengthen students' agency thinking, goal-setting, identification of strategies, reinforcement of self-motivation, and evaluation processes (Bernardo & Sit, 2020; Bina et al., 2020).

Resilience Interventions. Strengthening resilience has the potential to enhance mental health and well-being among college students (Enrique et al., 2019). Resilience interventions encompass three different types based on the timing of the stressors: before stressor exposure when the intervention is designed as preparation, during stressor exposure to prevent dysfunction, and after stressor exposure to respond to immediate dysfunction (Chmitorz et al., 2018). Research has generally shown at least a small effect size of improvements in resilience and well-being after receiving interventions (Liu, et al., 2020). Steinhardt and Dolbier (2008) implemented a four-session resilience intervention with college students and found that participants were able to develop more resilience, enhance coping skills, and experience less psychological distress. Group resilience interventions have also demonstrated effectiveness among college students, providing a supportive space for shared experiences and collaborative learning of resilience strategies (First et al., 2018).

Mindfulness-Based Interventions. Mindfulness is a practice involving conscious and non-judgmental awareness of the present moment (Lomas et al., 2018). Mindfulness-based positive psychology interventions usually focus on several aspects such as self-compassion and resilience to increase individual's hedonic well-being (Allen et al., 2021). In general, mindfulness-based interventions have shown a reduction in stress levels among college students.

In the United Kingdom, a mindfulness intervention was delivered as a course for college students, showed promising results by reducing stress with a medium effect size (Galante et al., 2018). Similar findings were also found in South Africa when medical student participants showed significant improvement in stress management as well as well-being (Boyd & Alexander, 2022). The impact of mindfulness-based intervention has also been shown to have a lasting effect. For example, a longitudinal study conducted among college students in Norway revealed that students reported increased well-being six years after the intervention (Vibe et al., 2018).

Character Strengths Interventions. Character strengths were classified and organized by Peterson and Seligman (2004) to help individuals foster both individual and community well-being (B. W. Smith et al., 2021; Wagner et al. 2020). There are 24 strengths categorized under the six virtues of wisdom, courage, humanity, justice, temperance, and transcendence. A meta-analysis of character strengths intervention demonstrated that it has significant improvement in individual's happiness and life satisfaction, while decreasing depressive symptoms (Schutte & Malouff, 2019). Character strengths were found related to academic performance, stress management, psychological symptoms, socialization, and well-being among college students (Browning et al., 2018; B. W. Smith et al., 2021; Koch et al., 2020). For example, using a randomized controlled trial, Koydemir and Sun-Selışık (2016) examined an eight-week strength-focused intervention among first-year college students revealing significant improvements in well-being when compared to a control group.

Positive Psychology-based Course/Coaching Interventions. One significant strength of implementing positive psychology interventions interactively is the ability to establish positive relationships and rapport between the intervention agent and the recipients (Jeong et al., 2020).

The interactions could happen between humans and even human-computer interactions. Numerous studies have underscored the efficacy of positive psychology-based courses or coaching within higher education settings. For instance, Jeong and colleagues (2020) examined an artificial intelligence interactive robotic positive psychology-based coaching for on-campus college students. Students who engaged in seven days' intervention with seven different sessions were found to have significant improvement in well-being and mood status. The benefits of intervention interaction could also be utilized in the course settings. A 14-week course-based positive psychology intervention was developed and explored among diverse college students in the United Arab Emirates (Lambert et al., 2019). Through delivering 18 different sessions, participating students were found to have increased levels of well-being and happiness. A similar result was also noted in the United States, when students engaged in positive psychology-based courses, they were found to have higher levels of well-being (B. W. Smith et al., 2021).

Gratitude Interventions. Gratitude, viewed as individual's appreciation of meaningful and pleasant experiences in one's life (Jans-Becken et al., 2020), has consistently been associated with a heightened sense of happiness and overall well-being (Brown & Wong, 2017). Different gratitude interventions were proven to have various outcomes, including improving physical health and life appraisals (Emmons & McCullough, 2003). Prior systematic reviews on gratitude interventions also reported beneficial impacts on individual's well-being (Cregg & Cheavens, 2021; Jan-Becken et al., 2020). Gratitude interventions could be implemented through gratitude journaling (Benjamin & Holliman, 2022; Geier & Morris, 2022; Hartanto et al., 2022; Lorenz et al., 2022; Nawa & Yamagishi, 2021), grateful thinking (Renshaw & Rock, 2018), gratitude CBT (Utami et al., 2020); and writing gratitude letter (Timmons et al., 2017). For instance, Lorenz and colleagues (2022) invited 157 college students to participate in a 4-week gratitude intervention,

during which students engaged in 6-minute journaling to list grateful things. Participating students were found to have lower levels of stress and negative affect, along with increased resilience and self-efficacy, in comparison to a waitlist control group. Gratitude intervention was found to be effective in promoting academic motivation (Nawa & Yamagishi, 2021) and reducing academic stress (Flinchbaugh et al., 2012; Lorenz et al., 2022; Utami et al., 2020) for college students.

For this study, a gratitude intervention was implemented for college student population including those with and without disabilities, to explore its effects in supporting their well-being. However, a well-developed intervention like gratitude intervention might also require modifications to align with the needs and target goals of college students, especially those with disabilities (Liu et al., 2021).

Positive Effects of Gratitude Interventions

Through a regular practice of gratitude, individuals might benefit from improvement of well-being (Macfarlane, 2020). Given that the experience of gratitude can be modified and subjectively adjusted (Peterson & Seligman, 2004), various gratitude interventions have been developed to promote individuals' positive emotions, adjustment, and adaptation to new situations burden (Chun & Lee, 2013). Several studies demonstrated that gratitude is largely associated with well-being, positive affect, life satisfaction, substance abuse, and stress (Cregg & Cheavens, 2021; Watkins & Watkins, 2014; Wood et al. 2010). Among the college student population, studies suggested that enhancing gratitude can help college students combat the stresses of college life (Geier & Morris, 2022; Senf & Liau, 2013; Young & Hutchinson, 2012). For individuals with depression and anxiety, gratitude interventions were also found to have modest effectiveness (Cregg & Cheavens, 2021).

Gratitude letter intervention refers to writing grateful letters and delivering them to the recipient, which may also involve reading the letter to the recipient (Emmons, 2013), which could also be called a gratitude visit (Emmons & McCullough, 2003). This type of intervention helps individuals experience increased life satisfaction, greater subjective happiness, and decreased levels of depressive symptoms (Toepfer et al., 2012). Gratitude letters have also been implemented in the classroom setting (Lloyd-Hazlett & Maestri, 2013). It was proved that when a gratitude letter combined with visiting and reading, an individual's happiness and gratitude levels were increased significantly (Stefan et al., 2021). Writing a gratitude letter has been compared with writing a gratitude journal. While both interventions remain effective in supporting individuals in developing a sense of gratitude, writing gratitude letters was found to be less efficient, due to decreased individual autonomy and completion of the intervention (Kaczmarek et al., 2015).

Grateful thinking is a much less researched intervention (Renshaw & Rock, 2018) and typically involves participants reflecting on someone or something they are grateful for over several minutes (Watkins et al., 2003). Renshaw and Rock (2018) employed a randomized controlled trial design, in college students who participated in a two-week grateful thinking intervention with five minutes of practice daily. The treatment group showed greater improvement in happiness and life satisfaction while experiencing reductions in depression, stress, and negative affect. Gratitude was also integrated with cognitive behavior therapy in a three-week group therapy intervention among college students. The participants exhibited a significant reduction in academic stress following the intervention (Utami et al., 2020).

Gratitude journaling is one of the common types of interventions being studied in the field, that individuals can practice by themselves or through commercial networks. For instance,

the 6-Minute diary is a commercial product to practice daily gratitude journaling. It includes an introductory section, followed by a daily diary section incorporating three morning and three evening positive psychology interventions. This product was utilized in a German college setting with promising results (Lorenz et al., 2022). However, concerns were raised due to its financial accessibility as well as the lack of reminders. Gratitude journaling could also be administered weekly, prompting participants to recall things they are grateful for from the past week (Emmons & McCullough, 2003). Geier and Morris (2022) conducted a 10-week reflective gratitude journaling intervention among college students and demonstrated that the intervention was beneficial in improving students' mental health, even amid the stress of a global pandemic. Promising results were also reported in studies conducted in Japan utilizing gratitude journaling among college students, where participants exhibited a higher increase in academic motivation (Nawa & Yamagishi, 2021). Gratitude journaling allows various ways of practice, individuals may choose to write an entire journal daily, while others may just engage in recording a few sentences that reflect daily grateful thoughts, such as the "Three Good Things" intervention.

"Three Good Things" Intervention

The "Three Good Things" intervention is one of the popular gratitude interventions due to its cost-effectiveness and readily implementable. Seligman and colleagues (2005) developed this intervention by asking individuals to participate in the intervention at the end of each day for a week, writing down "Three good things happened during the day" and reflecting on "Why did it happen to you?". This intervention has been proven to be effective in increasing participants' happiness and well-being levels, as well as reducing negative feelings (Gander et al., 2013; Seligman et al., 2005).

Even though the original “Three Good Things” intervention was designed to be conducted using physical notebooks, some of the studies used alternative online format to better meet the societal changes and individual needs (Rippstein-Leuenberger et al., 2017; Sexton & Adair, 2019; Wu, 2021). Furthermore, the intervention has also been extended to a longer duration, such as two weeks (Hartanto et al., 2022). In addition to promoting positive emotions through the daily practice of recognizing three good things, reflecting on an individual’s role in bringing about those positive experiences plays a crucial role in enhancing their awareness and attention toward positivity (Rusk et al., 2018).

The “Three Good Things” intervention has been successfully applied to several populations, including healthcare providers (Rippstein-Leuenberger et al., 2017; Sexton & Adair, 2019), inpatient individuals (Zehner et al., 2022), young adults (Hartanto et al., 2022), and college students (Lai & O'Carroll, 2017; Wu, 2021). Those populations were selected to apply this intervention due to some commonalities shared, including low well-being and high stress. For example, healthcare provider participants were found facing increasing demand in society with challenging requirements and work pressure (Sexton & Adair, 2019). In addition, healthcare providers usually have busy and tight schedules with less flexibility for complex or intensive interventions (Sexton & Adair, 2019). The other population is the inpatient individuals, who generally were found to have low levels of happiness, which might impact their overall health recovery (Zehner et al., 2022). College students have also been studied for similar reasons, given their busy schedules and the stressful challenges they face (Lai & O'Carroll, 2017; Wu, 2021).

Findings across different studies resulted in various insights. Firstly, participants across all studies were found to have higher positivity after engaging in the “Three Good Things” intervention, while the increase might not be statistically significant (Zehner et al., 2022).

Moreover, participants were found to have reduced levels of depression or negative effects (Hartanto et al., 2022; Sexton & Adair, 2019; Wu, 2021). However, with studies that involved comparison groups, inconsistent results were yielded with statistical differences being found 16 weeks after the intervention but not yet at eight weeks timepoint (Wu, 2021). Similarly, Zehner and colleagues (2022) found no significant difference between the treatment and control group among the inpatient individuals who completed an average of 8 weeks of intervention. Hartanto and colleagues (2022) also demonstrated a significant within-person and cumulative effect for the "Three Good Things" intervention among young adults. Besides the different research findings, every individual could have varied reaction for each intervention (Parks & Biswas-Diener, 2013), especially consider their different needs and at different level of well-being status (Lyubomirsky & Layous, 2013).

Limitations among Literature. Limitations were revealed in the previous studies about the "Three Good Things" intervention. One notable limitation that was addressed and modified in several research studies is the physical writing format (Rippstein-Leuenberger et al., 2017; Sexton & Adair, 2019; Wu, 2021). Researchers demonstrated concerns about participants losing the physical notebook during the intervention, which could impact the effectiveness of the program (Zehner et al., 2022). In addition, a format of physical notebook writing intervention might also exclude individuals who are unable to write without accommodations. Thus, an online platform was used for this study to better address the inclusion and the applicability of the intervention.

Moreover, while it's been approved that a long duration of intervention might better help participants to establish habitual grateful thinking patterns (Carr et al., 2021), high attritions for this intervention were observed across several studies (Lai & O'Carroll, 2017; Sexton & Adair,

2019; Zehner et al., 2022). Considering the different work nature of populations, a long-duration intervention could also become burdensome instead of support to participants (Zehner et al., 2022). Last but not least, while the effect of the "Three Good Things" intervention primarily yielded small effect sizes (Cregg & Cheavens, 2020; Hartanto et al., 2022), its convenience, easy administration, and cost-effectiveness suggest a low barrier for college students to entry.

Application for students with and without disabilities. There are a few studies conducted among college students, however, the prevalence of high attrition rates, absence of follow-up, or control over pre-intervention conditions lead to notable limitations that might impact the broad generalization of findings from these studies (Lai & O'Carroll, 2017; Tagalidou et al., 2019; Wu, 2021). One study specifically targeted an inpatient population, while rapid changes within inpatient settings and the loss of participants throughout the intervention period brought concerns about the study's integrity and the generalization of the results (Zehner et al., 2022). In addition, there are differences between the inpatient population and the broader population of individuals with disabilities, especially with the environmental settings as well as changing needs. There should be caution in directly applying study results from the inpatient population directly to individuals with disabilities.

Considering the college student population, including college students with disabilities, they also shared some similarities from the aforementioned characteristics. While college students were found to face high levels of stress (Hartson et al., 2023), the stress levels experienced by those with disabilities were significantly higher (Barkley et al., 2008). Often, students are expected to meet academic requirements, navigate interpersonal relationships, as well as foster independence development throughout their college life. Given these multifaceted demands, college students often have tightly packed schedules, leaving them with limited

availability to incorporate time-consuming strategies to enhance their well-being. Thus, the "Three Good Things" intervention might be beneficial to college students, including students with disabilities, due to its cost-effectiveness, readily implementable, and time efficacy.

Summary

In this comprehensive review of the literature, we explore diverse range of positive psychology interventions, with a specific focus on college students' population and the challenges they encounter. We review and synthesized research studies that aimed at improving well-being of college students as well as examine related factors. Additionally, we explore various gratitude interventions, particularly Three Good Things intervention, identifying the limitations and gaps in the current literature. This literature review establishes a theoretical framework and a foundation for the significance of this study.

CHAPTER 3: METHODOLOGY

This chapter describes the details of the research design, research questions and hypotheses, modification of the intervention, participants, selection criteria, procedures, and measures, as well as data collection and data analysis procedures.

Research Design

A convergent mixed method design was used in this study that involved collecting both quantitative and qualitative data simultaneously (Creswell & Creswell, 2018). Based on the recommendations for gratitude intervention (Ghosh & Deb, 2017), this study utilized a pre-post-follow-up comparison approach with two groups, to evaluate the intervention's effectiveness through both within-group and between-group comparisons (Creswell & Creswell, 2018). Quantitative data was used to measure well-being changes, before, immediately after, and one month following the intervention for college students with and without disabilities to examine the effectiveness of the intervention and the differences in well-being changes between the two groups. Qualitative feedback from participants was used to understand their perspectives on the modified intervention. The content of the "Three Good Things" from all participants was analyzed to identify common themes and provide valuable insights. Both quantitative and qualitative findings was used to inform and validate each other (Creswell & Creswell, 2018).

Research Questions and Hypotheses

Research Question 1: How does the modified "Three Good Things" intervention affect the overall well-being of college students with and without disabilities? Hypothesis 1a: The modified "Three Good Things" intervention will have a significant positive impact on the well-being of college students with and without disabilities. Hypothesis 1b: The modified "Three Good Things" intervention will have a significant increase on the resilience of college students

with and without disabilities. Hypothesis 1c: The modified "Three Good Things" intervention will have a significant decrease on the perceived stress of college students with and without disabilities.

Research Question 2: Are there any differences in the effect of the modified "Three Good Things" intervention between college students with and without disabilities? Hypothesis 2: There will be a significant difference in the effect of the modified "Three Good Things" intervention between college students with and without disabilities.

Research Question 3: What are the perceptions and experiences of the modified "Three Good Things" intervention among participants?

Research Question 4: What recurring themes and insights emerge from the content of the modified "Three Good Things" intervention among participants?

Modification of the "Three Good Things" Intervention

This study utilized a modified gratitude intervention "Three Good Things", which was designed to improve the gratitude and well-being of individuals (Seligman et al., 2005). The modification of the "Three Good Things" intervention was a pre-dissertation project conducted by this researcher to modify the intervention and better support the needs of college students with disabilities. The original "Three Good Things" intervention was developed to be completed daily for a week when participants were asked to write down "Three good things happened during the day" and "Why did it happen to you?" (Seligman et al., 2005). Previous studies revealed several limitations and concerns associated with the original intervention (Rippstein-Leuenberger et al., 2017; Sexton & Adair, 2019; Zehner et al., 2022). One notable limitation is related to the physical writing process, which could potentially exclude individuals who are unable to write, raising concerns about inclusivity. Additionally, there is a high risk of losing the

physical notebook during the course of the intervention, which could also impact the effectiveness of the program (Zehner et al., 2022). Furthermore, while a more extended intervention design has the potential to help participants build stronger habits of grateful thinking patterns (Carr et al., 2021), there's a risk of participant attrition (Lai & O'Carroll, 2017; Sexton & Adair, 2019) and the intervention's duration could become burdensome to some individuals (Zehner et al., 2022). To address the limitations, prior research has suggested online implementation of the intervention with regular reminders through participants' mobile phones. The modification would be more likely to keep participants engaged and motivated throughout the intervention period, with the goal of cultivating a sustained habit of gratitude practice (Lai & O'Carroll, 2017; Sexton & Adair, 2019; Wu, 2021; Zehner et al., 2022).

Before modifying the intervention, this researcher conducted semi-structured individual interviews with four college students with disabilities and five college disability specialists to better understand participants' preferences regarding intervention length, format, reminder, and any concerns they might have. Based on the interview results, a two-week long intervention seemed to be among the acceptable length across all interviewees. Moreover, all interviewees expressed agreement regarding the utility of the online format and the efficacy of receiving text messages at consistent times (most interviewees suggested evening at 19:00 EST). Several notable concerns were also brought up during the interviews, drawing this researcher's attention to the timing of the intervention, accessibility, and potential challenges of participants forgetting the intervention.

Based on a recent systematic review (Donaldson et al., 2019) and the interview findings, it is apparent that a promising positive psychology intervention should include key components, such as learning, practicing, reflection, and relatedness. The modified "Three Good Things"

intervention for this study is a two-week long intervention and was administered through an online platform, Qualtrics. Participants received daily text-message reminders at 19:00 (EST), each containing a link directing them to a web page to provide responses to the "three good things that happened during the day" and reflect on "why it happened to me". Significant attention was dedicated to the intervention's design to ensure the accessibility of the intervention by a diverse range of participants, including students with disabilities.

Participants

The target sample for this study was students with and without disabilities within a higher education setting, including both undergraduate and graduate students. Specific inclusion criteria include: (a) individuals who are age over 18, and (b) currently attending higher education institution.

A total of 111 participants enrolled in the study, with 55 assigned to the Treatment group and 56 to the Control group. At baseline (T1, pre-intervention), complete data were available for all 111 participants. Following randomization and implementation of the intervention, at T2 (post-intervention), 12 participants (six from the Treatment group and six from the Control group) withdrew during the two-week intervention period, resulting in a sample size of 99 ($n_{\text{Treatment}} = 49$, $n_{\text{Control}} = 50$) at T2 (post-intervention). Follow-up data was exclusively collected from the Treatment group at T3 (one-month post-intervention), given the Control group did not receive the intervention. Of the 49 participants in the Treatment group at T2, 39 participants completed the one-month follow-up survey one, representing an additional attrition of 10 participants. Missing data at T2 and T3 were handled using listwise deletion, that only participants with complete data at each time point were included in the respective analyses.

Of the 99 participants (M_{age} = 22.61, *SD* =3.94), 70.71% (*n* = 70) were female, 22.22% were male (*n* = 22), and 16.16% (*n* = 16) reported being cisgender. It was found out that among young adults, such as college students, more female (i.e., 65%) were observed participating in research interventions than other genders (Sharkey et al., 2020). Of the 99 participants, 58.59% were White/European (*n* = 58) and 29.29% were Asian/Asian-American (*n* = 29). 64.65% participants (*n* = 64) reported having no disability, with about 22.22% participants (*n* = 22) reported having psychiatric disabilities and 13.13% participants (*n* = 13) reported having Attention Deficit and Hyperactive Disorders (ADHD). Table 3.1 presents the summary of the study participants' personal demographic information.

About 39.39% participants (*n* = 39) were graduate students and 56.57% were undergraduate students (*n* = 56). The 99 participants were studying from different filed, such as 29.29% were Business and Education (*n* = 29), 28.28% were from STEM and Health Science (*n* = 28), 26.26% were from Arts, Humanities, Communication (*n* = 26), 14.14% from Social Science and Law (*n* = 14). More than half of the participants (57.58%, *n* = 57) lives at off-campus residence, 38.38% of participants lives on-campus (*n* =38), and four participants lives with family (4.04%). Table 3.2 presents the summary of the study participants' academic demographic information.

Table 3.1

Participant Demographics (Personal Characteristics)

Personal Characteristics (*n* = 99)	*n*	%
Gender*		
Woman	70	70.71%
Man	22	22.22%

Table 3.1 (cont'd)

Cisgender	16	16.16%
Transgender	4	4.04%
Non-binary	7	7.07%
Genderqueer	3	3.03%
Gender nonconforming	1	1.01%
Self-describe or prefer not to respond	2	2.01%
Race*		
African American / Black	7	7.07%
Asian / Asian-American	29	29.29%
Biracial / Multiracial / Mixed Races	2	2.02%
Hispanic / Latinx	5	5,05%
Middle Eastern / North African	7	7.07%
Native American / Alaska Native / First Nations	1	1.01%
White / European	58	58.59%
Self-describe or prefer not to respond	3	3.03%
Disability Type*		
No Disability	64	64.65%
ADHD	13	13.13%
Autism Spectrum Disorders	9	9.09%
Brain Injury	1	1.01%
Chronic Health Disabilities	8	8.08%
Deaf / Hard of Hearing	2	2.02%

Table 3.1 (cont'd)

Learning Disabilities	3	3.03%
Mobility Disabilities	1	1.01%
Physical Disabilities	2	2.02%
Psychiatric Disabilities	22	22.22%
Other Disabilities	3	3.03%

Note: Variables marked with * indicate multiple responses were allowed.

Table 3.2

Participant Demographics (Academic Characteristics)

Academic Characteristics (n = 99)	*n*	%
Current Year in School		
Undergraduate	56	56.57%
Master Level Graduate	9	9.09%
Doctoral Level Graduate	30	30.30%
Other	4	4.04%
Major Field		
Art, Humanities, Communication	26	26.26%
Business and Education	29	29.29%
Social Science and Law	14	14.14%
STEM and Health Sciences	28	28.28%
Other	2	2.02%
Housing Situation		
Living with Family	4	4.04%

Table 3.2 (cont'd)

Off-Campus Residence	57	57.58%
On-Campus Residence	38	38.38%

Procedure

Recruitment

This study employed non-probability convenience sampling. After obtaining approval from the Michigan State University (MSU)'s Institutional Review Board (IRB), this researcher recruited potential participants by distributing recruitment materials (e.g., flyers) through emails and posting throughout campus buildings. The recruitment materials included a link and a QR code that directed individuals to sign up for the study through Qualtrics, an online survey platform. Interested individuals reviewed the inclusion criteria, identified their disability status (if any), and provided their name and contact information. They then received an email with a link to sign the informed consent form and complete the pre-intervention survey. Once the pre-survey was completed, participants was randomly assigned to either the intervention or control group. Intervention group participants received detailed instructions and materials about the intervention. Control group members was informed of their assignment and asked to wait for two weeks period to complete a second pre-intervention survey. All participants were also given mental health resources, including crisis contacts, on-campus support services, and the researcher's contact information for any questions or concerns.

Implementation of the "Three Good Things" Intervention

The modified "Three Good Things" intervention was designed to be implemented through Qualtrics where each participant in the intervention group visits daily. Each participant was given a link to start recording daily entries of the three good things from their day, along

with reflections of the underlying reasons for these events. Participants were reminded to continue their daily entries for two consecutive weeks. Considering the importance of building rapport with participants (Jeong et al., 2020), this researcher maintained active engagement through daily progress checks and sending additional reminders as needed. Once when each participant completed the two-week intervention, they received the full record of their own daily entries respectively. Control Group received delayed intervention just like the intervention group after wait period. For the purpose of this dissertation, final analyses focus on comparing outcomes between the treatment and control groups prior to the administration of the delayed intervention.

Each participant received a $10 Amazon gift card via email through completing the intervention at different time points. For intervention group (1) upon completion of pre-intervention survey, (2) upon completion of seven daily entries during the first week, (3) upon completion of seven daily entries during the second week and the post-intervention survey, and (4) upon completion of the follow-up survey one-month post intervention. For control group (1) upon completion of pre-intervention survey, (2) upon completion of second pre-intervention survey after 2-week waiting period, (3) upon completion of seven daily entries during the first week, (4) upon completion of seven daily entries during the second week and the post-intervention survey.

Measures and Data Collection

In this study, participants' demographic information was collected along with three psychometric instruments (PERMA profile, Perceived Stress Scale, Brief Resilience Scale) used to measure participants' changes in well-being, stress level, and resilience, before and after participating the modified Three-Good-Thing intervention. One attention question was added

across the three psychometric instruments (e.g., “Please select "4" for this item to show you are paying attention to this question”) to help indicating participants paying attention. All participants passed the attention check, and no data were excluded. Additionally, participants' engagement and feedback about the intervention were collected throughout the intervention as well as during follow-up.

Demographic Questionnaire

Participant’s demographic information was collected, including (1) age; (2) gender; (3) race/ethnicity; (4) current year in school; (5) major; (6) type of disability; (7) housing situation (e.g., on-campus residence; off-campus residence; living with family; others).

Participants’ Engagement and Feedback

Participant’s engagement and feedback were collected for the intervention. The total number of days each participant actively completed the intervention were collected. During the post-intervention and follow-up- survey, participants were asked to rate three evaluation questions with a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly disagree). The questions include “I like the Three Good Things and benefit from it”, “I will encourage others to try the Three Good Things intervention”, and “I will continue to participate in the Three-Good-Things”. Participants also provided additional comments and feedback in text boxes toward the end of the survey (Sexton & Adair, 2019).

Instruments

Well-being. The PERMA-Profiler (Butler & Kern, 2016) was used to measure the five elements of PERMA (positive emotion, engagement, relationship, meaning, achievement) that contribute to an individual’s well-being (e.g., “How much of the time do you feel you are making progress towards accomplishing your goals?”). The PERMA-Profiler is consisted of 23

questions which are rated on an 11-point scale ranging from 0 (never) to 10 (always) or 0 (not at all) to 10 (completely). Each PERMA element has 3 related questions with 8 filter questions (e.g., health, negative emotion, loneliness). The calculated total average scores will serve as a representation of the overall well-being, with sub-scores delineating each element of PERMA and a higher score indicating a greater level of well-being.

The measure was found to have acceptable psychometric properties with Cronbach's alphas of 0.94 for the overall scale, 0.88 for positive emotion, 0.72 for engagement, 0.82 for relationships, 0.90 for meaning, and 0.79 for accomplishment, respectively (Butler & Kern, 2016). In addition, Cronbach's alpha was found to be 0.96 in a study among participants with disabilities (Umucu & Lee, 2020). In this study, the PERMA-Profiler had good internal consistency across time points (α range: 0.83- 0.88). The five elements of PERMA demonstrated acceptable or above internal consistency: positive emotion (α range: 0.83- 0.94), relationship (α range: 0.72- 0.84), meaning (α range: 0.79- 0.89), accomplishment (α range: 0.78- 0.85), expect engagement with poor internal consistency with α range from 0.48 to 0.76.

Resilience. The Brief Resilience Scale (Smith et al., 2008) was used to measure individual's resilience and ability to recover from stress (e.g., "I tend to bounce back quickly after hard times"). Participants will be asked to rate six items using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The scale's score will be calculated as an average score across all items, with three of the items being reverse scored (items 2, 4, 6), with higher scores indicating greater resilience. The measure was found to have acceptable psychometric properties (Windle et al, 2022) with Cronbach's alpha ranging from 0.84 to 0.88 among college students (Hartson et al., 2023; Satici, 2016). In this study, the Brief Resilience Scale had above acceptable internal consistency across time points (α range: 0.78- 0.86).

Perceived Stress. The Perceived Stress Scale-10 (Cohen & Williamson, 1988) was used to measure an individual's perceived stress level in the past month (e.g., "In the last month, how often have you been upset because of something that happened unexpectedly?"). Participants will be asked to rate 10 items about how often they feel a certain way on a 5-point Likert scale ranging from 0 (never) to 4 (very often). A total score will be the sum of all items with four of the items being reverse-scored (items 4, 5, 7, 8), leading to a total between 0 and 40, with a higher score indicating a greater stress level. The measure was found to have acceptable psychometric properties with Cronbach's alpha of 0.89 (Roberti et al., 2006). In this study, the Perceived Stress Scale-10 had above acceptable internal consistency across time points (α range: 0.76- 0.87).

Data Analysis Procedures

Data Cleaning and Handling Missing Data

As aforementioned, this research study involved data collections across three different time point, considering the high attrition results from previous similar studies (Lai & O'Carroll, 2017; Sexton & Adair, 2019), this research addressed the missing data issue using systematic approach during data cleaning process. (1) This researcher identified the missing data to explore any specific patterns among those missing date. (2) For participants with completely missing data at a specific time point, the researcher proactively reached out to obtain insights into their reasons for dropout. (3) The nature of the missing data was explored to determine whether the data were missing completely at random (MCAR), at random, or not at random. (4) Participants with missing data at specific time points were excluded from the analysis. This 4-step systematic approach helped this researcher to handling missing data and also obtained a better understanding of participants' feedback related to dropout. A total of 12 participants with

missing data were identified and excluded from the analysis, including eight participants in treatment group and four participants in control group. Prior to exclusion, missing data patterns were examined using Little's MCAR test and Chi-Square tests to confirm that missingness was completely random and unlikely to bias results (Little, 1988).

Listwise deletion was chosen as the primary method for handling missing data to ensure that all analyses were conducted on a consistent sample across time points and variables. Given the relatively low level of missingness and the data were missing completely at random, listwise deletion was deemed appropriate and unlikely to introduce substantial bias (Kang, 2013; Little, 1988). To assess the robustness of the findings, analyses were also rerun using Expectation-Maximization (EM) to impute missing data (Charves et al., 2017; Moon, 1996), while the procedure failed to converge within the default 25 iterations. Thus, the listwise deletion were conducted for the analyses. Notably, the output from EM for Research Question 1 and 2, across all variables, showed results that were consistent with the analyses based on listwise deletion, with no meaningful changes in statistical significance (Schafer & Graham, 2002). Minor variations in p-values and effect sizes were observed, including slight increases or decreases across within- and between-subjects effects, but the overall interpretation of findings remained unchanged.

Quantitative Data Analysis

The quantitative data was entered by this researcher into Statistical Package for Social Science 30.0 (SPSS). Descriptive statistics was computed on the demographic characteristics and participants' feedback for the following variables: (1) age; (2) gender; (3) race/ethnicity; (4) current year in school; (5) college; (6) type of disability; (7) housing situation; (8) overall

satisfaction of the intervention; (9) likelihood to recommend to others; (10) continued engagement.

To address Research Question 1, which explores the intervention effect on the well-being of each participant group, and Research Question 2, which examines the differences between the among participants with and without disabilities across three time points within the treatment group, Repeated Measure Analysis of Variance (ANOVA) was utilized on the quantitative data using SPSS 30.0. The primary objective of Repeated Measures ANOVA is to assess the impact of the intervention on individuals' well-being over time, both between and within groups. This approach was chosen because it allows for the examination of within-subject changes while also comparing differences between groups. Specifically, this study analyzed pre to post changes to compare the intervention and control groups. Additionally, within the intervention group, the analysis further examined students with and without disabilities, tracking their well-being changes over three time points (pre, post, and follow-up). This approach ensures that both short-term (pre-post) and longer-term (pre-follow-up) intervention effects are captured while accounting for individual variations. The effect size, eta squared, was calculated to provide a measure of the magnitude of these effects.

Basic assumptions for Repeated-Measure ANOVA be examined prior to interpreting the analyses, Levene's test confirmed that the homogeneity of variance assumption was met for all variables. However, the Shapiro-Wilk test indicated deviations from normality for the well-being scores at post and follow-up ($p = 0.01$ for both). Despite this, inspection of the Q-Q plots showed that data points approximately followed the diagonal line, and skewness and kurtosis values were within the acceptable range (-1 to 1), suggesting that the deviations were not severe enough to impact the analysis. Mauchly's Test of Sphericity indicated that the assumption of sphericity was

violated for the repeated measures ANOVA examining the changes across time among participants with and without disabilities within the treatment group across three time points. As a result, Greenhouse-Geisser or Huynh-Feldt corrections were applied to adjust for the violation. All other assumptions were met.

Qualitative Data Analysis

The qualitative data analysis was conducted through the MAXQDA software, specifically for coding, organizing, and analyzing data. To address Research Question 3, which explores participants' feedback and experiences with the intervention, and Research Question 4, which delves into recurrent themes from participants' intervention entries, a thematic analysis approach was employed to interpret the qualitative data collected. Specifically, a thematic analysis was conducted using a clearly defined and systematic approach to ensure analytic transparency and credibility to identify patterns across all participants' statements, providing a rich and detailed perspective on their feedback and gratitude experience (Braun & Clarke, 2006).

The qualitative data analysis followed a systematic, four-stage thematic analysis process: (1) familiarizing with the data through reading data several times; (2) coding all the data; (3) identifying potential themes and subthemes; (4) creating a codebook along with the identified recurring themes. The qualitative findings were later integrated with the quantitative data to offer a comprehensive understanding of the overall experience of the intervention and shed light on the positive experience of college students (Creswell & Creswell, 2018). To enhance the credibility and trustworthiness of the data analysis, a professional with a PhD and Licensed Professional Counselor credential participated in the data triangulation process. The data set, along with the coding scheme developed by this researcher and the underlying theoretical framework was shared with an external professional for review. The professional independently

assessed the consistency of the coding and provided comments or flagged discrepancies directly within the dataset. Any discrepancies were discussed and resolved collectively between this researcher and the professional. The results of this triangulated thematic analysis were subsequently integrated with the quantitative findings to offer a more comprehensive understanding of participants' experiences and inform the development of future interventions.

CHAPTER 4: RESULTS

The purpose of this study was to examine the feasibility and efficacy of the modified gratitude intervention “Three Good Things” in enhancing the well-being of college students with and without disabilities. This section presents the quantitative and qualitative analyses conducted to address the study’s research questions and hypotheses, which are detailed below:

Research Question 1: How does the modified "Three Good Things" intervention affect the overall well-being of college students with and without disabilities?

Hypothesis 1a: The modified "Three Good Things" intervention will have a significant positive impact on the well-being of college students with and without disabilities.

Hypothesis 1b: The modified "Three Good Things" intervention will have a significant increase on the resilience of college students with and without disabilities.

Hypothesis 1c: The modified "Three Good Things" intervention will have a significant decrease on the perceived stress of college students with and without disabilities.

Research Question 2: Are there any differences in the effect of the modified "Three Good Things" intervention between college students with and without disabilities?

Hypothesis 2: There will be a significant difference in the effect of the modified "Three Good Things" intervention between college students with and without disabilities.

Research Question 3: What are the perceptions and experiences of the modified “Three Good Things” intervention among participants?

Research Question 4: What recurring themes and insights emerge from the content of the modified “Three Good Things” intervention among participants?

A total of 111 participants enrolled in the study, with 55 assigned to the Treatment group and 56 to the Control group. At baseline (T1, pre-intervention), complete data were available for

all 111 participants. Following randomization and implementation of the intervention, at T2 (post-intervention), 12 participants (six from the Treatment group and six from the Control group) withdrew during the two-week intervention period, resulting in a sample size of 99 ($n_{Treatment}$= 49, $n_{Control}$= 50) at T2 (post-intervention). Follow-up data was exclusively collected from the Treatment group at T3 (one-month post-intervention), given the Control group did not receive the intervention. Of the 49 participants in the Treatment group at T2, 39 participants completed the one-month follow-up survey one, representing an additional attrition of 10 participants. Table 4.1 summarizes participant retention for each group at each time point.

Table 4.1

Number of Participants at Each Time Point

Timepoint	Treatment Group (*n*)	Control Group (*n*)	Total (*n*)
T1 (Pre-Intervention)	55	56	111
T2 (Post-Intervention)	49	50	99
T3 (1-Month Follow-Up)	39	--	39

Description of Quantitative Results

This researcher first conducted descriptive analyses (means and standard deviations) of the primary outcome variables, including well-being, resilience, and perceived stress across three measurement points: T1 (pre-intervention), T2 (post-intervention), and T3 (follow-up, Treatment group only). At baseline (T1), well-being scores were comparable between the Treatment group (M = 6.54, SD = 1.08) and the Control group (M = 6.83, SD = 1.27). Following the intervention at T2, well-being improved in the Treatment group (M = 7.17, SD = 1.09), whereas a slight decline was observed in the Control group (M = 6.81, SD = 1.32). At the one-month follow-up

(T3, Treatment group only), well-being scores declined from T2, but remained increasement from T1 (M = 6.97, SD = 1.27, indicating sustained positive effects.

A similar trend emerged for perceived stress. The Treatment group experienced a substantial reduction from T1 (M = 25.78, SD = 6.02) to T2 (M = 17.61, SD = 5.05), while the Control group's perceived stress remained relatively stable (T1: M = 26.86, SD = 7.01; T2: M = 25.76, SD = 7.05. At T3, perceived stress scores in the Treatment group increased slightly but not significant from T2, but was still significantly lower than T1(M = 18.21, SD = 4.60).

Resilience exhibited a distinctive pattern compared to the other measures. At T1, resilience scores were initially higher in Control group (M = 3.33, SD = 0.84) compared to the Treatment group (M = 3.09, SD = 0.71). Post-intervention (T2), the Treatment group's resilience scores improved (M = 3.33, SD = 0.64), whereas the Control group experienced a slight decline (M = 3.29, SD = 0.83). At T3, resilience scores in the Treatment group remained relatively stable (M = 3.29, SD = 0.57). The details of descriptive analyses are presented in Table 4.2

Table 4.2.

Descriptive Statistics for Outcome Variables Across Time Points

Variable	Group	T1 Mean (*SD*)	T2 Mean (*SD*)	T3 Mean (*SD*)
Well-being	Treatment	6.54 (1.08)	7.17 (1.09)	6.97 (1.27)
	Control	6.83 (1.27)	6.81 (1.32)	---
Resilience	Treatment	3.09 (0.71)	3.33 (0.64)	3.29 (0.57)
	Control	3.33 (0. 84)	3.29 (0.83)	---
Perceived Stress	Treatment	25.78 (6.02)	17.61 (5.05)	18.21 (4.60)
	Control	25.86 (7.01)	25.76 (7.05)	---

Note. *SD* = Standard Deviation.

Efficacy Outcomes Before and After Intervention

Before conducting the primary analysis, assumptions were assessed to ensure the validity of the Repeated Measure Analysis of Variance (RM ANOVA). After verification of assumptions and checks for potential biases, three sets of independent RM ANOVAs were conducted to examine changes in well-being, resilience, and perceived stress from pre-intervention (T1) to post-intervention (T2) across the Treatment and Control groups, addressing the first research question.

For well-being, no significant between-group effect was found, $F(1, 97) = 0.02$, $p = .88$, $\eta_p^2 = 0.00$, indicating similar overall well-being scores between the Treatment and Control groups. However, a significant main effect of time was observed, $F(1, 97) = 15.91$, $p < .001$, $\eta_p^2 = 0.14$, suggesting meaningful changes in well-being scores from T1 to T2 across all participants. Additionally, a significant time × group interaction effect was revealed, $F(1, 97) = 17.92$, $p < .001$, $\eta_p^2 = 0.16$, highlighting differential changes in well-being scores over time between the two groups. The observed moderate to large effect sizes ($\eta_p^2 = 0.14$-0.16) suggest a meaningful contribution of the intervention to improving well-being.

Regarding resilience, no significant between-group effect was found, $F(1, 97) = 0.51$, $p = .48$, $\eta_p^2 = 0.01$, suggesting similar resilience scores between the two groups. A marginally significant main effect of time was observed, $F(1, 97) = 3.65$, $p = .06$, $\eta_p^2 = 0.04$, indicating a trend toward improvement in resilience scores across participants from T1 to T2. Additionally, a significant time × group interaction was revealed, $F(1, 97) = 7.06$, $p = .01$, $\eta_p^2 = 0.07$, demonstrating that the Treatment and Control groups had differential changes in resilience scores over time. The observed small to moderate effect sizes ($\eta_p^2 = 0.04$-0.07) suggest a modest but notable influence of the intervention on resilience.

In terms of perceived stress, a significant between-group effect was found, $F(1, 97) = 12.23$, $p < .001$, $\eta_p^2 = 0.11$, indicating that overall perceived stress scores differed significantly between groups. A significant main effect of time was also observed, $F(1, 97) = 70.74$, $p < .001$, $\eta_p^2 = 0.42$, suggesting meaningful reductions in perceived stress post-intervention across participants. Additionally, a significant time × group interaction was revealed, $F(1, 97) = 67.35$, $p < .001$, $\eta_p^2 = 0.41$, highlighting notable differences in the changes in perceived stress scores between groups. The large effect sizes ($\eta_p^2 = 0.42$ for time; $\eta_p^2 = 0.41$ for interaction) underscore the substantial impact of the intervention in reducing perceived stress. A summary of the RM ANOVA results is presented in Table 4.3.

Table 4.3.

RM ANOVA Results for Outcome Variables Group Comparisons

Variables		SS	df	MS	F	*p*	η_p^2
Well-being	Between Group	0.06	1	0.06	0.02	.88	0.00
	Time	4.64	1	4.64	15.91	< .001**	0.14
	Time x Group	5.23	1	5.23	17.92	< .001**	0.16
	Error	28.31	97	0.29	---	---	---
Resilience	Between Group	0.52	1	0.52	0.51	.48	0.01
	Time	0.52	1	0.52	3.65	.06	0.04
	Time x Group	1.00	1	1.00	7.06	.01*	0.07
	Error	13.80	97	0.14	---	---	---
Perceived Stress	Between Group	838.57	1	838.57	12.23	< .001**	0.11
	Time	844.90	1	844.90	70.74	< .001**	0.42

Table 4.3 (cont'd)

Time x Group	804.49	1	804.49	67.35	< .001**	0.41
Error	1158.60	97	11.94	---	---	---

Note. *p* values indicate statistical significance: * $p < .05$, ** $p < .01$.

Post-hoc Comparisons among Outcome Variables

Follow-up independent samples and paired samples t-test were conducted to examine the specific differences within and between groups. At T1 for well-being, an independent-sample t-test confirmed no significant difference between group, t (97) = 1.22, p = .22, *Cohen's d* = 0.25. Following the intervention at T2, t (97) = -1.47, p = .14, *Cohen's d* = 0.30, a paired-sample t-test indicated well-being improved significantly in the Treatment group, t (48) = -5.43, $p < .001$, *Cohen's d* = 0.78, whereas a not significant slight decline was observed in the Control group, t (49) = 0.19, p = .85, *Cohen's d* = 0.03. At the one-month follow-up (T3, Treatment group only), well-being scores declined significantly from T2, t (38) = 2.35, p = .02, *Cohen's d* = 0.38, but remained significantly increasement from T1, t (38) = -2.20, p = .03, *Cohen's d* = -0.35.

At T1, resilience scores in Control group compared to the Treatment group had no significant difference, t (97) = 1.57, p = .12, *Cohen's d* = 0.32. Post-intervention (T2), the Treatment group's resilience scores improved, whereas the Control group experienced a slight decline, remained no significant group difference. A paired-sample t-test indicated that the increase in the treatment group was statistically significant from T1 to T2, t (48) = -3.18, p = .003, *Cohen's d* = -0.45. In the control group, there was no significant change from T1 to T2, t (49) = 5.34, p = .59, *Cohen's d* = 0.08. At T3, resilience scores in the Treatment group remained relatively stable, with no significant change from T2, t (38) = 0.43, p = .67, *Cohen's d* = 0.07, but significant from T1, t (38) = -3.24, p = .003, *Cohen's d* = -0.52.

For perceived stress, at T1, there was no significant difference between group, t (97) = 0.06, p = .95, *Cohen's d* = 0.01. While at T2, a significant change was observed between groups, t (97) = 6.60, p < .001, *Cohen's d* = 1.33. The Treatment group experienced a significant reduction from T1 to T2, t (48) = 10.21, p < .001, *Cohen's d* = 1.46, while the Control group's perceived stress remained relatively stable. At T3, perceived stress scores in the Treatment group was not significant from T2, t (38) = -0.89, p = .38, *Cohen's d* = -0.14, while still significantly lower than T1, t (38) = 8.46, p < .001, *Cohen's d* = 1.36. A summary of the Post-Hoc results is presented in Table 4.4.

Table 4.4.

Post-Hoc Comparisons of Outcome Variables by Group

Variables		Group (s)	Timepoints	t (df)	p	*Cohen's d*
Well-being	Between-Group	---	T1	t (97) = 1.22	.22	0.25
	Between-Group	---	T2	t (97) = -1.47	.14	0.30
	Within Group	Treatment	T1-T2	t (48) = -5.43	< .001	0.78
	Within Group	Control	T1-T2	t (49) = 0.19	.85	0.03
	Within Group	Treatment	T2-T3	t (38) = 2.35	.02*	0.38
	Within Group	Treatment	T1-T3	t (38) = -2.20	.03*	-0.35
Resilience	Between-Group	---	T1	t (97) = 1.57	.12	0.32
	Between-Group	---	T2	t (97) = -0.27	.79	-0.05
	Within Group	Treatment	T1-T2	t (48) = -3.18	.003**	-0.45
	Within Group	Control	T1-T2	t (49) = 5.34	.59	0.08
	Within Group	Treatment	T2-T3	t (38) = 0.43	.67	0.07
	Within Group	Treatment	T1-T3	t (38) = -3.24	.003**	-0.52

Table 4.4 (cont'd)

Perceived Stress	Between-Group	---	T1	t (97) = 0.06	.95	0.01
	Between-Group	---	T2	t (97) = 6.60	< .001***	1.33
	Within Group	Treatment	T1-T2	t (48) = 10.21	< .001***	1.46
	Within Group	Control	T1-T2	t (49) = 0.17	.86	0.03
	Within Group	Treatment	T2-T3	t (38) = -0.89	.38	-0.14
	Within Group	Treatment	T1-T3	t (38) = 8.46	< .001***	1.36

Note. Cohen's d is reported as a measure of effect size. All tests were two-tailed. p values indicate statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Efficacy Outcomes for PERMA Elements

Additional independent RM ANOVAs were also conducted to examine the five elements of PERMA (Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment) and related psychological factors (Negative Emotions, Loneliness, and Health). The results revealed that Positive Emotions, Relationships, Meaning, and Accomplishment demonstrated significant improvements over time, suggesting that participants benefited from the intervention in these areas. Positive Emotions showed a significant main effect of time, $F(1, 97) = 16.12$, $p < .001$, $\eta_p^2 = 0.14$, indicating an overall increase across all participants post-intervention. A significant time × group interaction was also found, $F(1, 97) = 22.58$, $p < .001$, $\eta_p^2 = 0.19$, suggesting that the intervention had a differential impact on Positive Emotion between groups. Similarly, Meaning showed a significant main effect of time, $F(1, 97) = 6.96$, $p = 0.01$, $\eta_p^2 = 0.07$, with a notable time × group interaction, $F(1, 97) = 13.65$, $p < .001$, $\eta_p^2 = 0.12$. Accomplishment also improved significantly over time, $F(1, 97) = 6.51$, $p = .01$, $\eta_p^2 = 0.06$, with a significant time × group

interaction, $F(1, 97) = 6.18$, $p = .02$, $\eta_p^2 = 0.06$. Engagement exhibited a significant time × group interaction, $F(1, 97) = 10.11$, $p = .002$, $\eta_p^2 = 0.09$, but no main effect of time. Relationships significantly improved over time, $F(1, 97) = 10.32$, $p < .001$, $\eta_p^2 = 0.10$, without a significant time × group interaction, $F(1, 97) = 3.04$, $p = .08$, $\eta_p^2 = 0.03$, suggesting that both groups experienced similar improvements.

For other psychological factors, Health exhibited a significant time × group interaction, $F(1, 97) = 6.19$, $p = .02$, $\eta_p^2 = 0.06$, indicating differential group responses, but no significant overall time effect. Meanwhile, Negative Emotions and Loneliness showed no significant main effects of time or time × group interactions, suggesting that these psychological factors were not significantly influenced by the intervention. A summary of the RM ANOVA results for each of the PERMA elements and psychological factors are presented in Table 4.5.

Table 4.5

RM ANOVA Results for PERMA Elements Group Comparisons

Variable		SS	df	MS	F	*p*	η_p^2
Positive Emotion	Between Group	1.40	1	1.40	0.38	.54	0.004
	Time	7.60	1	7.60	16.02	< .001**	0.14
	Time x Group	10.713	1	10.713	22.58	< .001**	0.19
	Error	46.03	97	0.48	---	---	---
Engagement	Between Group	2.97	1	2.97	1.19	.28	0.01
	Time	0.57	1	0.57	1.09	.30	0.01
	Time x Group	5.32	1	5.32	10.11	.002**	0.09
	Error	50.98	97	0.53	---	---	---

Table 4.5 (cont'd)

Relationship	Between Group	2.86	1	2.86	0.52	.47	0.01
	Time	8.87	1	8.87	10.32	.002**	0.10
	Time x Group	2.62	1	2.62	3.04	.08	0.03
	Error	83.34	97	0.86	---	---	---
Meaning	Between Group	0.07	1	0.07	0.02	.90	0.00
	Time	3.98	1	3.98	6.96	.01*	0.07
	Time x Group	7.79	1	7.79	13.65	< .001**	0.12
	Error	55.40	97	0.57	---	---	---
Accomplishment	Between Group	0.001	1	0.001	0.00	0.99	0.00
	Time	3.22	1	3.22	6.51	.01*	0.06
	Time x Group	3.05	1	3.05	6.18	.02*	0.06
	Error	47.96	97	0.49	---	---	---
Negative Emotion	Between Group	0.60	1	0.60	0.14	.71	0.001
	Time	1.91	1	1.91	3.30	.07	0.03
	Time x Group	0.84	1	0.84	1.44	.23	0.02
	Error	56.17	97	0.579	---	---	---
Health	Between Group	12.02	1	12.02	1.75	.19	0.02
	Time	0.27	1	0.27	0.47	.50	0.01
	Time x Group	3.52	1	3.52	6.19	.02*	0.06
	Error	55.18	97	0.57	---	---	---
Loneliness	Between Group	0.08	1	0.08	0.01	.93	0.00

Table 4.5 (cont'd)

Time	4.61	1	4.61	2.53	.12	0.03
Time x Group	2.51	1	2.51	1.38	.24	0.01
Error	176.94	97	1.82	---	---	---

Note. *p* values indicate statistical significance: * $p < .05$, ** $p < .01$.

Post-hoc Comparisons among PERMA Elements

Follow-up independent samples and paired samples t-test were conducted to examine the specific differences within and between groups among PERMA elements. For Positive Emotions, an independent-sample t-test confirmed significant difference between group at T2, t (97) = -2.16, p = .03, *Cohen's d* = -0.43, while there was no difference between groups at T1. A paired-sample t-test indicated that for Treatment group, Positive Emotion was improved significantly from T1 to T2, t (48) = -6.45, $p < .001$, *Cohen's d* = -0.92, and from T2 to T3, t (38) = 2.84, p = .01, *Cohen's d* = 0.45, whereas a not significant change was observed from T1-T3 or in the Control group. For Engagement, there was a significant difference between group at T1, t (97) = 2.32, p = .02, *Cohen's d* = 0.47, while there was no difference between groups at T2. A paired-sample t-test only indicated that for Treatment group, Engagement was improved significantly from T1 to T2, t (48) = -3.02, p = .004, *Cohen's d* = -0.43, whereas a not significant change was observed from T2 to T3, T1 to T3, or in the Control group.

For Relationship, there was no significant difference between groups were observed at T1 or T2. However, a paired-sample t-test indicated that within Treatment group, there was significant improvement after the intervention, t (48) = -3.41, p = .001, *Cohen's d* = -0.49. No significant changes were revealed from T2 to T3, T1 to T3, or in the Control group. Similar trend

was also found for Meaning, with no significant difference between groups at T1 or T2, while there was significant improvement after the intervention in the Treatment group, t (48) = -4.29, p < .001, *Cohen's d* = -0.61. No significant changes in Meaning were revealed from T2 to T3, T1 to T3, or in the Control group. For Achievement, there was no significant difference between groups were observed at T1 or T2. However, significant within group change were found in the Treatment group from T1 to T2, t (48) = -3.39, p = .001, *Cohen's d* = -0.49, and from T1-T3, t (38) = -2.74, p = .01, *Cohen's d* = -0.44. There was no significant change from T2-T3 in Treatment group or from T1-T2 in Control group.

For other psychological factors, there was significant reduction of Negative Emotions in treatment group from T1 to T2, t (48) = 2.07, p = .04, *Cohen's d* = 0.3. Similarly, Health score was also found to be significantly changed from T1 to T2 for Treatment group, t (48) = -2.26, p = .03, *Cohen's d* = -0.32, while a significant difference between group was also found at T2 for Health, t (97) = -2.02, p = .05, *Cohen's d* = -0.41. For Loneliness, there was no significant change found between groups or within each group at any timepoint. A summary of the Post-Hoc results is presented in Table 4.6.

Table 4.6

Post-Hoc Comparisons of PERMA Elements by Group

Variables		Group (s)	Timepoints	t (df)	p	*Cohen's d*
Positive Emotions	Between-Group	---	T1	t (97) =1.03	.31	0.21
	Between-Group	---	T2	t (97) = -2.16	.03*	-0.43
	Within Group	Treatment	T1-T2	t (48) = -6.45	< .001***	-0.92
	Within Group	Control	T1-T2	t (49) = 0.51	.61	0.07

Table 4.6 (cont'd)

	Within Group	Treatment	T2-T3	*t* (38) = 2.84	.01**	0.45
	Within Group	Treatment	T1-T3	*t* (38) = -1.74	.09	-0.28
Engagement	Between-Group	---	T1	*t* (97) = 2.32	.02*	0.47
	Between-Group	---	T2	*t* (97) =- 0.33	.74	-0.07
	Within Group	Treatment	T1-T2	*t* (48) = -3.02	.004**	-0.43
	Within Group	Control	T1-T2	*t* (49) = 1.50	0.14	0.21
	Within Group	Treatment	T2-T3	*t* (38) = 0.98	.34	0.16
	Within Group	Treatment	T1-T3	*t* (38) = -0.99	.33	-0.16
Relationships	Between-Group	---	T1	*t* (97) = -0.03	.98	-0.01
	Between-Group	---	T2	*t* (97) = -1.34	.18	-0.27
	Within Group	Treatment	T1-T2	*t* (48) = -3.41	.001**	-0.49
	Within Group	Control	T1-T2	*t* (49) = -1.07	.29	-0.15
	Within Group	Treatment	T2-T3	*t* (38) = 1.43	.16	0.23
	Within Group	Treatment	T1-T3	*t* (38) = -1.08	.29	-0.17
Meaning	Between-Group	---	T1	*t* (97) = 1.10	.27	0.22
	Between-Group	---	T2	*t* (97) = -1.45	.15	-0.29
	Within Group	Treatment	T1-T2	*t* (48) = -4.29	< .001***	-0.61
	Within Group	Control	T1-T2	*t* (49) = 0.78	.44	0.11
	Within Group	Treatment	T2-T3	*t* (38) = 1.81	.08	0.29
	Within Group	Treatment	T1-T3	*t* (38) = -1.81	.08	-0.29
Achievement	Between-Group	---	T1	*t* (97) = 0.85	.40	0.17
	Between-Group	---	T2	*t* (97) = -0.84	.40	-0.17

Table 4.6 (cont'd)

	Within Group	Treatment	T1-T2	*t* (48) = -3.39	.001**	-0.49
	Within Group	Control	T1-T2	*t* (49) = -0.05	.96	-0.01
	Within Group	Treatment	T2-T3	*t* (38) = -0.14	.89	-0.02
	Within Group	Treatment	T1-T3	*t* (38) = -2.74	.01**	-0.44
Negative Emotions	Between-Group	---	T1	*t* (97) = -0.07	.95	-0.01
	Between-Group	---	T2	*t* (97) =0.75	.45	0.15
	Within Group	Treatment	T1-T2	*t* (48) = 2.07	.04*	0.30
	Within Group	Control	T1-T2	*t* (49) = 0.45	.66	0.06
	Within Group	Treatment	T2-T3	*t* (38) = -0.29	.77	-0.05
	Within Group	Treatment	T1-T3	*t* (38) =1.01	.32	0.16
Health	Between-Group	---	T1	*t* (97) = -0.57	.57	-0.11
	Between-Group	---	T2	*t* (97) = -2.02	.05*	-0.41
	Within Group	Treatment	T1-T2	*t* (48) = -2.26	.03*	-0.32
	Within Group	Control	T1-T2	*t* (49) = 1.27	.21	0.18
	Within Group	Treatment	T2-T3	*t* (38) = 1.38	.18	0.22
	Within Group	Treatment	T1-T3	*t* (38) = -0.40	.70	-0.06
Loneliness	Between-Group	---	T1	*t* (97) = -0.38	.71	-0.08
	Between-Group	---	T2	*t* (97) = 0.57	.57	0.12
	Within Group	Treatment	T1-T2	*t* (48) = 1.18	.08	0.25
	Within Group	Control	T1-T2	*t* (49) = 0.33	.74	0.05
	Within Group	Treatment	T2-T3	*t* (38) = -0.68	.50	-0.11

Table 4.6 (cont'd)

Within Group	Treatment	T1-T3	t (38) = 1.49	.15	0.24

Note. Cohen's d is reported as a measure of effect size. All tests were two-tailed. p values indicate statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Efficacy Outcomes Differences Among Participant in the Treatment Group

Three sets of independent RM ANOVAs were conducted to examine differences between participants with and without disabilities within the Treatment group for well-being, resilience, and perceived stress across three time points (T1, T2, and T3). A summary of the RM ANOVA results addressing research question two is presented in Table 4.7.

Table 4.7

RM ANOVA Results for Outcome Variable Disability Status Comparisons

Variable	Source	SS	df	MS	F	p	η_p^2
Well-being	Between Disability Status	0.20	1	0.20	0.06	.81	0.002
	Time	6.18	1.73	3.57	8.64	< .001**	0.19
	Time x Disability Status	0.16	1.73	0.09	0.23	.77	0.01
	Error	26.47	64.01	0.41	---	---	---
Resilience	Between Disability Status	5.30	1	5.30	7.58	.01*	0.17
	Time	1.66	2	0.83	6.49	.003**	0.15
	Time x Disability Status	0.78	2	0.39	3.04	.05*	0.08
	Error	9.46	74	0.13	---	---	---
Perceived Stress	Between Disability Status	81.61	1	81.61	1.55	.22	0.04

Table 4.7 (cont'd)

Time	1357.76	2	678.87	50.13	< .001**	0.58
Time x Disability Status	48.00	2	24.00	1.78	.18	0.05
Error	1002.15	74	13.54	---	---	---

Note. *p* values indicate statistical significance: * $p < .05$, ** $p < .01$.

For well-being, no significant group effect of disability status was found, $F(1.73, 37) = 0.06$, $p = .81$, $\eta_p^2 = 0.002$, indicating comparable well-being between participants with and without disabilities. However, a significant main effect of time was observed, $F(1.73, 37) = 8.64$, $p < .001$, $\eta_p^2 = 0.19$, reflecting significant changes in well-being scores over time. The time × disability status interaction was insignificant, $F(1.73, 37) = 0.23$, $p = .77$, $\eta_p^2 = 0.01$, indicating that well-being scores followed a similar trajectory over time for both groups. As illustrated in Figure 4.1, mean well-being scores increased from T1 to T2 for both groups, followed by a decline at T3. Although the difference was not statistically significant, students without disabilities (represented by the red line) demonstrated a greater initial increase in well-being scores compared to students with disabilities (represented by the blue line), suggesting a potentially stronger initial response to the intervention. Despite a subsequent decline at T3 for both groups, overall well-being scores remained elevated relative to T1, indicating a possible sustained positive impact of the intervention for all participants, regardless of disability status.

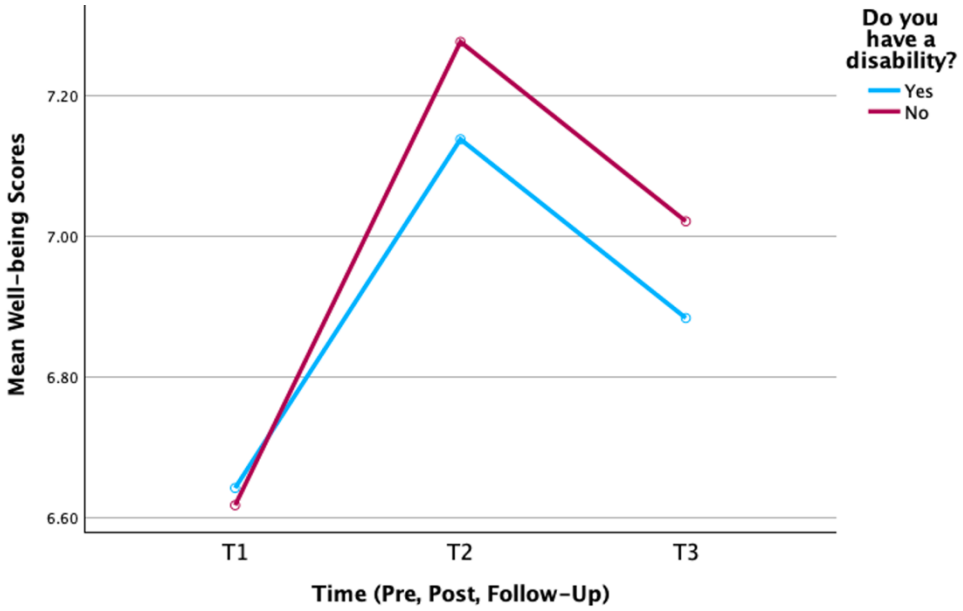

Figure 4.1

Mean Well-being Scores Across Three Time Points for Treatment Group

For resilience, a significant between-group effect was found, $F(1, 37) = 7.58$, $p = .01$, $\eta_p^2 = 0.17$, indicating significant differences in resilience scores between participants with and without disabilities. Additionally, a significant main effect of time was observed, $F(2, 37) = 6.49$, $p < .001$, $\eta_p^2 = 0.15$, reflecting significant changes in resilience scores over time. The time × disability status interaction was statistically significant, $F(2, 37) = 3.04$, $p = .05$, $\eta_p^2 = 0.08$, suggesting different trajectories over time between groups, though modest. As shown in Figure 4.2, mean resilience scores increased for both groups from T1 to T2. Students without disabilities (depicted by the red line) showed a greater initial increase in resilience scores compared to students with disabilities (depicted by the blue line), suggesting that students without disability had a stronger initial response to the intervention. However, students with disabilities continued to show improvement in their resilience scores at T3, indicating that students with disabilities might benefit more from the sustained effect of the intervention, or the intervention's impact may take longer to develop for students with disabilities.

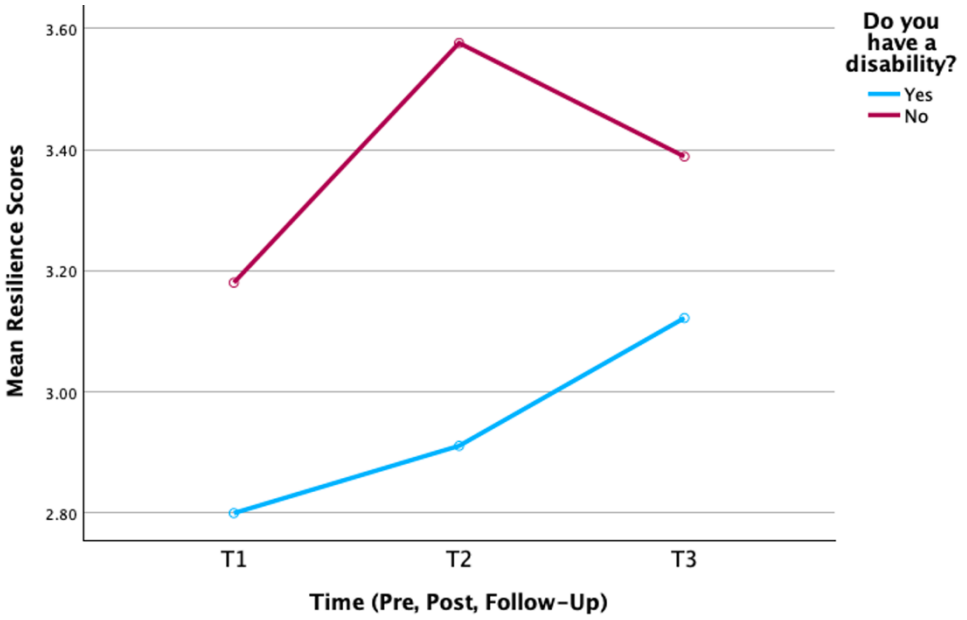

Figure 4.2

Mean Resilience Scores Across Three Time Points for Treatment Group

For perceived stress, no significant between-group effect was found, $F(1, 37) = 1.55$, $p = .22$, $\eta_p^2 = 0.04$, indicating comparable perceived stress between groups. However, a significant main effect of time was observed, $F(2, 37) = 50.13$, $p < .001$, $\eta_p^2 = 0.58$, reflecting significant changes in perceived stress scores over time. The time × group interaction was insignificant, $F(2, 37) = 1.78$, $p = .18$, $\eta_p^2 = 0.05$, indicating that perceived stress scores followed a similar trajectory over time for both groups. As shown in Figure 4.3, mean perceived stress scores declined from T1 to T2 in both groups. Students without disabilities (represented by the red line) exhibited a greater initial reduction in perceived stress compared to students with disabilities (represented by the blue line), suggesting a stronger short-term response to the intervention, while at T3, students without disabilities showed a slight increase. However, students with disabilities demonstrated a different trajectory with a moderate decline at T2 and remained relatively stable at T3. This pattern suggests that although both groups began with similar baseline stress level, students with disabilities may exhibit greater adaptability in managing

perceived stress over time, while students without disabilities showed a stronger initial reduction followed with a slight rebound.

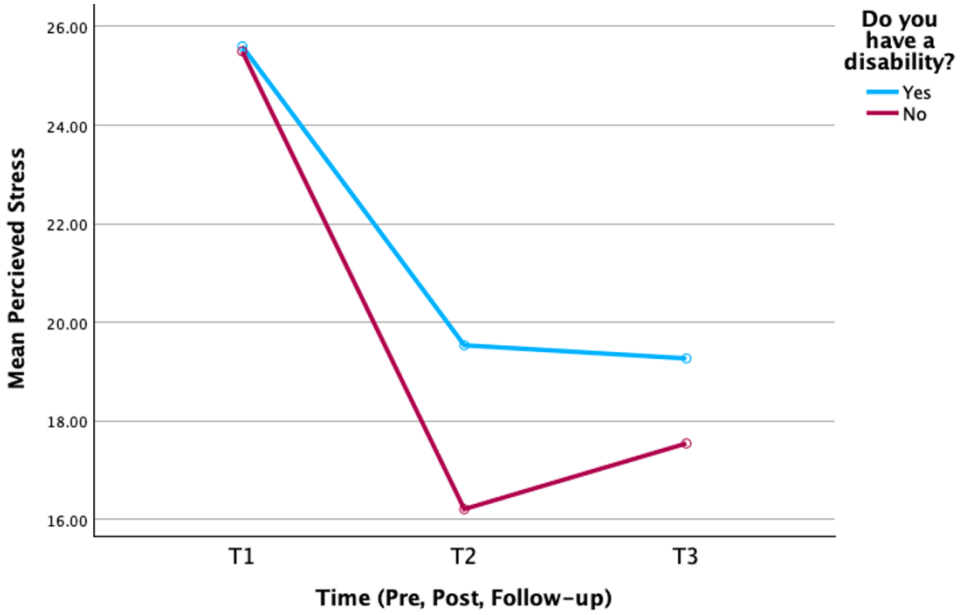

Figure 4.3

Mean Perceived Stress Scores Across Three Time Points for Treatment Group

Post-hoc Comparisons among Disability Status

Follow-up independent samples and paired samples t-test were conducted to examine the specific differences within and between participants with and without disabilities in Treatment group. An independent-sample t-test confirmed, for well-being, there was no significant difference between participants with and without disabilities at three timepoints. Furthermore, both participants with and without disabilities had positive responses to the intervention with significant improvement from T1 to T2, participants with disabilities, t (19) = -4.01, $p < .001$, *Cohen's d* = -0.90, and participants without disabilities, t (28) = -4.09, $p < .001$, *Cohen's d* = -0.76. Participants without disabilities also maintained the significant change from T2 to T3, t (23) = 2.42, $p = .02$, *Cohen's d* = 0.50, while no significant change was found for participants with disabilities from T2 to T3.

At T2, significant differences were found between participants with and without disabilities, t (47) = -2.48, p = .02, *Cohen's d* = -0.72, while there was no significant difference at T1. Specifically, participants without disabilities showed a significant change from T1 to T2, t (28) = -3.26, p = .003, *Cohen's d* = -0.61, with no significant change from T1 to T3 or T2 to T3. For participants with disabilities, even though there was no significant change from T1 to T2 or T2 to T3, a significant improvement was observed from T1 to T3, t (14) = -3.04, p = .004, *Cohen's d* = -0.79.

For perceived stress, at T1, there was no significant difference between group, while at T2, a significant change was observed between groups, t (47) = 2.74, p = .01, *Cohen's d* = 0.80. For participants with disabilities, significant change was found from T1 to T2, t (19) = 4.91, p < .001, *Cohen's d* = 1.10, and from T1 to T3, t (14) = 3.87, p = .002, *Cohen's d* = 1.00. Similarly, for participants without disabilities, significant change was found from T1 to T2, t (28) = 9.77, p < .001, *Cohen's d* = 1.81, and from T1 to T3, t (23) = 8.15, p < .001, *Cohen's d* = 1.66. No significant change was found from T2 to T3 for neither group. A summary of the Post-Hoc results is presented in Table 4.8.

Table 4.8.

Post-Hoc Comparisons of Outcome Variables by Disability Status

Variables		Group (s)	Time points	t (df)	p	*Cohen's d*
Well-being	Between-Group	---	T1	t (47) = -0.24	.81	-0.07
	Between-Group	---	T2	t (47) = -0.94	.35	-0.27
	Between-Group	---	T3	t (37) =-0.33	.75	-0.11
	Within Group	W/D	T1-T2	t (19) = -4.01	< .001***	-0.90
	Within Group	WO/D	T1-T2	t (28) = -4.09	< .001***	-0.76

Table 4.8 (cont'd)

	Within Group	W/D	T1-T3	t (14) = -0.95	.36	-0.25
	Within Group	WO/D	T1-T3	t (23) = -2.02	.06	-0.41
	Within Group	W/D	T2-T3	t (14) = 1.10	.29	0.28
	Within Group	WO/D	T2-T3	t (23) = 2.42	.02*	0.50
Resilience	Between-Group	---	T1	t (47) = -1.14	.26	-0.33
	Between-Group	---	T2	t (47) = -2.48	.02*	-0.72
	Between-Group	---	T3	t (37) = -1.45	.16	-0.48
	Within Group	W/D	T1-T2	t (19) = -1.06	.30	-0.24
	Within Group	WO/D	T1-T2	t (28) = -3.26	.003**	-0.61
	Within Group	W/D	T1-T3	t (14) = -3.04	.004**	-0.79
	Within Group	WO/D	T1-T3	t (23) = -1.92	.07	-0.39
	Within Group	W/D	T2-T3	t (14) = -1.97	.07	-0.51
	Within Group	WO/D	T2-T3	t (23) = 1.86	.08	0.38
Perceived Stress	Between-Group	---	T1	t (47) = 0.31	.76	0.09
	Between-Group	---	T2	t (47) = 2.74	.01**	0.80
	Between-Group	---	T3	t (37) = 1.15	.26	0.38
	Within Group	W/D	T1-T2	t (19) = 4.91	< .001***	1.10
	Within Group	WO/D	T1-T2	t (28) = 9.77	< .001***	1.81
	Within Group	W/D	T1-T3	t (14) = 3.87	.002**	1.00
	Within Group	WO/D	T1-T3	t (23) = 8.15	< .001***	1.66
	Within Group	W/D	T2-T3	t (14) = 0.17	.87	0.04

Table 4.8 (cont'd)

Within Group	WO/D	T2-T3	t (23) = -1.49	.15	-0.30

Note. W/D = With Disabilities; WO/D = Without Disabilities. Cohen's d is reported as a measure of effect size. All tests were two-tailed. *p* values indicate statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Feasibility Outcomes: Treatment Group Participant Feedback

To gain deeper insight into participant experiences with the intervention, descriptive statistics were calculated for responses to the 5-point Likert-scale items administered at T2. These items assessed overall satisfaction, perceived benefits, willingness to recommend the intervention to others, and their intention to continue the practice. At T3, participants were also asked whether they had continued engaging in the intervention.

As shown in Table 4.9, mean scores suggested that participants generally viewed the intervention favorably, reporting high levels of perceived benefits. The intervention was rated as helpful ($M = 4.19$, $SD = 0.61$) and participants expressed a strong willingness to recommend it to others ($M = 4.27$, $SD = 0.76$). However, intentions to continue the practice were somewhat lower ($M = 3.81$, $SD = 0.91$), indicating slightly reduced enthusiasm for long-term use. At follow-up, 39 participants were asked whether they had continued the practice during the follow-up period. Of these, 38.46% of participants ($n = 15$) reported doing so, while 61.54% had not. These findings suggested that although initial reception was positive, long-term adherence to the practice was relatively limited.

Table 4.9

Descriptive Statistics for Participant Experience with the Intervention

Feedback Items	Mean	*SD*
Overall satisfaction and perceived benefits	4.19	0.61

Table 4.9 (cont'd)

Likelihood of recommending to others	4.27	0.76
Intention to continue the practice	3.81	0.91

Note. Responses were measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Higher scores indicate more favorable responses. *SD* = Standard Deviation.

Description of Qualitative Results

The qualitative data were collected from participants at Treatment group (n =49). The description of qualitative results includes two parts, the entries of three good things from participants and the written narrative feedback after participating the intervention, to answer research question three and four.

Qualitative data were collected from participants in the Treatment group (n = 49). This section includes two components: entries from the "Three Good Things" exercise and written narrative feedback provided after completing the intervention. These qualitative findings address Research Questions 3 and 4.

Findings are presented in two sections. The first section (RQ3) explores participants' perceptions and overall experiences with the intervention, highlighting their personal reflections, challenges, and perceived benefits. The second section (RQ4) examines recurring themes from participants' "Three Good Things" entries, analyzed using thematic analysis through the lens of the PERMA framework (Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment).

Participants' Perceptions and Overall Experiences of the Intervention

Participants were invited to share reflections and feedback upon completing the intervention. Using an inductive thematic analysis approach (Braun & Clarke, 2006), three

primary themes were identified: (a) Engagement and Adaptation in the Intervention, (b) Emotional Resilience and Well-being, and (c) Shifting Mindset Through Reflection.

Engagement and Adaptation in the Intervention. Participants described both strategies and challenges in their engagement with the intervention, shaped by personal reflection, external influences, and their evolving motivation over time. Challenges included maintaining consistency, finding novelty in daily reflections, difficulty identifying meaningful insights, and feeling repetitive in daily entries. As one participant noted, *"I found that I was repeating answers more or less by the end because of how little variation I had in my life from day to day. That was admittedly not a super pleasant experience."* Others struggled to articulate meaningful insights or engage in effective self-reflection, with one noting, "*I did think about three good things that happened to me, but it didn't really impact me at all*". Relatedly, some participants perceived the intervention as "*superficial*". Mood fluctuations also influenced participation, as reflected in the comment, "*When I feel bad at the end of one day and the link asked me to do intervention, I couldn't come up with any happy thing and it makes me less wanted to engage*."

Nevertheless, participants also shared strategies that supported their adaptation. Over time, many found it easier to identify meaningful reflections, learning that small, everyday events could be powerful. One participant noted, "*As the days went on, I found it easier to think of three (or more) good things that happened to me in a day. Overtime I realized they didn't need to be major events, but small things that made my day better*." Routine played a key role in sustaining participation. For instance, daily text message reminders helped participants stay consistent, noting "*regular daily text messages were critical in ensuring I was on track with my entries. They helped me keep on schedule*". Some adapted the practice to suit their routines, such as completing reflections in the morning as a way to start the day positively, mentioning "*I like to*

fill out this form in the morning, which can help me remember some happy things and then, this is like a new start for each day."

Emotional Resilience and Well-being. Many participants reported that the intervention influenced their behavior and outlook. Some found it helped shift their focus from negativity to positive daily moments, especially in high-stress environments. One student reflected, *"I enjoyed being able to reflect on positives, as the culture in my degree tends to focus on negatives. It was especially helpful to identify good aspects of my day when I was having a particularly bad day."* Others began noticing positive experiences spontaneously throughout their day, cultivating a habit of gratitude, *"I found myself thinking about 3 good things ahead of time. I initially would think of it for the text message to come, but sometimes I would just catch myself looking for good things in the day."* Identifying positives was not always straightforward, particularly during challenging times. Several participants shared that the intervention pushed them to reframe their experiences, prompting a deeper reflection that often resulted in a small yet meaningful sense of accomplishment. As one participant explained, *"Filling it out when I was in a bad mood was interesting because I had to think harder to come up with something positive. But it gave me a small sense of accomplishment when I did it :)"*

Many participants highlighted the intervention's value as a tool for emotional support and mood enhancement. For some, its impact was most profound during difficult days. One participant reflected, *"I think the best days for the intervention were my worst days because I was thinking about what I was going to write for my three good things all day, which gave me a more optimistic outlook on really stressful days."* Beyond boosting mood, the practice also nurtured a habit of gratitude, encouraging participants to deliberately acknowledge and appreciate the positive aspects of their lives. In addition to fostering optimism, the intervention appeared to

reduce self-criticism and bolster self-esteem, one participant shared, *"The intervention built up my confidence and self-concept because it helped me realize and appreciate the effort, I put in."* This shift toward positive thinking contributed to an overall improvement in emotional well-being, with another participant sharing, *"I also feel like it may have improved my mood from two weeks ago or even made me more optimistic."*

Shifting Mindset Through Reflection. Reflection played a powerful role in shaping participants' self-perception and daily awareness. Many reported becoming more mindful and present, noting, "*This practice significantly influenced my perception and engagement, making me more mindful of the good things in my life*." Through deeper reflection, particularly the last question of "Why does it happen to you", encouraged participants to consider their role in positive outcomes, strengthening their sense of agency and self-efficacy. One participant reflected, "*The final question forced me to justify to the positivity in my life in terms of my own agency. I thought this was a valuable exercise that helped "work out" my self-efficacy and show me that I had the power to make a difference in my own life*."

As they reflected on their daily experiences, many reported a meaningful shift in mindset—moving from passive observers of their lives to active participants. As one participant expressed this transformation by noting, "*It helped me feel less machine like and that I am a person not just a thing to be doing things*". While some entered the intervention already attuned to moments of positivity, others experienced a profound change in how they identified and cultivated those experiences. As one participant articulated, "*I realized that my active participation in life is why I experienced good things*." This recognition of personal agency empowered participants to take ownership of their outlook and emotional well-being. One participant's reflection captured this

realization succinctly, "*I realized that I have power over my actions and responses, even if some things are unexpected. I prefer choosing to be happy*".

Participants also described how the intervention encouraged them to reframe their perspective on positivity—moving beyond grand or extraordinary events to find meaning in everyday moments, especially during difficult times. As one participant remarked, "*Some days it was easy to pinpoint things like hanging out with friends or eating out, but other days I really had to look through the small things I usually overlook to find joy. Things like making it to class on time, or drinking enough water. This study really made me count my blessing and appreciate the little things as well*." Another echoed a similar sentiment, "*School has been quite challenging lately, so having to come up with three good things each day forced me to find the good in my bad days. One day, I was feeling really down about not doing so hot on an assignment, and pointing out that I got to talk with my parents made me feel much better.*"

The intervention also fostered a greater sense of self-efficacy, which in turn strengthened participants' self-perception and emotional resilience, one participant reflected "*It was nice to remind myself that I do care about myself and that I am proud of myself for constantly pushing myself to go out and do things that make me happy and that make my day good*." These personal insights were echoed in another reflection, "*The intervention built up my confidence, and self-concept because it helped me realize and appreciate the effort I put in*".

Taken together, the quantitative and qualitative results offer complementary insights into the impact of the intervention. Results from RM ANOVA revealed statistically significant improvements in well-being, resilience, and perceived stress, with differential effects across time and groups. Several elements of the PERMA model—particularly Positive Emotions, Relationships, Meaning, and Accomplishment—demonstrated notable change, especially where

time-by-group interactions indicated differential experiences. Meanwhile, the qualitative feedback enriched these findings by providing deeper context for how participants experienced growth, emotional resilience, and increased self-appreciation and confidence. Together, these data sources offer a comprehensive understanding of the intervention's efficacy and its potential to enhance well-being in diverse student populations.

Recurring Themes from the Three Good Things Content

Positive Emotion was one of the most frequently observed themes, reflecting how participants cultivated gratitude and happiness through everyday joys. Three key subthemes emerged: (a) Finding Joy in Daily Activities, (b) Experiencing Emotional and Mental Comfort, and (c) Expressing Gratitude and Appreciation Feelings.

Finding Joy in Daily Activities. Participants identified a variety of activities that brought them joy during their college experience. One of the most frequently mentioned was the enjoyment of delicious food and culinary experiences. Participants described the pleasure of having a good meal and the happiness derived from actions such as "*taking the time to cook a meal instead of microwaving something*" as a way of self-care. Additionally, sports and outdoor activities were frequently cited as important sources of positivity. Engaging in physical activities—whether through team sports or casual outdoor experiences—helped participants feel energized and more connected to their surroundings. Some highlighted experiences such as "*getting to play in my first soccer game of the season*", while many others shared that they enjoyed "*going to watch the football game on-campus*". Celebrating victories was also significant, with one participant noting, "*We won the game! The whole campus was alive*".

Beyond sports, connecting with nature was also emphasized. As one participant noted, "*I went for a long run today, and it felt really good. I got to explore some new trails near campus*

and closer to Lansing." Participants described appreciating common natural scenes such as sunsets, rivers, and trees, while others recounted rare experiences like seeing the Northern Lights. Some participants who held part-time jobs also shared enjoyment from work-related activities, such as "*My meeting and practice today were enjoyable and satisfying*". These experiences were described as satisfying due to social interaction, skill-building, or a sense of accomplishment.

Experiencing Emotional and Mental Comfort. Participants expressed several aspects of life that brought them emotional comfort and happiness, including restful sleep, balancing personal time with work, and relief from academic or job-related stress. Some reported a sense of relief when classes or work obligations were canceled, while others took the initiative to prioritize mental health, such as choosing to "*take a day off today, because I wasn't feeling mentally too good*". Participants recognized the value of self-care and described moments of guilt-free relaxation. One participant shared, "*I allowed myself to relax and enjoy a hobby I like without feeling guilty about not being productive during that time*". Considering the demanding schedules of college life, restful sleep was also celebrated, "*I had a very good night sleep last night and felt energized in the morning!*"

Expressing Gratitude and Appreciation Feelings. Participants reflected on small but meaningful daily moments that elicited feelings of gratitude. A common source of appreciation was receiving gifts or positive feedback from others, which made participants feel valued and acknowledged. One participant shared, *"I did very well on a homework assignment in my most difficult class. The teacher had several favorable comments on my work!"* Others expressed gratitude for good weather or for having time to rest and recharge.

Some participants emphasized the importance of self-appreciation, often through intentional acts such as buying a favorite coffee, watching a favorite show, or going for a walk. One participant reflected, *" I bought myself my favorite coffee as a treat for hard studying."* Expressions of gratitude also extended to moments of health improvement and the comfort of home. Several noted that they were beginning to feel better physically or mentally, stating, "*I've started to feel better from being sick*". The home environment was also highlighted as a source of security, comfort, and relaxation.

Engagement emerged as another core theme, emphasizing participants' immersion in meaningful, focused activities that fostered presence and enjoyment. Two subthemes were identified: (a) Engaging in Leisure and Recreational Activities and (b) Exploring Growth-Oriented Activities.

Engaging in Leisure and Recreational Activities. Participants frequently emphasized the importance of leisure in maintaining balance and mental well-being. Sports, gym workouts, and outdoor activities were commonly mentioned. These activities were seen as effective for managing stress and supporting physical health. One participant noted, "*running helped release stress*" and another reflected on their consistency, "*I went to the gym for the third day in a row! I'm excited to be as consistent as possible and see where that takes me.*" Other recreational outlets included watching television or movies, which provided mental breaks from daily stress. Video games were described as both entertaining and socially engaging. Participants also mentioned music—either listening to or performing it—as an emotional outlet. Memorable events such as attending concerts or even dancing in a parking lot were shared as joyful moments. Several participants noted experiences of going to music concerts with friends, "*I went*

to a fantastic concert and it was so much fun!", and one participant also mentioned special experiences of *dancing in the parking lot.*

Exploring Growth-Oriented Activities. Participants reflected on engaging in activities that supported personal and intellectual development, including academic exploration and creative pursuits. Many expressed enjoyment and confidence in their academic work, noting a sense of growth. One participant shared "*I felt confident in what I learned in class today*". Another noted a shift in mindset, stating, "*I realized I think my statistics class is actually fun (in the past I hated all math classes)*". Beyond academics, participants engaged in hands-on creative activities such as reading, painting, building with LEGO, or decorating planners. These activities were often described as both productive and relaxing. One participant reflected, "*I got to start my new book today, and it seems like it's gonna be a good read.*"

Relationships emerged as a significant theme, capturing how participants found connection, support, and meaning through their interactions with others. Three subthemes were identified: (a) Building and Deepening Relationships, (b) Engaging in Social and Community Activities, and (c) Providing and Receiving Support and Care.

Building and Deepening Relationships. Participants emphasized the importance of close relationships with family, friends, significant others, and pets. They described meaningful interactions, such as spending time with loved ones, sharing meals, or enjoying comforting routines. One participant shared, "*Today my dad picked me up to go home. I love going home for the weekends because I just want to spend time with my family.*" Another reflected on a shared moment with a partner, "*On my way home from class, the Boumont bell tower was playing beautiful music and my girlfriend and I stopped and listened for a while*" and/or a friend, "*My friend and I had breakfast and lunch together.*" One participant also remarked simply feeling

comforted by the presence of their pets, "*stay home for most of the day today with my cat*". Participants also noted the emotional value of these connections, especially during major life events. For example, "*I took my son to his first swim class today. Seeing him learn a new skill was such a joy*." For student caregivers, witnessing growth in loved ones provided motivation and emotional fulfillment amidst academic pressures.

Engaging in Social and Community Activities. Participants shared how celebrations, achievements, and social interactions enriched their lives. They mentioned birthdays, "*I called a childhood friend back home for his birthday and loved catching up with him*", personal or academic achievements, "*My best friend passed the comprehensive*", cultural festivals, "*My dad cooked a special lunch to celebrate an Indian holiday*". Others described the joy of casual social encounters, such as chatting with someone new in class. For instance, one participant noted, "*I talked to someone sitting next to me in class today.*"

Providing and Receiving Support and Care. Participants discussed the reciprocal nature of support in their relationships. Family support was often mentioned, such as a parent offering encouragement, *"I talked to my parents about my plans to solo travel around Europe in the summer, and my dad was very supportive of it."* Friends also played a crucial role, offering encouragement and small acts of kindness. As one participant noted, *"My friend brought me cookies to motivate me to keep studying and focusing."* Some participants also found fulfillment in offering support to others. For instance, one participant shared a meaningful exchange with a close friend, *"My best friend texted me, saying, 'I always feel better after we talk.'"* The act of cooking was also mentioned as a meaningful way to show care, with one participant highlighted "*the satisfaction of a home-cooked meal*".

Meaning was another central theme, highlighting how participants experienced purpose and personal growth through reflection, social connection, and acts aligned with their values. Two subthemes were identified: (a) Engaging in Social and Cultural Interactions and (b) Cultivating Personal Growth and Emotional Wellness.

Engaging in Social and Cultural Interactions. Participants shared experiences that aligned with their values and gave their days a sense of purpose. For some, this meant engaging in spiritual practices, "*I went to church today. The fellowship was uplifting*." Others found meaning in activism, volunteering, and contributing to cultural or community initiatives. For example, "*I attended a mental health awareness campaign and resource fair on campus focused on suicide prevention*." Another participant shared excitement about launching a disability advocacy group, "*I officially launched the community group for students with disabilities that I've been working on for months. It's starting next week, and I'm so excited about it!*"

Cultivating Personal Growth and Emotional Wellness. Participants described increased self-awareness and emotional development. They spoke of learning not to be too self-critical and embracing progress, such as, "*I didn't beat myself up about not doing good enough*." Establishing healthy boundaries and practicing self-advocacy were also key themes. Some expressed the significance of standing up for their needs. One participant reflected their experiences of self-advocacy in requesting accommodations, stating "*I wrote an email to get a discounted room at a conference I'm presenting at because the room for my disability needs was unnecessarily expensive. I was told that the organizers would support me the best they can*". Additionally, acts of kindness—both receiving and giving back—were meaningful experiences. One participant shared, "*I went to a webinar and shared a resource that the lead organizer appreciated/plugged*".

Accomplishment was a prominent theme across participants' entries, underscoring the role of goal achievement, personal growth, and perseverance in fostering a sense of capability and success. Three subthemes emerged: (a) Advancing Academic and Career Goals, (b) Promoting Personal Growth and Lifelong Development, and (c) Enhancing Health and Well-being.

Advancing Academic and Career Goals. Participants frequently mentioned academic productivity and career-related achievements. Common experiences included completing assignments, progressing on long-term academic goals, and engaging in career preparation. Students shared productive moments of "*I got to concentrate and was very productive and relaxed at my favorite study spot*," and "*I completed most of my assignments for the week and touched up on things that I had been procrastinating*." Progress in research and academic milestones was another key focus, as participants described achievements such as completing a major project data collection, "*I got some good data from my research lab calculations,*" paper submissions, "*My abstract got accepted at a conference,*" or reaching a significant academic milestone, "*I finished writing the first chapter of my book.*" Many also mentioned moments of vocational progress, whether through career-related tasks, internships, or skill development, as they worked toward their professional goals. Participants highlighted key milestones in their career progression, from "*finishing my first draft of cover letter*" to "*getting through an interview and the recruiter seemed to be impressed with me*" to eventually "receiving an *internship offered*".

Promoting Personal Growth and Lifelong Development. Participants reflected on experiences that contributed to ongoing self-improvement. Time management, proactivity, and the completion of planned tasks were frequently cited. One participant noted a sense of accomplishment when "*attended everything on my calendar on time today*," while another

participant emphasized proactivity, noted "*woke up early to get to lab and complete an assignment ahead of time*". Others embraced new opportunities of exploring new activities or enhancing their expertise, such as "*attending first career fair*", or "*play a new sport*", that aligned with their personal or professional goals. Teamwork and leadership experiences also contributed to their sense of accomplishment. Some shared experiences of leadership success, "*While working on a problem set with peers, I correctly proposed solutions to multiple questions*".

Enhancing Health and Well-being. Participants emphasized efforts to prioritize physical and mental health, noting their success in maintaining healthy habits and resisting unproductive behaviors. Participants recognized moments when they "*didn't overeat or binge because of bad feelings*" and "*worked out, even though I did not want to originally*". Those efforts and proactive showed a strong commitment to personal health. Participants also experienced a sense of accomplishment when they improve their living environment, such as "*I finally bought the string lights I've been wanting for my home for a while,*" or completing household chores, "*I finally found time to organize and clean the kitchen.*"

While most themes fit within the PERMA framework, several participant reflections extended beyond its core domains. In particular, themes related to physical health, self-awareness, natural environment, and mindset align with the expanded PERMA+4 model (Donaldson et al., 2022), which includes additional domains such as Physical Health, Mindset, Environment, and Economic Security. Given the frequent emphasis on fitness and emotional awareness, Mindset and Physical Health emerged as especially salient to the well-being of college students in this study.

The qualitative findings from this study offer a rich and nuanced perspective on the impact of the "Three Good Things" intervention. Through participants' reflections and entries, it is evident that the intervention promoted a wide range of psychological and emotional benefits, from enhanced well-being and resilience to increased self-awareness and gratitude. The use of the PERMA framework provided a meaningful lens through which to analyze participants' experiences, while also revealing opportunities to expand this framework to better account for physical health and mindset.

Participants' narratives illustrated how small, intentional acts of reflection could foster lasting change in perspective, emotional regulation, and overall outlook on life. Despite initial challenges in engagement, many students adapted to and embraced the intervention, integrating it into their daily routines and recognizing its potential to support personal growth and academic success.

Together with the quantitative results, the qualitative data underscore the promise of brief, scalable positive psychology interventions for diverse student populations. The sustained emotional benefits, perceived sense of control, and daily mindfulness described by participants point to the value of incorporating gratitude-based practices into mental health and well-being programming on college campuses.

CHAPTER 5: DISCUSSION

This chapter interpreted the findings, including the feasibility and effectiveness of the modified Three Good Things intervention in promoting well-being and resilience and reducing perceived stress. It compared the treatment and control groups and examined how participants with and without disabilities responded to the intervention. Additionally, this chapter discussed participant perceptions of the intervention, key strengths and limitations, implications, and recommendations for future research.

Summary of Findings

This study demonstrated statistically significant improvements in well-being, resilience, and perceived stress, with differential effects across time and groups. Several elements of the PERMA model demonstrated notable change, including Positive Emotions, Relationships, Meaning, and Accomplishment. Meanwhile, both students with and without disabilities seemed to benefit from the intervention. The qualitative findings also illustrated the positive impact of the intervention to establish lasting changes in participants' personal growth and academic success, especially when participants integrated the practice into daily routines.

Effectiveness and Feasibility of the Three Good Things Intervention

Effects On Well-Being, Resilience, and Perceived Stress

Quantitative results of this study suggested that the modified Three Good Things intervention significantly impacted participants' well-being. Specifically, there was a significant Time × Group interaction, indicating that changes in well-being over time differed between the treatment and control groups. The treatment group showed an increase in well-being from pre-intervention (T1) to post-intervention (T2), whereas the control group showed no significant change. One possible explanation for this effect is that gratitude practice increases individuals'

experiences of recognizing and appreciating positive aspects of their lives (Carson et al., 2010). These findings align with previous research on the Three Good Things intervention, which has effectively enhanced participants' happiness and well-being (Gander et al., 2013; Lai, 2017; Seligman et al., 2005; Wu, 2021), though the level of impact varies. Prior research also demonstrates that gratitude-based interventions generally positively affect individuals' well-being (Ahmed & Ali, 2023; Geier & Morris, 2022; Killen & Macaskill, 2015; McCullough et al., 2002) and life satisfaction (Carson et al., 2010).

However, unlike some prior studies that reported non-significant results (Gander et al., 2013; Tagalidou et al., 2019; Zehner et al., 2022), this study's significant findings provide strong evidence of the intervention's effectiveness, including the benefits of duration modifications. A systematic review reported that when gratitude interventions were practiced fewer than four times, participants rarely experienced benefits (Komase et al., 2021). While one previous study implemented an intervention for a longer duration (8 weeks) and observed higher dropout rates, the design of the present study likely contributed to balanced participant retention and observed benefits.

Specifically, Positive Emotions, Relationships, Meaning, and Accomplishment showed significant improvement over time. These findings are consistent with previous studies on similar gratitude interventions. For example, Positive Emotions consistently improved significantly following gratitude interventions (Diniz et al., 2023; Rippstein-Leuenberger et al., 2017), with benefits maintained at a 1-month follow-up (McCullough et al., 2002; Sexton & Adair, 2019). Conversely, Gander et al. (2013) reported mixed results with varying intervention durations, finding only marginal significance and limited long-term effects. These discrepancies could be attributed to different intervention implementation strategies and varying

communication frequencies between researchers and participants. Relationships and social support have also been identified as strong predictors of happiness among college students (Diener & Oishi, 2000; Smedema et al., 2015).

Beyond Positive Emotions and Relationships, the intervention significantly improved Meaning and Accomplishment. Research indicates that gratitude practices help individuals derive greater meaning from daily experiences (Skrzelinska et al., 2024; Zhang et al., 2021). Similarly, gratitude interventions have been associated with increased accomplishment among college students, as positive reflection often enhances motivation and goal attainment (Magno & Orillosa, 2012; Saleem et al., 2024). Interestingly, Engagement showed minimal response to the intervention, consistent with previous findings (Smith et al., 2021). A possible explanation could be that Engagement requires a longer duration of practice to elicit significant change (Pentti et al., 2019).

Resilience, defined as an individual's ability to adapt and recover from difficult experiences (Carver, 1998), showed a significant Time × Group interaction. Changes in resilience differed significantly between treatment and control groups, aligning with previous studies where intervention groups demonstrated higher resilience (Calleja et al., 2024; Salces-Cubero et al., 2019). Additionally, individual well-being and resilience was found to be positively correlated (Huppert & So, 2013; Yıldırım & Tanrıverdi, 2021). The main effects of time or group were not significant, suggesting resilience did not universally change across participants, nor were there overall baseline differences between groups. Similar results have been reported in prior literature (Hahn et al., 2024; Kalamatianos et al., 2023). A plausible explanation is that structured gratitude exercises indirectly support resilience by fostering greater

emotional awareness, optimism (Heekerens et al., 2022), and adaptive coping strategies (Bonanno, 2008).

Common stressors for college students include sleep disturbance, anxiety, and relationship issues (Hartson et al., 2023). Quantitative findings indicated significant effects of Time and Group effects, as well as Time × Group interactions on perceived stress, suggesting perceived stress levels significantly changed over time and differed between groups. Previous studies highlighted similar trends with the Three Good Things intervention (Cheng et al., 2015; Cunha et al., 2019; Hartanto et al., 2022) and other gratitude interventions (Geier & Morris, 2022; Ligon, 2019; Wood et al., 2008). The significant main effect of time indicates variability in perceived stress levels, potentially impacted by external variables such as academic pressure (Neufeld et al., 2020). These findings contrast some studies reporting no significant effects of gratitude interventions on college student's stress levels (Davis & McCann, 2022). Nevertheless, positive psychology interventions emphasize empowering students with effective coping mechanisms to manage the stress in navigating college life (Chessman & Taylor, 2019; Cregg & Cheavens, 2021; Killen & Macaskill, 2015).

Differential Effects Between Participant with and without Disabilities

Further analyses examined whether participants' disability status influenced their responses to this intervention immediately after participation and at the one-month follow-up. Results indicated that, although participants without disabilities generally had higher levels of well-being compared to peers with disabilities, there was no significant difference in their responses to the intervention. The significant improvement in well-being following the intervention aligned with previous disability literature, which demonstrated that individuals with disabilities also significantly benefit from positive psychology interventions (Chakhssi et al.,

2018; Niemiec et al., 2017). The findings of this study were consistent with previous research demonstrating sustained effects at follow-up (Davis et al., 2016) and provided an important contribution to gratitude intervention studies aimed at supporting individuals with disabilities (Diniz et al., 2023).

A similar pattern was observed regarding perceived stress that participants with disabilities exhibited higher stress levels overall, yet no significant differences were observed in their responses to the intervention compared to their peers without disabilities. These findings aligned with previous research indicating that students with disabilities typically experience low levels of well-being (Hong, 2015; Larcombe et al., 2016) and high levels of stress (Blasey et al., 2023; Newman et al., 2011). These results provide encouraging evidence that both groups benefit from the intervention, particularly considering the high stress levels commonly reported by students with disabilities.

Regarding resilience, participants without disabilities generally showed higher initial resilience levels and exhibited stronger short-term (T2) responses to the intervention. However, participants with disabilities might take longer to reach the optimal resilience level. These results suggest that, while the modified Three Good Things intervention effectively enhanced resilience for both groups, the trajectory of change differed based on disability status. One potential explanation for the stronger short-term response among participants without disabilities could be their existing coping mechanisms (Chessman & Taylor, 2019), allowing easier integration of the intervention into their daily routines. Prior research has indicated that resilient students typically possess positive characteristics, including optimism and adaptive coping strategies when faced with stress (Bonanno, 2008). Conversely, the more pronounced long-term effects observed in participants with disabilities suggest that individuals with disabilities often require more time to

achieve optimal effects due to the complex challenges associated with living with a disability (Stuntzner et al., 2020).

Feasibility and Acceptability of Intervention and Participants' Perception

Engagement and Adaptation with the Intervention

Immediately after completing the intervention, participants reported their overall satisfaction with the modified Three Good Things intervention and its perceived benefits. Quantitative findings indicated that the majority of participants expressed high satisfaction and a strong interest in recommending it to others. Qualitative feedback provided additional insight into how participants benefited from the intervention, with a few participants reported initial challenges adapting to the intervention but became more comfortable with the process over time. These findings align with previous research on positive psychology interventions, suggesting that engagement levels and perceived benefits often depend on perceived ease of practice (Hunt, 2018).

Conversely, some participants struggled to maintain engagement due to time constraints and feelings of repetition. Similar experiences were documented in previous literature, where participants expressed evolving perceptions regarding the purpose of gratitude practice (Diniz et al., 2023). These perspectives highlight variations in participant engagement and adaptation to the intervention, aligning with findings from previous studies (Kerr et al., 2019; Short et al., 2015). Participants also shared strategies such as completing the intervention in the morning or discussing gratitude with others instead of writing, echoing strategies noted in another research (Diniz et al., 2023).

When reflecting on their intentions to continue practicing the Three Good Things intervention beyond the study, responses varied. Some expressed strong intentions to integrate

gratitude reflections into their daily routine, while others indicated uncertainty about long-term adherence. Qualitative feedback further revealed mixed perceptions, with some participants describing the intervention as superficial and ineffective. Similar findings appear in existing literature, indicating that while gratitude interventions can be effective, individual and external factors significantly influence their impact (Gander et al., 2013; Seligman et al., 2005).

Emotional Growth and Shifting Perspectives Through Gratitude

Qualitative feedback indicated that participating in this study and reflecting on daily positive experiences had a meaningful and positive impact on participants. These results align with prior research suggesting that gratitude interventions positively influence individual well-being (Ahmed & Ali, 2023; Geier & Morris, 2022; Killen & Macaskill, 2015; McCullough et al., 2002). Many participants described an improvement in daily mood during the intervention period. This intentional effort to recognize positive aspects of life fostered a more optimistic perspective, consistent with previous studies (Heekerens et al., 2022; Ng et al., 2017; Oishi & Westgate, 2022).

Participants also reported changes in how they responded to difficulties and developed a habit of naturally seeking out positive moments throughout the day. This shift in mindset reinforces prior research showing how gratitude interventions contribute to happiness. Additionally, reflective questions helped participants recognize personal agency. The empowerment of participants and increased self-confidence highlighted in these findings align with previous intervention studies (Emmons & Stern, 2013; Trom & Burke, 2022).

Long-Term Adherence and Sustainability of the Practice

At the one-month follow-up, 38.46% of participants reported continuing the practice, while 61.54% did not. Those who maintained the practice frequently mentioned making

individual adjustments, such as mentally noting positive experiences or discussing them with others. Participants who discontinued the practice cited reasons including forgetfulness, lack of external reinforcement, or busy schedules. Participants were encouraged that practicing for a longer duration could lead to more effective outcomes and help establish habitual patterns of grateful thinking (Carr et al., 2021).

Recurring Themes from Three Good Things

A thematic analysis was also conducted on participants' entries from the Three Good Things intervention. These entries largely aligned with the PERMA framework, encompassing Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment, although notable differences existed in the frequency and depth with which participants emphasized each element. Specific themes emerged prominently within the college student population.

Among the PERMA elements, Positive Emotions, Relationships, and Accomplishment were the most frequently referenced in participants' entries. Many reflections focused on experiencing joy and gratitude, building and strengthening relationships within their communities, and achieving personal growth. Regarding Positive Emotions, participants frequently expressed appreciation for small joyful moments in their day. Similarly, Relationships featured prominently, with participants highlighting mutual care and support. Accomplishment also emerged as significant, with participants acknowledging their progress toward goals and self-care. These findings align with existing literature indicating that college students naturally reflect frequently on emotions, relationships, and daily achievements (Frumos et al., 2024; Halimi et al., 2021).

In contrast, Engagement and Meaning were referenced less frequently compared to the other elements. This could reflect the intervention's nature, where participants might prioritize

interpersonal and emotional reflections over deeper considerations of activity engagement and life meaning. Participants often described experiences that overlapped with other PERMA elements. This blending suggests that while Engagement was not frequently highlighted individually, it was often implicitly included within broader reflections on personal growth and motivation (Pentti et al., 2019). Meaning was also not frequently mentioned by participants as it might be less important in this age group. College students might still at the stage of searching for meanings and might be able to obtain more in the later stage of their live (Kovich et al., 2022).

These recurring themes indicate that participants' reflections naturally aligned with the PERMA framework, though certain elements resonated more strongly within the gratitude intervention context. Positive Emotions, Relationships, and Accomplishment emerged most prominently, suggesting these dimensions were most relevant to participants' everyday experiences of well-being (Kern et al., 2015). Conversely, Engagement and Meaning were mentioned less frequently, although indirectly present in some reflections (Kern et al., 2014; Tansey et al., 2018). These patterns offer valuable insights into how college students engaged with the intervention and highlight the most personally relevant aspects of well-being.

Although most identified themes fit within the PERMA framework, certain entries suggested broader dimensions of well-being not fully captured by the five core domains. These reflections—particularly those related to enhanced self-awareness, emotional regulation, and physical activity—align more closely with the extended PERMA+4 model (Donaldson et al., 2022), which includes additional elements such as Mindset, Physical Health, Environment, and Economic Security. These themes underscore the complexity of participants' lived experiences (Cabrera & Donaldson, 2024; Donaldson et al., 2021) and highlight the importance of further

investigating how gratitude interventions can influence broader domains of well-being among college students.

Strengths of the Study

One of the major strengths of this study was addressing limitations noted in previous studies by implementing key modifications: transitioning to an online format, adjusting intervention duration, providing structured reminders with technical support, and proactively responding to participant distress. First, unlike prior studies relying on physical journaling, this study utilized an accessible online format, facilitating participation by removing barriers such as physical journal management (Rippstein-Leuenberger et al., 2017; Sexton & Adair, 2019; Wu, 2021). Given college students' familiarity with technology, this digital approach likely improved adherence and participant engagement (Tagalidou et al., 2019; Zehner et al., 2022). Second, the selected intervention duration effectively balanced participant engagement and potential psychological benefits. Based on community recommendations from pre-dissertation activities, the chosen duration minimized participant fatigue and dropout risk associated with excessively lengthy interventions, while ensuring meaningful psychological change (Carr et al., 2021; Lai & O'Carroll, 2017). Third, structured daily reminders at 7 PM significantly improved adherence, a community-recommended modification positively acknowledged by participants. Ongoing technical support further enhanced engagement, consistent with findings from previous intervention studies (Jeong et al., 2020). Fourth, proactively addressing participant distress by providing supportive resources ensured ethical research standards, offering essential emotional support. Finally, the study's adequate sample size (n = 99) increased statistical power, addressing the frequent limitation of attrition observed in previous studies (Lai & O'Carroll, 2017; Tagalidou et al., 2019; Wu, 2021), enhancing confidence in intervention outcomes.

Limitations of the Study

This study has several limitations that should be considered when interpreting the results. First, the sample demographics were not fully representative of the broader college student population, being predominantly female and white. Although the disability group included individuals with a broad range of disability types, the heterogeneity may have obscured subgroup-specific effects. Future research should aim to recruit participants with more diverse gender identities, race, and cultural experiences to enhance the generalizability of findings and/or focusing on specific disability categories to better capture the intervention's effect with distinct subpopulations. Second, participant engagement and adherence varied despite structured daily reminders. Some participants adhered closely to the intervention schedule, while others missed days or completed multiple entries simultaneously. Future studies could implement structured adherence tracking or adaptive interventions that allow flexible yet consistent participation. Third, the one-month follow-up period limited insights into the long-term effectiveness of the intervention. Additionally, the timing of the intervention during the academic semester may have influenced participants' responses, potentially introducing contextual bias. Future research may consider incorporating extended follow-up intervals to evaluate the sustainability of outcomes over time. Implementing the intervention at various points throughout the academic calendar may also help identify timing effects and inform optimal periods for delivery. Fourth, the reliance on self-report measures introduced potential social desirability bias, with participants possibly over-reporting positive outcomes (Donaldson et al., 2021). Additionally, participant awareness of group assignment may have introduced expectancy effects (Boggis et al., 2020). Future studies should utilize more objective measures and active control conditions to minimize biases and improve validity. Fifth, the online written format, although accessible, did not suit all

participants' communication preferences. Some participants expressed a preference for verbal expression. Future research could explore diverse engagement methods to accommodate varying cultural and personal communication preferences. Lastly, this study used the traditional PERMA framework, yet recent research advocates for expanded models like PERMA+4 (Donaldson et al., 2022). Future studies may consider integrating broader frameworks incorporating elements such as Physical Health, Mindfulness, and Emotional Regulation to fully capture well-being experiences among college students.

Implications

Implications for Counseling Practice

The findings from this study revealed that gratitude-based interventions, such as the Three Good Things exercise, can be valuable tools in counseling practice for enhancing well-being and resilience and reducing perceived stress. Counselors working with college students or transition-age individuals may consider incorporating similar gratitude practices into their treatment plans. The results indicate that regularly engaging in gratitude exercises can help individuals focus on positive experiences, reinforcing adaptive coping mechanisms. Additionally, the successful use of an online format highlights the feasibility and effectiveness of digital mental health interventions. Counselors may explore various mobile applications or online journaling platforms to support clients in maintaining gratitude practices outside counseling sessions.

However, recognizing individual differences in intervention responses is important, and counselors should provide flexibility in intervention methods. Allowing clients to choose between written, verbal, or interactive gratitude exercises based on their personal preferences and cultural backgrounds can enhance engagement and effectiveness. Furthermore, based on the

study's findings, counselors can emphasize the importance of Positive Emotions, Relationships, and Accomplishment when working with college students. Additionally, counselors might consider incorporating targeted exercises aimed at enhancing Engagement in activities and developing Meaning in life. Doing so could further support students' overall well-being by fostering a broader sense of positivity and connection.

Implications for Higher Education and Student Support Services

The results of this study have important implications for higher education institutions and student support services, including on-campus disability offices. Given that students reported increased awareness of positive experiences and resilience through the Three Good Things intervention, higher education institutions could integrate structured gratitude practices into student wellness programs, academic courses, and mental health workshops. Faculty and student affairs professionals might consider incorporating gratitude exercises into classroom activities, orientation programs, or peer mentorship initiatives to help students cultivate habits of recognizing positivity. Additionally, digital gratitude interventions could be integrated into campus-wide apps to enhance accessibility for all students. While this study utilized an online format for convenience and accessibility, previous research indicates that face-to-face delivery can enhance personal interactions and potentially increase the intervention's effectiveness (Koydemir et al., 2021). Future campus-based interventions could explore hybrid models that combine digital and in-person gratitude exercises to maximize accessibility and foster connections among students.

Additionally, these findings highlight significant benefits of gratitude-based interventions specifically for students with disabilities. Research has consistently shown that students with disabilities encounter additional stressors related to academic, social, and accessibility

challenges, affecting their overall well-being and academic experience (Barkley et al., 2008; Webb et al., 2014). Given the observed long-term benefits among participants with disabilities, campus disability service offices could integrate structured gratitude practices into their service offerings. By providing accessible gratitude interventions and personalized accommodations, disability services can contribute to more fulfilling academic experiences and enhanced well-being for students with disabilities (Dong & Lucas, 2016). Furthermore, disability offices can collaborate with on-campus counseling centers to deliver workshops or training sessions on gratitude and resilience-building strategies tailored to meet the specific needs of students with disabilities. Implementing these strategies could help higher education institutions create inclusive, supportive environments using interventions that are cost-effective, easy to implement, and time-efficient.

Implications for Future Research

While this study provided valuable insights into the effectiveness of the modified Three Good Things intervention, future research should explore its applicability across diverse populations. Existing studies on the Three Good Things intervention have targeted various populations, including healthcare providers (Rippstein-Leuenberger et al., 2017; Sexton & Adair, 2019), inpatient individuals (Zehner et al., 2022), young adults (Hartanto et al., 2022), and college students (Lai & O'Carroll, 2017; Wu, 2021), as well as the current study. Although commonalities exist among these populations, further exploration is needed for each group. Additionally, populations such as individuals from diverse cultural backgrounds, children, older adults, or those with specific disabilities may respond differently to the intervention (Lambert, 2019). Future studies should include participants from diverse backgrounds to determine if

adaptations are necessary to enhance accessibility and effectiveness. Comparative research across populations could further illuminate differences in intervention experiences.

As previously noted, a key limitation of the present study was the relatively short follow-up period, which constrained the ability to draw conclusions about the long-term sustainability of the intervention's effects. Prior research has demonstrated that positive psychology interventions can yield both immediate and lasting benefits, with sustained outcomes observed at follow-up intervals of up to three months (Carr et al., 2021). To build on these findings, future research should incorporate extended follow-up assessments—such as at three, six, or twelve months post-intervention—to more fully evaluate the durability of outcomes over time. Another important consideration for future studies is the timing of intervention delivery. Evidence suggests that implementing interventions during critical academic periods, such as the beginning of the school year, may enhance their impact by shaping students' experiences early in the academic trajectory (Cohen et al., 2006; Cohen et al., 2009). Future research could explore whether delivering gratitude-based interventions during key transition points—such as college orientation or mid-semester—affects participant engagement and the sustainability of benefits.

Additionally, future studies should explore other well-being factors particularly relevant to college students and demonstrated improvements in academic performance, self-efficacy, and life satisfaction through positive psychological interventions (Atad & Grant, 2021; Lambert et al., 2019). Incorporating these outcomes into future research will help assess the practical significance of the Three Good Things intervention in students' academic and personal development.

While the Three Good Things intervention has demonstrated effectiveness in enhancing the well-being of students with and without disabilities, future research may benefit from

exploring its integration with other positive psychological interventions to optimize impact. A systematic review by Carr et al. (2021) found that approximately 70% of studies focused on single-component interventions, while the remaining 30% employed multi-component approaches, often yielding positive outcomes. Emerging evidence suggests that combining multiple interventions can enhance efficacy by targeting well-being through complementary mechanisms (Lambert et al., 2018; Liu et al., 2021; Jeong et al., 2022). Future studies could examine whether multi-component interventions generate greater and more sustained benefits compared to standalone approaches.

Conclusion

This dissertation had three overarching objectives: (1) to examine the feasibility and effectiveness of the modified Three Good Things intervention in promoting well-being among college students; (2) to contribute to the growing body of literature on gratitude-based interventions by addressing limitations identified in existing research, such as intervention format, duration, and participant support; and (3) to explore how gratitude practices align with and extend theoretical frameworks of well-being, particularly the PERMA model. While these empirical and theoretical goals will inform future research and practical applications of gratitude-based interventions, this study serves as a foundational step in understanding how structured gratitude practices can enhance student well-being in higher education contexts. Additionally, findings suggest that cultivating gratitude can serve as a beneficial personal strength across diverse backgrounds and abilities (Calleja et al., 2024).

Importantly, the insights from this research would not have been possible without the active participation and valuable reflections shared by participants. Their engagement with the intervention and completion of assessments provided essential perspectives on the real-world

applicability of gratitude interventions. These contributions offer meaningful guidance for refining gratitude-based interventions, making them more inclusive, sustainable, and responsive to diverse needs. While further research is needed to fully understand the long-term effects and optimal ways of integrating gratitude practices into counseling, educational, and disability support services, it is hoped that this study contributes to ongoing efforts aimed at enhancing college students' well-being through positive psychology interventions.

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APPENDIX A: RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM

Study Title: The effectiveness of the modified "Three Good Things" intervention on well-being for college students with and without disability.
Researcher and Title: Anni Wang, Doctoral Student; Dr. Connie Sung, Professor.
Department and Institution: Department of Counseling, Educational Psychology, and Special Education; Michigan State University.
Contact Information: Anni Wang (wangann5@msu.edu; 413-285-6012).

BRIEF SUMMARY
You are being asked to participate in this study because you may be a current college student. The purpose of this study is to examine the feasibility and efficacy of the modified gratitude intervention "Three Good Things" in promoting the well-being of college students.

WHAT YOU WILL BE ASKED TO DO
As part of this study, you will be asked to record daily entries of three good things over 2 weeks, reflecting on the underlying reasons for each event. You will also be asked to complete a brief survey three times throughout the project.

POTENTIAL BENEFITS
Your participation in this study may contribute to the potential strategies to support the well-being of college students with and without disabilities.

POTENTIAL RISKS
There are no known or foreseeable physical or economic risks associated with participation in this study.

PRIVACY AND CONFIDENTIALITY
All participants' survey responses and daily entries will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. To ensure confidentiality to the extent permitted by law, the following measures will be taken:

- You will have the option to provide your email address and phone number for electronic gift card delivery and daily intervention reminders. The information will be collected separately from the survey and will be deleted after gift card distribution. All research records, including your contact information, will be securely stored for a minimum of three years, as required by federal regulations.
- Only this study investigators and Michigan State University's Human Research Protection Program will have access to survey data.
- Data from this study that has been de-identified will be kept indefinitely for possible future research.

- The results of this study may be published or presented at professional meetings, but the identities of all participants will remain anonymous.

YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW

Your participation in this study is voluntary, and you have the right to refuse or withdraw at any time without facing any penalty or loss of entitled benefits. You are under no obligation to continue participating, and you may withdraw at any point without providing a reason.

COSTS AND COMPENSATION FOR BEING IN THE STUDY

There are no costs to you for participating in this study.
Each participant will receive a $10 Amazon gift card:

1. Each time after completing one of the three surveys.
2. After completing seven daily entries in the first week.

FUTURE RESEARCH

Information that identifies you, including your name and contact details, will only be used for the data collection process. After the data collection process is complete, the information will be removed and securely destroyed from the data set. After the identifier is removed, the data set will be used for future research studies.

CONTACT INFORMATION

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher:

Anni Wang

- Mail: 620 Farm Lane #168, Erickson Hall, East Lansing, MI 48823
- E-mail: wangann5@msu.edu
- Phone number: 413-285-6012

Dr. Connie Sung

- Mail: 620 Farm Lane #452A, Erickson Hall, East Lansing, MI 48823
- E-mail: csung@msu.edu
- Phone number: 517-353-1638

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 4000 Collins Rd, Suite 136, Lansing, MI 48910.

DOCUMENTATION OF INFORMED CONSENT

By clicking "Next" below, you indicate that you voluntarily agree to participate in this study.

APPENDIX B: INSTRUMENTS

Demographic Questionnaire

1. What is your age _____

2. What is your gender? (check all that apply)
   - o Woman
   - o Man
   - o Cisgender
   - o Transgender
   - o Non-binary
   - o Genderqueer
   - o Gender nonconforming
   - o Agender
   - o Two-spirit
   - o Prefer to self-describe: _____
   - o Prefer not to respond.

3. What is your race / ethnicity identity? (check all that apply)
   - o African American / Black
   - o Asian / Asian-American
   - o Biracial / Multiracial / Mixed race
   - o Hispanic / Latinx
   - o Middle Eastern / North African
   - o Native American / Alaska Native / First Nations
   - o Pacific Island / Native Hawaiian
   - o White / European
   - o Prefer to self-describe: _____
   - o Prefer not to say.

4. What is your current year in school?

- Undergrad Freshman (less than 28 earned credits)
- Undergrad Sophomore (28-55 earned credits)
- Undergrad Junior (56-87 earned credits)
- Undergrad Senior (88-120 earned credits)
- Master's Level Graduate (year: _____)
- Doctoral Level Graduate (year: _____)
- Recently Graduated
- Others (please specify: _____)

5. What college do you belong to? (check all that apply)
   - Agriculture and Natural Resources
   - Arts and Letters
   - Communication Arts and Sciences
   - Education
   - Business
   - Engineering
   - Human Medicine
   - Law
   - Music
   - Natural Science
   - Nursing
   - Osteopathic Medicine
   - Arts and Humanities
   - Social Science
   - Veterinary Medicine
   - James Madison
   - Lyman Briggs
   - Others (please specify): _____

6. Do you have a disability?
   - Yes

- o No (skip question 7)

7. Please indicate the type of disability that you have (check all that apply):
   - o Attention Deficit and Hyperactive Disorders (ADHD)
   - o Autism Spectrum Disorders (e.g., Autistic Disorder, Asperger's, PDD-NOS, etc.)
   - o Blindness and Visual Impairment
   - o Brain Injury
   - o Chronic Health Disabilities (e.g., Lupus, Chronic Pain, Multiple Sclerosis, Crohn's Disease, etc.)
   - o Deaf / Hard of Hearing
   - o Learning Disabilities and Attention Deficit
   - o Mobility Disabilities
   - o Physical Disabilities (e.g., Spinal Cord Injury, etc.)
   - o Psychiatric Disabilities (e.g., Schizophrenia, Depression, Anxiety, Bipolar Disorder, etc.)
   - o Temporary Condition (e.g., Broken leg, a sprained wrist, etc)
   - o Other Disabilities (please specify: _____)

8. What is your current housing situation?
   - o On-campus residence
   - o Off-campus residence (e.g., shared apartment)
   - o Living with family
   - o Others (please specify: _____)

Participants' Engagement and Feedback

Instructions: Please read each of the following questions and then select the point on the scale that you feel best describes you.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I like the Three-Good-Things and benefit from it.	○	○	○	○	○
I will encourage others to try the Three Good Things intervention.	○	○	○	○	○
I will continue to participate in the Three-Good-Things.	○	○	○	○	○

PERMA-Profiler

Instructions: Please read each of the following questions and then select the point on the scale that you feel best describes you.

In general, to what extent do you lead a purposeful and meaningful life?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Completely
How much of the time do you feel you are making progress towards accomplishing your goals?
0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
How often do you become absorbed in what you are doing?
0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
In general, how would you say your health is?
0 - Terrible ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Excellent
In general, how often do you feel joyful?
0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
To what extent do you receive help and support from others when you need it?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Completely
In general, how often do you feel anxious?
0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
How often do you achieve the important goals you have set for yourself?
0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
In general., to what extent do you feel that what you do in your life is valuable and worthwhile?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Completely
In general, how often do you feel positive?

0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
In general, to what extent do you feel excited and interested in things?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Completely
How lonely do you feel in your daily life?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Completely
How satisfied are you with your current physical health?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Completely
In general, how often do you feel angry?
0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
To what extent have you been feeling loved?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Completely
How often are you able to handle your responsibilities?
0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
To what extent do you generally feel you have a sense of direction in your life?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 – Completely
Compared to others of your same age and sex, how is your health?
0 - Terrible ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Excellent
How satisfied are you with your personal relationship?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 – Completely
In general, how often do you feel sad?
0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
How often do you lose track of time while doing something you enjoy?

0 - Never ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 - Always
In general, to what extent do you feel contented?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 – Completely
Taking all things together, how happy would you say you are?
0 - Not at All ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10 – Completely

Perceived Stress Scale -10

Instruments: Please read each of the following questions and select the points that best indicating your feelings and thoughts **during the last month**.

	Never (0)	Almost Never (1)	Sometimes (2)	Fairly Often (3)	Very Often (4)
In the last month, how often have you been upset because of something that happened unexpectedly?	○	○	○	○	○
In the last month, how often have you felt that you were unable to control the important things in your life?	○	○	○	○	○
In the last month, how often have you felt nervous and "stressed"?	○	○	○	○	○
In the last month, how often have you felt confident about your ability to handle your personal problems?	○	○	○	○	○
In the last month, how often have you felt that things were going your way?	○	○	○	○	○
In the last month, how often have you found that you could not cope with all the things that you had to do?	○	○	○	○	○
In the last month, how often have you been able to control irritation in your life?	○	○	○	○	○

In the last month, how often have you felt that you were on top of things	○	○	○	○	○
In the last month, how often have you been angered because of things that were outside of your control?	○	○	○	○	○
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	○	○	○	○	○

Brief Resilience Scale

Instruction: Please respond to each item by marking one box per row.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I tend to bounce back quickly after hard times.	○	○	○	○	○
I have a hard time making it through stressful events.	○	○	○	○	○
It does not take me long to recover from a stressful event.	○	○	○	○	○
It is hard for me to snap back when something bad happens.	○	○	○	○	○
I usually come through difficult times with little trouble.	○	○	○	○	○
I tend to take a long time to get over set-backs in my life.	○	○	○	○	○

APPENDIX C: INSTRUCTIONAL MATERIAL

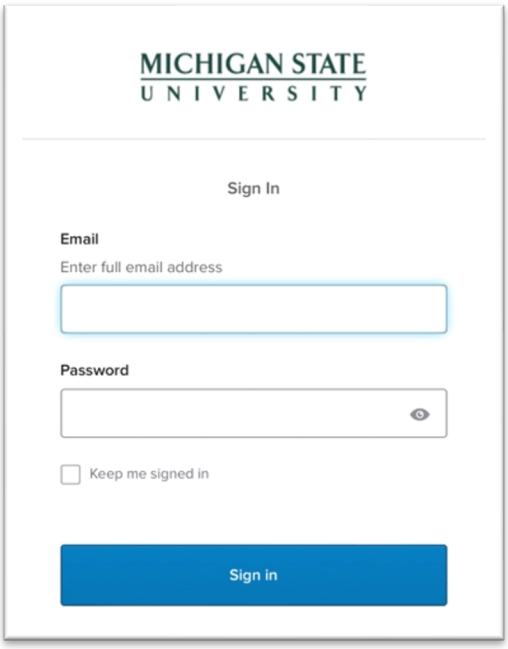
Welcome to the Three Good Things intervention!

Thank you for joining us in this journey towards cultivating gratitude and positive thinking. The Three Good Things intervention is a simple yet powerful practice that can enhance your overall well-being. Over the next 14 days, you'll have the opportunity to reflect on and record positive experiences in your life.

Instructions: You will receive daily text message reminders at 7:00 PM (EST) through the phone number you provided.

1. **Accessing the Authentication System:**

- Begin by clicking the link received in the text message. You will be directed to the MSU Authentication System. Please log in using your MSU email and password.

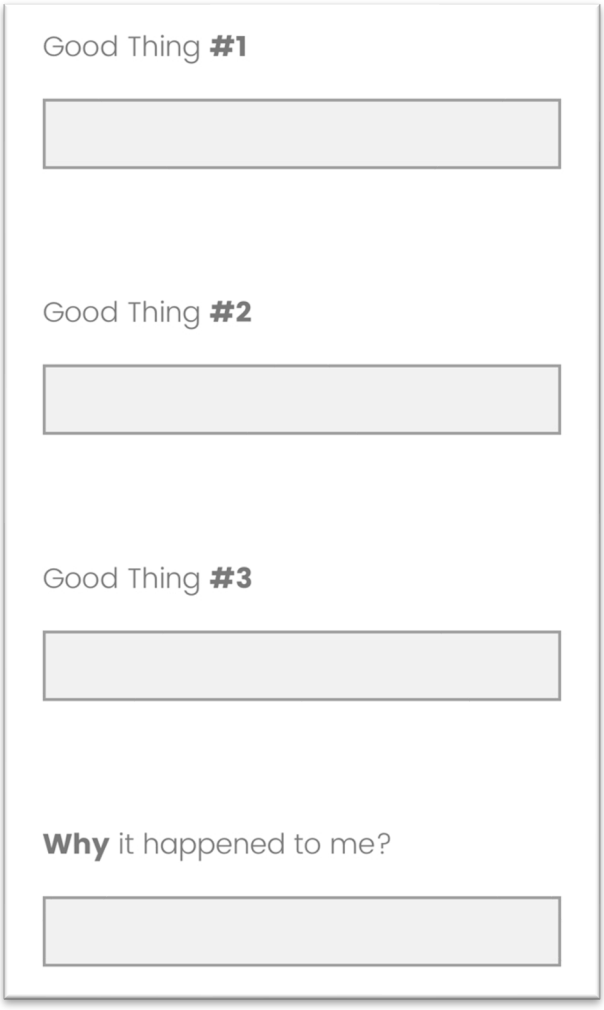


2. **Reviewing Examples After Login:**

- After logging in, take a moment to review the provided examples. This will give you a clear understanding of how to identify and document three good things.
- It doesn't need to be anything big; it can be *simple* and *small* as take a walk.
- The date will be automatically generated by the system.

3. **Recording Your Three Good Things:**

- Now, you can start recording your Three Good Things.
- Then, take a moment to reflect on why these positive things happened to you. What role did you play in bringing about these positive experiences?



4. **Engaging in the Activity for 14 Days:**

- Commit to participating in this activity for the next 14 days. Each day, log in, reflect on your positive experiences, and record your Three Good Things.