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RECEIVED 08 April 2024

ACCEPTED 27 May 2024

PUBLISHED 04 July 2024

CITATION

Hammerness K, Chaffee R, Bjorklund P Jr,
Hinton P-SL, Daly AJ, MacPherson A,
Gupta P, Adams JD, Braverman C, Francis J,
Lagodich L, Wu L and Abouelkheir M (2024)
The role of flourishing in the STEM
trajectories of emerging adults.
Front. Educ. 9:1409672.
doi: 10.3389/feduc.2024.1409672

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The role of flourishing in the STEM trajectories of emerging adults

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We focus on the use of flourishing as a new measure in studies of pathways in STEM (science, technology, engineering, and mathematical) fields. While the concept of flourishing is promising, the concept may need careful interrogation to ensure it takes structural and personal (cultural, religious, socioeconomic, and racial) differences into account. Our longitudinal study explores emerging adult's educational and career pathways with careful attention to structural inequities, enabling us to productively explore the concept of flourishing in a larger systemic context. Drawing from a set of qualitative interviews with our participants, we explore the ways that our sample of emerging adults ($N = 30$), predominantly people of color, define and discuss flourishing. The concept resonated with our diverse participants, and a substantial number did report flourishing. But despite the regularity with which the participants described experiencing racism and microaggressions, they did not often mention those harmful experiences when discussing flourishing. We caution that flourishing data on its own may provide an overly rosy image of the pathways and development, especially of young people of color. Our data suggest that it may be especially important to examine flourishing in context with other measures that can flesh out a fuller picture of well-being, especially in relation to race, racism, sexism, or any other experiences related to personal identities. In particular, instruments should be carefully designed to ensure—especially for emerging adults—that all aspects of their lives and identities can be fully understood.

KEYWORDS

flourishing, emerging adult trajectories, stem, pathways, historically marginalized communities

1 Introduction

Research on pathways into STEM (science, technology, engineering, and mathematics) for youth, especially of youth of color, is essential to ensuring that as youth move through their educational experiences and start to pursue meaningful work as emerging adults, that STEM fields are appropriately and justly diverse. Furthermore, research on youth pathways ensures that the full capacity, creativity, perspectives, and rich knowledge inherent in a diverse

population can collectively tackle the most challenging problems facing our planet. To continue to do generative work as a collective society requires a diverse STEM ecosystem and rests on our ability to support youth of color to choose to pursue STEM work. Thus, we need to explore how STEM-interested emerging adults' learning experiences, academic choices, and decisions about academic pursuits unfold in order to better understand the obstacles and challenges they face as well as the supports and resources they need and utilize. Findings from pathways research can point to changes that individuals and institutions must make to productively sustain youth learning in STEM so that they continue to make choices to pursue this work.

Approaches to studying STEM pathways have been critiqued for consistently conceptualizing youths' academic and career choices—as emerging adults—in narrow ways with limited attention to the structural aspects of inequity that impact access and shape decision making (Metcalfe, 2014; Lykkegaard and Ulriksen, 2019). A justice-oriented approach to pathways research that centers youth development and potential requires directly addressing three key narratives/assumptions often at play in research on STEM pathways: first, the dominant and problematic narrative of sustaining young people and emerging adults in a STEM “pipeline,” which implies a single, unidirectional pathway without regard for context, cultural differences or structural inequities; second, the narrative of pursuit of STEM pathways as a dichotomous outcome (either staying in STEM or leaving); and finally, the narrative of a career as purely focused upon pursuing and learning a field or discipline but does not fully account for all the outcomes that can accompany one's life's work which may be more emotional, relational, collective, collaborative, and meaningful.

In this paper, we focus on the use of *flourishing* as a promising new measure in studies of youth pathways. Flourishing may help move beyond the focus on “staying in STEM” to emphasize how and when emerging adults feel that they are living productive, meaningful and connected lives. Indeed, including “flourishing” may address aspects of all three of the problematic narratives frequently present in work on pathways. Our team's longitudinal ten-year study of youth pathways in STEM attempts to bring an alternative, intersectional and holistic understanding of STEM pathways (Hammerness et al., in press). To do so, our study involves emerging adults themselves as co-researchers who are alumni of the programs and began working as co-researchers as high school and college youth. They are key collaborators bringing their experiences, voices, and insights to the study (Chaffee et al., in press, 2023). Taking an intersectional lens, we examine youth and emerging adults' experiences related to key aspects of their identities in relationship to college majors and career choices. We also take a contextual lens, focusing on experiences in institutional contexts (higher education institutions and the workplace), examining experiences with microaggressions and racism in the contexts in which emerging adults work and learn. We explore youth and emerging adult career choices over time, focusing on how their trajectories change and shift, and what experiences support or divert them from their interests. We aim to understand how our participants are making choices to pursue STEM work and continuing to make those choices over time. We investigate how emerging adults continue to be guided by early passions for STEM work while pursuing careers in the humanities or other fields. (For instance, a participant pursuing film-making focuses on environmental justice topics). To expand our lens on career choices in STEM we have extended our outcomes beyond a career choice.

We include outcomes that help us understand how emerging adults feel about their lives and work—in particular, if emerging adults perceive themselves as flourishing, thriving and pursuing meaningful work.

Yet research on the concept of flourishing suggests it may also be plagued by some of the same challenges and assumptions that have characterized research on youth pathways; in particular, a lack of accounting for structural and personal inequities, or cultural, religious and racial differences (Foley et al., 2021; Willen et al., 2022; Ross et al., 2023; see also Black and Kern, 2020). This represents a “troubling disconnect between current research on flourishing, on the one hand, and the voluminous body of scholarship demonstrating the detrimental impact of structural inequities on health, on the other” (Willen et al., 2022, p. 1). Willen and her team, for example, suggest this ‘blind spot’ must be addressed and call for engaging in interdisciplinary research that interrogates the values and assumptions in the concept of flourishing. Furthermore, researchers in the field of well-being point to the underused potential of qualitative research to provide important insights into new measures such as flourishing, in what they termed a “call for qual” (Hefferon et al., 2017).

We take up that call. Our focus on structural inequities as the broader context for our research, coupled with our specific exploration of microaggressions and the context of a rich qualitative dataset, allows us to productively explore the concept of flourishing in a larger context, illuminating this gap and in turn, increasing the potential applicability and usefulness of the concept of flourishing. The knowledge and experience from the voices and perspectives of our alumni co-researchers—in a collective examination of our data on flourishing, in tandem with additional data we are collecting on microaggressions, provides us with a unique opportunity to address the “blind spots” from a sole focus on flourishing. Understanding flourishing in that larger context is a key contribution of this paper.

To that end, we report on our collaborative examination of our initial data on flourishing with explicit recognition of the context of systemic inequities in STEM. We explore the ways that youth and emerging adults define flourishing and talk about flourishing and if and when they experience it. Taken together, this exploration enables us to show a fuller picture of youth and emerging adult pathways into STEM that accounts for their reports about flourishing in relation to their reports of microaggressions and discussions of structural inequities. Examining data on flourishing in the context of reports of experiences with belonging or microaggressions, can expand a view of STEM pathways (Adams et al., 2024; Chaffee et al., under review).

1.1 The “Staying in Science” study

Our *Staying in Science* study is following the trajectory of participants, over the course of ten years, who began in our study at ages 15–18, and who participated in one of the 24 different out-of-school mentored research programs, across New York City. The mission of these programs—part of a larger consortium—is to provide youth who have historically been excluded or marginalized from entering STEM professions access to research internships that will support them in college and career pathways. This longitudinal study is designed to follow the pathways of students who have had these research experiences, taking a justice-oriented perspective, and aims to identify the potential features that support and/or hinder a participants' pursuit or persistence in a STEM degree and career. To move beyond a

“pipeline” focused approach, and to take a youth development approach, we draw on key constructs related to the terrain of students’ academic and career pathways such as STEM-related internships and work experiences, and opportunities to learn and engage in science practices.

To broaden our study beyond a “persistence” pipeline perspective, we also examine relational features such as significant relationships with mentors and adults that support personal and professional goals, sense of belonging to work and educational communities, experiences with othering and microaggressions in these settings, evolving science identity, and flourishing. Exploring sense of well-being or flourishing at key transition points in their lives is a critical measure, we suspect, in enabling us to take a holistic view of emerging adult pathways.

The first 5 years of the longitudinal research focused on what youth learned in these programs and how participation in these experiences shaped youth pathways (Hammerness et al., *in press*). Now, these participants are young adults who are pursuing higher education and work; we use the term “emerging adults” drawing from literature that proposes this as an important developmental stage (Nelson and Padilla-Walker, 2013; Padilla-Walker et al., 2017). At this point in the longitudinal study, we have a participant sample of 358, who have continued to respond to surveys. Through surveys we collect data about their location along their pathway, constructs related to the pursuit of a pathway, and demographic information.

Our study includes alumni co-researchers who are a diverse group of young adults pursuing careers in the physical, social, and biomedical sciences, and who are currently either completing their undergraduate and graduate programs or working. Alumni co-researchers are participant alumni of one of 24 science research mentoring programs our study’s participant pool are drawn from. Alumni co-researchers are vital to our study as they are representatives of the pool of participants we are researching, having been selected from the same cohorts of our study sample, capturing the age-range of our participants. Additionally, they represent the diversity in our participants racial, socioeconomic, and first-generation identities and their trajectories in STEM. The inclusion of our alumni co-researchers allows us to integrate their own lived-experiences, understandings, and concerns to our research, such as aiding in framing interview questions and interpreting qualitative data, from the perspective of not only a researcher but a peer and participant, contributing important cultural and developmental sensitivity to this study.

In this paper we, senior researchers and alumni co-researchers, focus on what we are learning from our *Staying in Science* participants and early findings from our qualitative use of the measure of flourishing. We focus upon these three questions: (1) How did our sample of youth in higher education, and emerging adults in the workplace, view the concept of flourishing? (2) What degree of flourishing did they report in their own lives? (3) How did they discuss flourishing in relationship to their own career choices and pathways? What did they perceive as supports for flourishing? What barriers?

2 Flourishing in the “Staying in Science” study

2.1 Flourishing as a construct of interest

Over the past decade flourishing has increasingly been a topic of research across a broad array of disciplines (Huppert and So, 2013;

Hefferon et al., 2017; Willen et al., 2022). Flourishing can be thought of as “a state in which all aspects of a person’s life are good. We might also refer to such a state as complete human well-being...” (VanderWeele, 2017, p. 8,149). Keyes (2016) suggests that “[f]lourishing represents the achievement of a balanced life in which individuals feel good about lives in which they are functioning well” (p. 101). People who are flourishing are said to have both high levels of subjective/hedonic well-being and psychological/eudaimonic well-being (Keyes, 2002, 2016; Schotanus-Dijkstra et al., 2016). Subjective well-being or hedonic well-being is characterized as having overall life satisfaction, the presence of positive emotions, and the absence of negative emotions (Diener and Emmons, 1984; Diener et al., 2010). Psychological or eudaimonic well-being is often described as having high levels of self-acceptance, a sense of purpose, positive social relationships, personal growth, environmental mastery/competence, and a sense of meaning in life (Ryff and Singer, 2008).

The construct of flourishing is relatively new, and despite the growth of scholarship in the field, scholars have yet to reach consensus on a definition, conceptual framework, or measure (Hone et al., 2014; Agenor et al., 2017; VanderWeele, 2017; Volstad et al., 2020; Willen et al., 2022). That said, scholars have noted that there is conceptual overlap in current conceptions of flourishing, stating that positive relationships, engagement, positive emotions, competence, meaning and purpose, and self-esteem are concepts that are part of all or most of the different conceptualizations and measures (Hone et al., 2014; Agenor et al., 2017). Willen et al. (2022) posit that flourishing is an intuitive and appealing concept—it is associated with positive living and it “evokes a holistic sense of things going well—of moving steadily forward on a stable path” (p. 2). They suggest that flourishing is an appealing concept because it explores well-being from an asset-based—as opposed to deficit-based—frame which seeks to leverage community and individual assets instead of dismissing them (Willen et al., 2022). Fostering flourishing in people should be an aim for any society, community, organization, or school (Keyes and Simoes, 2012; Huppert and So, 2013).

While helping people to flourish is a laudable goal in and of itself, flourishing is also related to a host of positive outcomes (Keyes et al., 2011; Keyes and Simoes, 2012; Huppert and So, 2013). Adults who flourish tend to have stronger physical health, be more engaged in their work, and are less likely to die prematurely (Keyes and Simoes, 2012; Keyes, 2016). Flourishing and other well-being metrics have also been positively associated with productivity, creativity, learning, and pro-social behavior (Lyubomirsky et al., 2005; Huppert, 2009; Huppert and So, 2013). Beyond individual benefits, when more people flourish societies, organizations, and other groups benefit collectively (Keyes et al., 2011; Huppert and So, 2013).

In an effort to go beyond current quantitative measures, and to explore how people experience flourishing, and how structural barriers can hamper flourishing, Willen et al. (2022) explored antecedents of flourishing by interviewing 167 participants (diverse in terms of race, age and profession) in the Midwest. They found six common themes: (1) stable income, (2) social support (i.e., close positive relationships), (3) social determinants of health—e.g., education, access to health care, access to education, economic stability, (4) sense of self-worth and identity, (5) family, and (6) meaningful work. Their findings take a critical lens to current conceptions of flourishing and show that the most common conception and metrics of flourishing fall short as they do not capture

structural barriers, such as racism and poverty, that can hinder someone's ability to flourish, even when they meet most or all of the criteria put forth by past metrics (Willen et al., 2022). Our qualitative study builds on the work of Willen et al. (2022) and others by exploring how youth and emerging adults—namely college students who are about to transition to the workforce—experience flourishing.

While there is a growing body of research related to flourishing in adult populations, less work has explored flourishing in emerging adults (Padilla-Walker et al., 2017), especially emerging adults in higher education. The few who have explored flourishing in college students found that flourishing is positively related to increased academic achievement, increased self-control, and decreased procrastination (Howell, 2009; Knoesen and Naudé, 2018). Flourishing is also related to a sense of belonging to the college, positive social interactions, and ease of transition (Fink, 2014). Recent scholarship has found a positive relationship between flourishing and positive mentorship support and a sense of belonging to service-learning programs (Maples et al., 2022). Flourishing college students often have positive and supportive relationships with family and peers (Padilla-Walker et al., 2017; Knoesen and Naudé, 2018; Volstad et al., 2020; Maples et al., 2022). Moreover, making new friends (Knoesen and Naudé, 2018) and having a socially supportive residence hall (Fink, 2014) have been found to positively predict flourishing. Volstad et al. (2020) interviewed nine first year college students and found that they experienced flourishing as a process and not an endpoint. The process was associated with personal growth and overcoming challenges (Knoesen and Naudé, 2018; Volstad et al., 2020). Our own research, using both qualitative and quantitative data from this study, has revealed a positive relationship between a sense of belonging in one's major in college and flourishing (Chaffee et al., in press).

Our analysis adds to the current literature on flourishing in four concrete ways: (1) it builds on a nascent literature exploring flourishing in college and in emerging adults broadly. More pointedly, it is one of the few papers that examines flourishing in emerging adults in the transition from their last years in college to their first years in the workforce. (2) It builds on the dearth of qualitative literature that explores how people experience flourishing (e.g., Volstad et al., 2020; Willen et al., 2022), especially in relationship to a diverse population. Willen et al. (2021) argue that flourishing is “not simply a psychological state, but an active pursuit informed by cultural expectations and social relationships, and influenced by the social, political and economic structures that shape people's lives” (p. 2). When thinking about flourishing as an active and dynamic pursuit, qualitative research can be an optimal way to explore the nuances of these experiences. (3) Building on that point, our work also adds to the ‘third wave’ of positive psychology (Lomas et al., 2021; Wissing, 2022; Wissing et al., 2022). The third wave is characterized by multi-disciplinary approaches to positive psychology research and methodological diversity to move “toward greater complexity” in our understanding of positive psychology and the methods used to examine it (Lomas et al., 2021, p. 663). Past waves of positive psychology research have relied on mainly positivist/quantitative research methods, but the third wave of positive psychology research uses more constructivist frameworks often through qualitative research (Lomas et al., 2021; Wissing, 2022). Our work adds to the third wave by using qualitative methods but also working with participants as co-researchers in our interviews and in our analysis (described more below). Lomas et al. (2021) posit that situating

“researchers and participants as co-collaborators in the formation of knowledge...[is] an important feature of the third wave” (p. 668). (4) Finally, our work builds on prior literature that argues that measuring flourishing by looking solely at psychological and mental well-being is not adequate as it does not recognize societal and systemic barriers to flourishing (Willen et al., 2022). Our study takes a more critical lens to exploring flourishing as we examine the structural barriers that prevent students from flourishing.

3 Methods

To unearth a more nuanced understanding of participants' sense of flourishing in relationships, we conducted interviews with a subsample of our participants ($n=30$). In this paper, we share findings from our qualitative interview data.

3.1 Participant interview sample

We selected 30 participants representative of the larger data set of participants for interviews. For the larger study, participants ($N=358$) in this longitudinal study *Staying in Science* are youth who have participated in an out of school mentored research program in high school and are now in college or the workplace (see Table 1 for information on the larger sample of participants). These participants, predominantly students of color, began in our study at ages 15–18 and had participated in a mentored research experience. To ‘maximize understanding’ of the phenomenon of continued interest in STEM careers and the decisions of emerging adults along career pathways, we chose to pursue a relatively large sample for interviews. To maximize the benefit of the longitudinal design, with participants in that transitional stage (e.g., in higher education, newly working), we chose a purposive, stratified sample based on our main outcome variable (staying in STEM, leaving STEM, or, choosing another field); and stratified our sample to include participants in higher education, graduate school, or in the workplace. We made sure our sample was representative of the demographics of the larger sample (see Table 1).

3.2 Interviews

Our interview protocol drew on the “life story” approach developed by Dan McAdams and his colleagues, developed for research on identity that focuses on narratives (McAdams, 1985, 2001, 2008; McAdams and McClean, 2013). This approach has also been used in research on STEM identity in Black and LatinX engineering students (McGee and Martin, 2011; McGee and Bentley, 2017). We asked participants to describe “a high point”; a “low point” and a “turning point” in their pathway. Our protocol also included questions about belonging and othering and questions about microaggressions on campus or the workplace. The protocol ended with two questions drawn from Willen et al. (2022): *What does flourishing or thriving look like to you? Would you describe yourself as someone who's flourishing [or thriving] at this point in your life? Why/why not?* If time allowed; we asked about what “stood in the way” of flourishing or what “helped” them flourish [questions also posed by Willen et al. (2022)]. All interviews were conducted virtually, by videoconferencing, by a

TABLE 1 Interview participant demographics (N = 30).

	Interview sample (%)
<i>Gender</i>	
Female	70%
Male	26.6%
Non-binary	3.3%
<i>Ethno-racial identity</i>	
Latinx	23.3%
East Asian	10%
South Asian	13.3%
Black or African American	40%
White	13.3%
Native Hawaiian or Pacific Islander	6.6%
Other or multiple races	20%
First generation college student	40%
<i>Pathway point at data research topic</i>	
Enrolled in college	20%
Enrolled in graduate school	20%
Enrolled in graduate school and working	10%
Working	50%
<i>Pursuing STEM/other than STEM degree/career at time of interview</i>	
Pursuing STEM degree/career	63.3%
Not pursuing STEM degree/career	36.7%

senior researcher on the project and an alumni co-researcher. We ensured that a person of color and/or woman and co-researcher was one of the pairs interviewing.

3.3 Analysis of flourishing in interview data

Informed by recent analyses of flourishing with individuals whose experiences and personalities may be inconsistent with socially accepted conceptions of flourishing, we carried out a similar analytic strategy using interpretive phenomenological analysis, which focuses upon understanding the personal nature of individual experience and to closely connect to individuals’ own lived experiences (Black and Kern, 2020). All interviews were transcribed and read several times for meaning and understanding. Two senior researchers and one alumni co-researcher on the study used a qualitative data analysis software program to engage in a multiple-cycle coding process (Saldaña, 2021) to identify any text or aspects of the interview that were relevant to flourishing and well being. Once interviews were coded and excerpts that pertained to flourishing and well-being were identified, we coded participants’ overall reports of flourishing into multiple categories, including how many of the participants indicated flourishing or not, or whether they leaned yes, or leaned no (Willen et al., 2022). Next, we conducted a content analysis of participants’ discussion of flourishing, examining in particular how participants described and discussed the concept to explore the validity of the concept for this group of participants. We looked for key words and

themes that underscored their definition and could serve as dimensions of flourishing. We also checked for any responses in which participants appeared to struggle to answer the question or indicated not understanding the concept. Then, we conducted a content analysis of what supported or promoted a sense of flourishing for our participants, identifying key words and concepts that might represent dimensions. We examined key words for potential to cluster similar ideas and grouped the dimensions into themes (Smith, 2003) coding all interviews with these categories. Together with our alumni co-researchers, we examined both the codes and the content analysis to ensure that these patterns and themes resonated with them, and that the analysis reflected and built upon their own voices and perspectives and experiences. Finally, we conducted a content analysis of the responses, looking carefully at differences between participants who reported flourishing, or not, to see if there were meaningful differences across those groups. Across our coding, we were regularly in agreement with our coding; the only question that emerged for all of us was how to code on participant who fell into the “no” or “leans no,” but we were able to look more carefully at the larger context of the interview to determine what we agreed was the appropriate code.

4 Results

4.1 Emerging adults’ conceptions of flourishing

Our emerging adult participants did not seem to have trouble defining flourishing; rather, their evocative discussions of flourishing suggested that the concept had validity for them in thinking about their own wellbeing and personal development. Similar to scholarly conceptions of flourishing, many drew on language that suggested “living...a balanced productive life” as one participant, Paige (all names are pseudonyms), explained (Keyes, 2016). Many participants emphasized emerging growth and development. Manuel, for example, offered an image of multi- directional movement: “the first thing that comes into my head is kind of like a breaking loose...really like everything is kind of going [in]...the right direction - like a flower - just opening like the petals.” Dylan used a similar botanical metaphor, noting that a time lapse understanding was important: “even if it’s one step ahead than you were the day before, I think that’s flourishing. Because even...a sunflower, it does not just sprout up, and hey, I’m a sunflower.” The language of growth and expansion, as connected to a sense of flourishing, suggests a generative multi-directional conception of pathways.

Many described a holistic, multi-dimensional conception of flourishing, reflective of the literature (e.g., Diener et al., 2010; Huppert and So, 2013; Agenor et al., 2017; VanderWeele, 2017). As Dylan said: “Flourishing is...at the end if you are happy with what you are doing.” Also consistent with current conceptions of flourishing, for many flourishing also means having social support and connection that was both offered and received (Diener et al., 2010; Schotanus-Dijkstra et al., 2016; Agenor et al., 2017; Padilla-Walker et al., 2017). Stephanie commented: “Flourishing or thriving looks more like, to me, as a group of people I feel like I can get support from and continuously ask for support from and being able to give support to other students.” A number of youth emphasized financial security as critical to flourishing, as Paige noted, flourishing is not only “Having

time for the things I want to do and the things that I need to do” but also “making a decent amount of money so I do not really—so if I choose to call out one day, I do not have to worry about being short on like any kind of payments.” A few also noted that flourishing did not have to be a final state, but rather, a sense of continued steps forward; it might be possible to flourish even if you had not reached all your goals—an especially interesting insight about pathways as not ‘end-focused.’ As Izzy commented: “I think it means that you are happy where you are at, but I think *recognizing that you could probably do better is also flourishing* [*italics added*] because there is always a step above that and being content.”

Overall, our participants emphasized a number of key elements related to personal growth and development, contentment and satisfaction; physical and mental health, financial stability, and social support. The only aspect of flourishing not as frequently emphasized in youth definitions was a focus on meaning and purpose, as well as upon character and virtue—aspects that some scholarly definitions emphasize; otherwise, their conceptions of flourishing were consistent with the literature. Sometimes these ideas were incorporated in their discussions of flourishing in terms of how they were doing in their chosen career, but a focus on meaning or upon virtue, was not quite as explicit. Given the early stage in their careers and personal development—the transitional nature of their position, a strong focus on all the other key elements related to their personal pathways might make sense. Finally, discussions about microaggressions and racism were rarely reported during interview questions about flourishing, although these topics did come up when emerging adults were asked about what stood in the way of flourishing. Looking across the dimensions these emerging adults noted, the conception of flourishing—in terms of providing a means to discuss and understand growth, development, personal trajectory as well as one’s reflections and feelings and mental and physical health in relationship to that development—seems especially well suited to helping expand how we understand and explore pathways.

4.2 Overall reports of degree of flourishing

In total, 22 of the 30 interviewees (or 71%) either reported yes/leaned yes that they were flourishing; while seven participants reported that they were not flourishing or leaned toward not flourishing (see Table 2). Reports of flourishing seemed to increase with more experience. While only half of the undergraduates reported flourishing, almost all of the working participants felt they were. Preliminary demographic analysis of who reported yes, leans yes, leans no, or no with respect to flourishing did not reveal significant differences by race/ethnicity or gender. However, we noted that participants in the no or leans no categories were students who identity as South Asian, Black, or multiracial, suggesting the potential role that discrimination and racial inequity may play in participants’ sense of flourishing. Future analysis of flourishing on this longitudinal project will utilize quantitative data from a larger dataset ($N=358$) to explore the potential role of gender and ethno-racial identity on participants reports of flourishing, over time and across contexts.

Many of the youth who reported flourishing expressed a level of certainty about their self-assessment, suggesting some comfort with the concept. Brooke, for instance, said with confidence: “I think I see myself as thriving. I think having people that you care about in your

TABLE 2 Youth reports of flourishing ($N = 30$).

	Yes	Leans Yes	Leans No	No
Gender				
Female	52.3%	23.8%	14.2%	9.5%
Male	62.5%	25.0%	12.5%	12.5%
Non-binary	0.0%	100.0%	0.0%	0.0%
Ethno-racial identity				
Latinx	0.0%	50.0%	50.0%	0.0%
East Asian	66.6%	3.33%	0.0%	0.0%
South Asian	25.0%	0.0%	25.0%	50.0%
Black or African American	62.5%	25.0%	0.0%	12.5%
White	50.0%	25.0%	0.0%	0.0%
Native Hawaiian or Pacific Islander	100.0%	0.0%	0.0%	0.0%
Other (e.g., MENA) or multiple races	50.0%	37.5%	25.0%	0.0%

life or people that care about you, those strong friendships [are] definitely really important.” Brynn emphasized feeling that she had made progress in her academic life and was enjoying where she was at this stage: “I think that’s the part where I am flourishing now because I worked hard the past four years, and I put myself out there, and I’m here now kind of enjoying what I’m doing.” Those who were a bit less certain (who we categorized as leans yes) emphasized a sense of ‘being on the way to flourishing,’ as Jacob noted: “I’m growing in an exponential rate, so I feel like I’m about to start flourishing.” Melanie explained that “I’m hopeful and excited that soon with time after I get through this transition, I will be flourishing and thriving.”

However, as with research with racially and economically diverse populations (e.g., Willen et al., 2022), participants made clear that they experienced flourishing in some aspects but not all. Dylan explained, “I think flourishing and thriving—my previous idea of it was just having like—just being able to cruise, having no worries at all, having all like your i’s dotted and t’s crossed and everything like that. But...I’ve kind of like expanded my perception [to] just being better than where you were like yesterday, *just making progress* on something.” Similarly, Rhyland pointed out that even though he’d had to make some shifts in his academic career, he was proud of himself for making the progress to pursue his Bachelor’s degree and noted, “hopefully, fingers crossed, I’ll get into graduate school. As long as I keep pursuing and not settling for less, I think that’s flourishing.” Some noted that flourishing was context-specific: Paul said he was flourishing during the summer but not when he was in graduate school during the year. For the fewer who reported *no*, they expressed a similar certainty about their self-report, as Sufian noted: “I’m definitely in the steps toward that, but I would not say I’m anywhere near it,” or as Baahir explained, “if I’m being very honest, I do not see myself as someone that’s flourishing right now.” The way participants discussed their own flourishing revealed an important –and wider–view of participants’ pathways as opposed to a simple focus on persistence in a field. It is encouraging

that a substantial number report flourishing, as well as critical to explore the reports of those who report struggles; this data will prove essential as we gather a fuller understanding of trajectories over time and understand what promotes or gets in the way of a satisfying and supported professional life.

4.3 How emerging adults discuss flourishing in their own lives

4.3.1 A sense of progress and growth

Of the participants who reported flourishing, 77% (or 17 of 22) emphasized experiencing a sense of growth and potential. These participants often reflected that they were following a path or trajectory that was satisfying, especially notable given our focus on pathways, and allowing us to explore the emotional benefits of the experience of development. Jia, for example, mentioned still flourishing despite a distant view, noting that even though she's picked a career that has a 'long path' she felt balanced physically and emotionally. Lora described herself as flourishing because she had a sense of 'growth' for herself. Jacob noted enthusiastically that "each year I get closer and closer to my goal. *If we do this [interview] next year, who knows what I'll have to tell you!*" Almost all of those who saw themselves as flourishing described it as a process of growth rather than a steady state. They acknowledged challenges, but did not view them as barriers or obstacles to flourishing. Yet on the other hand, those who "leaned yes" (like Jacob) were more likely to describe flourishing as an end state to be achieved (like equilibrium) or a goal to be reached.

4.3.2 Competence, learning, and feedback

A second aspect of flourishing that 13 of the 22 mentioned was learning and growing competence in an area, often noting the importance of reassuring feedback that reinforced or validated their progress. Amber emphasized a sense of realizing she was growing, and how others' feedback reinforced her confidence:

"I think flourishing is being proud of the work that I'm doing and feeling like there are other people who are proud of me as well. And I think that I'm flourishing in some aspects. It's like I think that I'm getting a lot of recognition at this job which feels really good and the positive feedback matters."

Sanvi mentioned feeling confident and competent, noting these emotions underscored her feelings of flourishing. She described becoming increasingly comfortable even with getting a bad grade, as long as she knew she was learning. Victoria, newly working, described the confidence that came with being in a more leadership role noting how secure she felt with "a project I could work on myself...I could direct things."

4.3.3 A life in balance

A third theme emphasized by more than half of the participants (13 of the 22) who reported flourishing was living a life in balance—four participants underscored this element of flourishing. For participants who discussed this theme, they emphasized feeling that their professional lives enabled important personal pursuits, and vice versa, enabling them to feel that they were not only satisfied in work

but also felt emotionally and physically healthy. For instance, Jia said, "I think for me it is to do something that you love doing and you enjoy and [having] physical and mental health where you are able to do your work, enjoy it. And also be able to have hobbies and also have a social happiness where you meet with friends or you talk to friends, kind of situated well in all senses where you have a sort of comfort. And yeah, I think you are happy doing what you do." Melanie and Claire both used the phrasing of "work life balance" as essential to flourishing.

4.3.3.1 Financial comfort

Many young people mentioned finances as a key factor; either as feeling confident about their potential to earn a good living, or as a major concern and missing element of flourishing. Paige noted that just "having a decent amount of money" would just alleviate fears and stress about working and bills. Those who reported not flourishing often referred to a lack of balance and feelings of overwhelm and anxiety: of the participants who reported not flourishing, or leaned toward no, most (4 of 7) referred to feelings of overwhelm and struggle—both in terms of professional or school work but often this was intertwined with considerable financial concerns. Cierra, for instance, noted that she was dealing with a lot of stress from classes, and feeling very overwhelmed by her work, exacerbated by financial concerns and said she felt the "opposite of flourishing."

4.3.4 Satisfaction and happiness, and self-esteem

Related to a life in balance, our participants also mentioned feelings of satisfaction and happiness in work and life as a key element of their own flourishing. For those who were flourishing, they noted, as Rae did, that while earlier she had been worried about finding work, that "finding this job was a very happy moment for me." The experience of settling into a work role, or feeling a 'fit' in one's work and professional life, and being acknowledged as doing well in that arena, seemed to be resonating for these young adults. Izzy reported: "I definitely think I'm flourishing and thriving...it means you are happy where you are at." Relatedly, participants also discussed feelings of self-esteem and confidence as part of flourishing. Paige recalled the "just really happy" feeling of getting multiple recommendations from her professors and feeling so good about being recognized.

4.3.5 Community

One aspect of flourishing that participants frequently mentioned was community and supportive relationships. In addition, three of the seven participants not flourishing (or leaned no) referred to feelings of disconnection and lack of bi-directional support. Stephanie conceived of flourishing as reciprocal: "Flourishing or thriving looks more like.... a group of people I feel like I can get support from and continuously ask for support from and being able to give support to other students. My current situation is just me more just giving support, so I do not see myself flourishing because I'm not getting that support back." Baahir reflected that he was not being supported by his family and that he had little connection to classmates; he noted that "to be a different person you have to isolate yourself from the people that bring you back to the very person that you do not want to be."

4.3.6 Being healthy (mentally and physically)

Another aspect of flourishing that was frequently referred to by our participants (seven mentioned this) was being healthy mentally and physically—for participants like Jia, mental and physical health was

among the top of mind features of flourishing. For example, Jia emphasized health as a key element in flourishing, noting that she felt she was flourishing because she felt “healthy in both my mental and physical states.” For those who were not flourishing, referring to emotions related to stress, anxiety, overtiredness and worry, struggles with mental health contributed to a lack of flourishing. Kendra (who leans yes) noted that she felt a sense of flourishing, except for moments when “I hit my low points when I do not want to go to work...my depression and my anxiety hits me.”

In summary, for many of our participants, flourishing is multifaceted and may occur in some aspects but not all. Our emerging adult participants, especially those who reported flourishing, emphasized growth and progress, a life in balance, competence and learning and feedback, good health (both mental and physical), and—importantly—making proactive decisions to get toward a future goal. When we looked at how a number of the participants who lean toward yes described themselves in relationship to flourishing, it was clear that they saw themselves as actively working toward that goal of thriving or a place of personal fulfillment.

4.4 Supports for flourishing

4.4.1 Peer and family support and networks

Many of our participants (14 of 30 participants) considered peer and family support as critical supports for flourishing. Paige’s response was similar to what a number of youth mentioned: “My community, my support system, my peers at school, my friends outside of school, my family, my sister, they always try to...alleviate things from my workload, and so I always love and appreciate that about them.” Manuel and Paul (who emphasized that he was only flourishing during moments when he was *not* in graduate school like the summer) also emphasized the role of “friends, community” noting their importance in helping him keep things in perspective: “to have people remind you that your life is not just work all the time...they have been really instrumental to preventing me from burning out.”

Almost a third of our participants (10 of the 30) explicitly mentioned a larger system beyond friends and family that could be considered a social network or community. Imani talked about the importance of “my support system” and her “network of professors and friends” that were critical for her to flourish. Victoria noted that having a community was really important—and in fact, defined flourishing as reaching out: “I’m flourishing because I’m reaching out. I’m not sitting in a dark space not understanding anything by myself.”

4.5 Persistence

Almost half of our participants (15 of 30) talked about the role of persistence in flourishing and noted how important that mindset and practice is for flourishing. For many participants, a sense of commitment and working toward a goal was critical for flourishing. Rhyland tied flourishing directly to persistence, noting that “flourishing would be, no matter how hard things are or setbacks, you just keep pushing.” Brynn expressed a similar idea. Reflecting on how hard she had to work to keep up with her more privileged counterparts who had attended more prestigious higher education institutions, she commented: “I am flourishing now because I worked

hard the past four years, and I put myself out there, and I’m here now kind of enjoying what I’m doing.”

4.6 Systems scaled up “around the person”

While a smaller number of participants (9 of 30) described a more systemic view of flourishing, it was also often referred to as an obstacle, as discussed below. A few, however, offered a view of systemic support. Ella reflected that flourishing requires systemic structures around a person to be supportive. As she explained,

“Thriving and flourishing to me is really about health...at a lot of different levels. It means the health of family or community system around the person and then just kind of scaling it up all the way to the health of the environment that people live in. And I see those things all related. And so thriving, to me, is about all of those things working in tandem to support whoever’s living in a particular place.”

Trenton referred to how flourishing required a kind of ‘system’ of reinforcement from multiple supporters, in which all kinds of feedback was in balance.

4.7 Barriers to flourishing

4.7.1 Self-doubt

In relation to barriers, five of our participants talked about the role of confidence. Some participants described challenges that come from comparing their own progress along a personal or professional pathway to others. Several reflected upon how these negative practices can contribute to feeling uncertain and stuck. Recognizing (or being aware of) the likely advantages afforded their more privileged peers was an especially troubling concern exacerbating these comparisons and participants’ feelings of ‘imposter syndrome.’ As Paul explained,

“There’s a feeling that you are really behind, that everyone around you has somehow made the right connections. They know the right people. They’ve read all the right papers. They have all the necessary background. They took all these classes in high school or middle school or whatever and...somehow that you are behind. That’s a feeling I experienced a lot in STEM.”

4.7.2 Struggling and “trying to stay afloat”

Alongside concerns about feeling overwhelmed by work or courses, a smaller number of participants who were not flourishing (4 of the 30) referred to concerns about finances: Jayanti explained that financial concerns were blocking her progress and forcing her to focus on financial sustenance as opposed to progress on her Ph.D. Kendra talked about concerns with finances and mental health. Cierra noted that financial concerns were at the forefront of her worries, and that the stress and competition of STEM majors was a factor in how she felt. Although there may have been different sources of the struggles, a general sense of ‘struggle’ and feeling blocked in development, was a shared feeling from these participants.

4.7.3 Feeling unsupported and disconnected

A few participants (4 of the 30) explicitly noted that they lacked social networks. Imani noted that having an “accessible network of Black STEM alumni” would be an important means to address what more privileged alumni already could leverage. Jayanti commented that she needed a larger community of support: “more people to be able to build with, interact with, and share my ideas with, and get feedback from.” This theme represented a direct counter to those who reported flourishing, who emphasized their sense of connectedness and community as a main element of flourishing. Paul, noting that the culture of graduate school could be exploitative and with relentless pressure, reflected, “I see people sleep in their offices or...working ridiculous hours...there’s a lot of unpaid labor and unrecognized efforts and exploitation...if I could change anything, it would be to offer a union to protect students and maybe even professors from some of the abuses.”

4.7.4 Lack of sense of purpose or feeling that purpose does not match societal expectations

While only 4 of the interviewees noted feeling a lack of purpose, this stood out as especially important for participants who did not report flourishing: Aelin noted that flourishing was ‘feeling that you have a sense of purpose when you wake up’ (which she felt she did not have) but she also noted that life is ‘full of ups and downs’ and that she did not ‘always expect to feel like she was thriving all the time. She explained, “there are things I need to work on to be a better version of myself...I think I could be thriving soon.” Baahir reflected that he felt a conflict about sense of purpose in society—noting that he was ‘not a very career oriented person’ explaining that “while some people might find purpose in their career, for me it’s just a job.” He sought a sense of purpose but currently did not feel a sense of meaning in any plans for his future career; meaning would come from having a family and pursuing a religious life.

4.7.5 Racism, sexism, and personal safety

Discussions about microaggressions, as well as racism and sexism, were shared frequently in other points in our interview. So we were surprised that few participants brought this up in the context of specific questions about flourishing. However, a small number did discuss racism as a barrier. Stephanie noted that as a woman, and especially a Black woman, she did not feel safe on campus. She relayed incidents in which she’d been trailed by police cars while walking on campus, noting that “if my campus was more of a safer environment to learn from, learn in” she might feel more like flourishing. Yet, she explained, “it’s a common experience, not just for Black women in STEM but any woman on campus. it’s just infuriating because my campus does not feel safe to me.” Paul described systemic and institutional racism as an obstacle for him flourishing in graduate school, noting “capitalism, systemic racism, profit” as negatively shaping graduate school culture. He elaborated:

“Sometimes it feels like there’s this unrealistic pace that’s pushed onto us. I do not think learning has to look the way it does—who’s to say a semester has to be a semester long, like three months or something.... I do feel like ... these requirements ... get in the way of [flourishing]. It does not feel like it’s sustainable.”

In sum, participants resonated with the concept of flourishing, and reported a set of factors that were especially important in

supporting or hindering flourishing (see Table 3). A substantial number of our participants reported flourishing or leaning yes. Consistent with research on diverse populations, emerging adults emphasized flourishing in specific contexts or in some aspects (but not all) of their lives. They also reported a number of key supports for flourishing, including peer and family support, and importantly, social networks, and barriers included self-doubt, disconnection and lack of sense of purpose. Intervening factors that threaded through their reports were conceptions of flourishing as a process; recognition of the role of institutional cultures and contexts; and a systemic perspective of flourishing.

5 Discussion

The concept of flourishing seems to resonate with our participants, providing a generative means to discuss and talk about their aims, goals and purposes in life. The way our participants conceptualized the concept also was fairly consistent with the literature (Huppert and So, 2013; Hefferon et al., 2017; Willen et al., 2022). Similar to other examinations of flourishing with a diverse population, we also found that our participants discussed flourishing in some aspects of their lives but not all—but still, felt an overall sense of flourishing (Willen et al., 2022). Their reports in many ways suggested a consistency of definition and resonance for them: aspects of progress and growth, competence and learning, living a life in balance, being satisfied with where one is in life and work, community, and health (both mental and physical), all elements of current conceptions of flourishing were also emphasized by our participants (e.g., Hone et al., 2014; Agenor et al., 2017). A key distinction we noticed across those who were flourishing as opposed to those who were leaning yes, was the conception of flourishing as a process as opposed to an end state to be attained (Volstad et al., 2020; Willen et al., 2021, 2022). This perception stands out to us as a possible perspective on ‘living a life of meaning’ that could be shared by mentors or support systems, and something that may help provide an outlook that could foster a sense of well-being.

Some aspects of emerging adults’ definitions illuminate elements of flourishing that have not emerged as much from other flourishing research findings, with a few exceptions (Agenor et al.,

TABLE 3 Key features of flourishing reported by emerging adults (N = 30).

Conceptions of flourishing	Supports to flourishing
Progress and growth	Peer and family support; networks
Competence, learning and feedback	Persistence and resilience
Living a life that is “in balance”	Systems “scaled up” around individuals
Financial comfort	
Community	
Physical and mental health	
Barriers to Flourishing	Intervening Elements
Self-doubt	Flourishing as a process vs. an end goal
Feeling unsupported and disconnected	Institutional cultures of schooling and universities
Lacking sense of purpose	Systemic-view of flourishing (not just individual flourishing)
Racism, sexism, and lack of personal safety	

2017; Willen et al., 2021, 2022). At times participants referred to their own progress in comparison to their more racially and socioeconomically privileged counterparts. They connected that feeling to the sense that they had to work harder. Some emphasized pride regarding achievement of goals that may have come easier to their more highly resourced peers (Willen et al., 2022). Relatedly, the role of financial health was frequently mentioned by participants. While there has been some debate in scholarship as to whether there should be a financial element to conceptualizations of flourishing (VanderWheele, 2017; Willen et al., 2022), our data confirm that many of our participants feel it is central. Research on college students has found socioeconomic status (SES) is related to flourishing—lower-SES students reported lower levels of flourishing compared to their higher SES peers (Nyunt et al., 2024). Given systemic inequities in financial security and generational wealth, the emphasis that our participants made to finances underscored the importance it plays in their lives at this critical juncture of transition to work (Willen et al., 2022). Furthermore, our data also especially point to the critical role of community, support and feedback (Agenor et al., 2017; Padilla-Walker et al., 2017; Knoesen and Naudé, 2018; Volstad et al., 2020). Especially for emerging adults who reported not flourishing, the absence of community was seen as a major inhibitor; our research findings in this project on sense of belonging certainly affirms that (Chaffee et al., under review). In turn, they often noted that they were eager to have support and community that reflected their own racial, gender identities and, or, religious identities (Padilla-Walker et al., 2017).

Our data confirm our inclination that the concept of flourishing can be especially helpful for pathways researchers. The explorations and reflections of our participants about their conception of and degree of flourishing wove together their own experience of development with emotional, psychological, and even physical language to discuss their trajectories. This knitting together suggests to us that this concept has great resonance and potential to expand, contextualize, and add important nuance to pathways research. Given the efforts of our research study—and others—to widen conceptions of STEM pathways research, the use of this concept of flourishing has enhanced our understanding of our participants' own experiences and development and suggests it has promise for informing other researchers hoping to fully understand youth and emerging adult pathways.

In particular, the emphasis that emerging adults placed on a sense of growth and development itself as a critical feature of flourishing suggests the intertwined nature of pathways and flourishing, and underscores the generative potential of flourishing as we continue to explore STEM pathways (Keyes, 2016; Knoesen and Naudé, 2018; Volstad et al., 2020). In addition, a feature of flourishing that participants underscored was the relationship of feedback and competence—which was especially interesting as a concept for pathways support. Participants often referred to feeling confidence and competence; suggesting that these elements are critical to make clear and explicit for emerging adults, to feel a sense of progress and growth. These findings support past research on emerging adults who find flourishing through competence and “making it—day by day” (Knoesen and Naudé, 2018, p. 275). While their emphasis on a life in balance, financial comfort, mental and physical health and happiness was perhaps not surprising, it

underscores that our participants saw these features are seen as critical for flourishing (VanderWeele, 2017; Willen et al., 2022). Our participants' reflections remind us about the essential nature of these elements to their well being.

While most participants did not necessarily mention a sense of purpose or meaning in response to questions about flourishing, these ideas did emerge in other parts of the interview. For instance, many participants relayed intentions to taking on mentoring roles and often spoke about contributing to their communities or networks, and described their involvement in issues like environmental sustainability, education, and anti-racism, taking actions that are deeply value-driven and purposeful. Perhaps an explicit sense of purpose or meaning tied to flourishing in professional life is still something emerging adults are still at the stage of figuring out—identifying what really matters to them personally and why, which may be more solidified for older adults or middle-aged adults. The feature of community in flourishing (and in turn, to pathways) also stands out: flourishing, to our participants, meant being in community and with bi-directional support (both giving and receiving). Taken together, these elements help widen the view of pathways beyond ‘staying’ in a field, and rather, that we think about flourishing in a field.

Participants pointed to family support and networks as critical at this stage; as well as their own persistence and having a sense of “systems scaled up” around them (Padilla-Walker et al., 2017; VanderWeele, 2017). We found this systemic view—including community, networks and structural support—not only deeply important in understanding how and why these emerging adults were experiencing flourishing; but also perhaps representing an important insight newer in the literature on flourishing (Agenor et al., 2017; Padilla-Walker et al., 2017; Volstad et al., 2020). The emerging adults who reported *not* flourishing made clear that feeling disconnected and lack of support (feeling alone or even feeling that one's own goals do not match with societal expectations) was a major obstacle. Importantly, anti-racism and personal safety also are connected to being in community with those who are allies or share cultural, racial or gender identities and with systemic changes.

While we suspected that this kind of collaborative, communal support was likely important, our findings underscore communities' essential role in supporting emerging adults' pathways (Padilla-Walker et al., 2017; Volstad et al., 2020) and the role it may play particularly for emerging adults from marginalized communities (Willen et al., 2022). In fact, it also underscores the importance of exploring the social networks of our participants, analysis currently underway in this project (Hammerness et al., 2023). Taken together, these initial findings suggest that while a focus on providing community for youth has been understood for some time (e.g., Padilla-Walker et al., 2017), our research reveals that even as emerging adults enter the workforce and begin professional lives, they continue to benefit from social supports. We must recognize the critical role networks and communities, not only in providing systemic support but in explicitly countering and addressing the negative impact and experiences related to othering, microaggressions and racism, play throughout development.

On the other hand, our data pointed to significant questions about flourishing as a comprehensive measure of well-being. We were surprised to find that despite the regularity with which the participants described experiencing microaggressions in

interviews, those regular and harmful experiences were not mentioned when we asked about flourishing. Some might wonder if this absence could be related to trust or discomfort during the interview. However, many of these participants shared quite painful and powerful emotional experiences during other points in our interviews. When we asked about flourishing, even about supports and barriers, those experiences rarely surfaced. This finding differs from research on middle-aged participants in the midwest, who did discuss systemic issues somewhat more regularly in their responses (Willen et al., 2021, 2022). While it's possible that older adults have a longer, perhaps more historical view of their lives in the context of racism in history and over time, it was still puzzling given the increasing discussion of racism and microaggressions by young people—and their explicit sharing of such experiences with us in the interviews. We did, however, notice that some of the moments in the interview protocol when we asked young people about casual and personal experiences related to their identities, they did not always label them as forms of racism or microaggressions.

On the one hand, we must trust participants' responses and their insights into their own well-being. And, it is encouraging that many of our participants feel a sense of flourishing at this important period of transition. Yet, we do not—and cannot—leave aside or ignore their reports of microaggressions. If an emerging adult reports a level of microaggressions in their daily experience *and* also reports flourishing, what are we to make of this as educators and researchers? Our concern is that flourishing data on its own may provide an overly rosy image of the pathways and development, especially of young people of color. As suggested by Willen et al. (2022) conceptions of flourishing that only explore mental and psychological well-being—without addressing systemic or structural issues—are not adequate. More so, these conceptions mask critical experiences essential to understanding justice in education and learning, that are equally critical to fully capture or understand well-being. Our data suggest that it may be especially important to examine flourishing in context with other measures that can flesh out a fuller picture of well-being and experience, especially in relationship to race, racism, sexism, or any other experiences related to personal identities. In addition, protocols should be carefully designed to ensure—especially for youth and emerging adults—that all aspects of their lives and identities can be fully understood.

A full understanding of the continued persistence of inequities and racism that our participants are experiencing on a daily level, is critical to fully address, and redress, those inequities. Given that measures of flourishing are increasingly being adapted for use in multiple instruments and in multiple settings, ensuring that the concept is used in conjunction with other approaches to examining well-being seems critical.

6 Conclusion

We are excited that so many of our emerging adult participants reported that they were flourishing and heartened by their reports of progress and growth. Hearing about the joy they felt in identifying a new interest in STEM, or reports about accomplishment in their work, or a sense of satisfaction in finding a profession that felt fitting for them, helped confirm our

hope that many of our participants were experiencing a sense of well-being. It's encouraging that these young people were not simply aiming for a narrow 'professional pathway' but that many of our participants felt fulfilled by a life in balance, at least in some aspects of their lives. Asking about flourishing helped us broaden our view of '*Staying in Science*' and we felt that it did capture aspects of our participants' trajectories and pathways that are critical to a full perspective of their development. In particular, flourishing widened our view of pathways beyond 'persistence' to include a fuller view of development that recognizes well-being and the emotional lives of emerging adults. Further, it supports us in our research aim to account for and explore important factors related to pathways, such as communities and networks, and to better employ those supports to enable emerging adults to feel purposeful, agentic and satisfied in their trajectories.

Yet we also remain cautious about instruments measuring flourishing, and how the idea of flourishing might be defined and conceptualized. While useful, expansive and positive, we also found that our attempts to explore it in interviews did not frequently connect to or intersect with participants' reports of racism in their lives and worry that a sole focus on flourishing could mask these injustices. For our research, a full view of emerging adult development would account for multiple ways of conceptualizing health and well-being and continue to use additional measures that help provide and shed light on well-being. In our research, a next step will explore the expertise of our alumni co-researchers to investigate the relationship between microaggressions and flourishing and develop methods of inquiry that enable that to emerge productively. Relatedly, our social network analysis will be critical to begin to understand supports as well as challenges. We also plan to explore systemic factors even more explicitly in our interviews in the next round and work to explore connections between community, on the one hand, and racism and othering, on the other, with flourishing in our interviews and social network analysis in even more purposeful ways. In doing so, we can help support the promise of the concept of flourishing that can more effectively yield insight into the fullness of wellbeing, for all youth and emerging adults.

Data availability statement

The datasets for this article are not publicly available due to concerns regarding participant anonymity. The larger dataset of surveys can be made available upon request. The interview data could be made available with considerable editing in order to ensure the anonymity of participants. Requests to access the datasets should be directed to pgupta@amnh.org.

Ethics statement

The studies involving humans were approved by American Museum of Natural History Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

KH: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing. RC: Conceptualization, Data curation, Formal analysis, Funding acquisition, Project Administration, Supervision, Writing – original draft, Writing – review & editing. PB: Writing – original draft, Writing – review & editing. P-SH: Writing – original draft, Writing – review & editing. AD: Conceptualization, Investigation, Methodology, Software, Supervision, Validation, Writing – review & editing. AM: Conceptualization, Data curation, Investigation, Methodology, Supervision, Validation, Writing – review & editing. PG: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Writing – review & editing. JA: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Supervision, Writing – review & editing. CB: Investigation, Methodology, Writing – review & editing. JF: Investigation, Methodology, Writing – review & editing. LL: Investigation, Methodology, Writing – review & editing. LW: Investigation, Methodology, Writing – review & editing. MA: Methodology, Writing – review & editing, Investigation.

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Funding

The author(s) declare financial support was received for the research, authorship, and/or publication of this article. The research in this article was funded by the National Science Foundation (award #2100155).

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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