Ecosystem Level Predictors of Student Flourishing in Diverse Student Populations:

Sparking a Paradigm Shift in School and System Accountability to Measure What Matters

K-12 Research for Equity Hub Report

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EduDream

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Choice-filled Lives Network (CLN) and the Center for Innovation and Research on Choice-filled Lives (CIRCL)

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Character LAB

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Executive Summary

Although research has long confirmed the widely held belief that student success and learning is heavily influenced by their school and classroom ecosystems (Schweig, Hamilton, & Baker, 2019), the United States' educational measurement and accountability systems are cemented in policies and practices that keep educators in a cycle of valuing what they are told they must measure, rather than measuring what many inherently know should be valued. This study was designed with the intention of creating a paradigm shift in how we view and measure accountability, by examining some of the root cause constructs that impact traditional accountability and success measures.

To broaden the perspective around what success means, and how we might use these measures of success in accountability systems, the study explored how eight of nine research-based human flourishing principles impact students' academic beliefs and motivations and overall well-being, in addition to traditional success measures such as standardized test performance, GPA and attendance. Human Flourishing design principles refer to a set of environmental factors and experiences that have repeatedly emerged in the literature as principles that promote student engagement, learning, and flourishing. The human flourishing design principles examined in our broader work are as follows:

1. Safety
2. Developmental Relationships
3. Autonomy-Support
4. Intention-, Action-Reflection Cycles
5. Authentic Real-world Experiences
6. Rich, Varied Exciting Experiences
7. Beyond-the-Self Learning Experiences
8. Joy-Positive Emotion
9. Culturally and Historically Relevant Language and Literacy Practices

Note: For the purposes of our study, we examined the first 8 design principles, as the 9th principle was unable to be measured in the Spring data collection wave due to district political constraints, and will therefore be examined in a separate follow-up study.

The theory-driven research questions that guided our work are:

1. How do student-perceived, research-grounded school ecosystem-level indicators of human flourishing design principles and practices predict students' self-reported overall well-being and self-reported academic attitudes and beliefs?
2. How do differences in school-level human flourishing design principles and practices (high vs. low) predict students' documented academic achievement, as measured by GPA and attendance records?

While we have developed indicators aligned to the 9 human flourishing design principles, we ultimately aim to leverage these learnings to develop school-level ecosystem measures of the student flourishing indicators. This will allow us to redefine student and school success, and the ways in which accountability is conceptualized and measured.

Defining Race

In line with our approach to equitable assessment procedures, we operationalized race as a social construct to capture both how students identify, as well as how students believe they are perceived by others. To this end, in addition to gathering school-reported race data, we asked students to report their race and ethnicity according to 7 categories, and to identify the race that they believe a stranger might assign to them if they were walking by on the street. Student responses allowed us to clearly examine how their racial identity, as constructed by this proxy for societal views of their identity, reshaped how the various ecosystem level design principles might impact students' well-being, attitudes, performance, and persistence. Students were also asked if they identified as Hispanic. Students were only asked to report on their race in these ways during the Fall data collection window due to restrictions placed by partner school sites in Spring.

Perceived Race

If you were walking down the street, what race and/or ethnicity do you think other Americans who do not know you personally would assume you were, based on what you look like? Black or African American, Native American or Alaska Native, Native Hawaiian or Pacific Islander, White or Caucasian, Asian or Asian American, Middle Eastern, Latino or Latina.

Self-Reported Race

What are your race and ethnicity? Select all that apply. Black or African American, Native American or Alaska Native, Native Hawaiian or Pacific Islander, White or Caucasian, Asian or Asian American, Middle Eastern, Latino or Latina.

School-Reported Race

White, Black, Asian, Hispanic, American Indian, Pacific Islander, Multiracial

Participants

This study was conducted with a sample of 1839 students in grades 6-12 obtained in partnersnip with the National Character Lab Research Network, a consortium of schools and scientists working collaboratively to advance scientific insights that help kids thrive. The network represents students from diverse ethnic, racial, gender, linguistic, and socioeconomic backgrounds and identities.

Summary of Key Findings

There are several meaningful takeaways from this study;

First, our findings provide evidence for a clear positive relationship between the degree to which students are immersed in several of the identified human flourishing design principles, and not only their self-reported overall well-being and academic attitudes and beliefs about their success in school, but importantly, from a standpoint of what has traditionally been valued by policy-makers and the field, students' documented success in school, as measured by GPA and attendance.

All of the design principles except Beyond the Self Learning Experiences significantly predicted better student outcomes in the fall. In the Spring, we observed strong relationships between five of the design principles and student outcomes, with Safety, Beyond the Self Learning Experiences, and Developmental Relationships being the most consistent across all four outcomes. Of note is the predictive nature of Beyond the Self Learning Experiences shifting from fall to spring. One potential explanation for this might be that students were just beginning to return to school after the COVID-19 pandemic in fall, and have not yet been immersed in sufficient experiences until the spring.

Next, it is important to note our findings regarding the high variability in students' race and ethnicity data, based on how the data are collected. This means that we identified many documented discrepancies between how students self-report their racial identity and how schools have reported students' racial identities, as well as what students believe others on the street might perceive their racial and ethnic identities to be.

For example, while schools collect data regarding whether students identify as Hispanic, they don't collect data specific to Latino/Latina identity. In Table 1, it is clear that Hispanic identity is widespread across all racial categories, and does not accurately capture any one identity within an ethnicity (i.e., Latino/Latina). This means that within our student sample, data that are based on school-reported race and ethnicity alone cannot explain differences in outcomes for Latino/Latina students. This may lead to detrimental false conclusions if Hispanic identity is conflated with Latino/Latina identity, which encompasses many different countries of origin, and unique cultural experiences and norms that cannot be lumped into one narrow category of "Hispanic". Relatedly, schools also do not typically include the option for students to identify as Middle Eastern. Middle Eastern students and adults alike are known to select Asian, White, or Black/African American in these cases. Also, multi-racial students, who are growing in proportion in the United States, are poorly represented, if at all, and not all multiracial students have the same experiences simply because they are multiracial.

Finally, after including school-reported race and perceived-race as moderators, we found several interesting relationships between the design principles and student outcomes based on their racial and ethnic identity. While unequal group sizes make it difficult to make conclusions, it remains true that there is significant variability based upon students' identities. These findings call for a more nuanced root cause approach to measuring and reporting student success and well-being, and indicate that as a field we may not be placing as much emphasis as we should be on the types of environments and relationships students are experiencing in school. Of equal importance, while these findings cannot make assumptions about why these relationships are different across student-reported racial identity vs. school-reported racial identity, what's important to note is that the differences do indeed exist. In other words, these findings yield one example of the ways in which representation and student voice matter when collecting data, as our data that were grounded in student voice and were self-report yielded different results than the data that were reported by schools. This begets a bigger question: ***How often might we as an education sector be making inferences about, and acting upon decisions made, from data that are flawed because we haven't centered students' voices and lived truths and experiences?***

Summary of Policy Recommendations

This research has the potential to create a paradigm shift in the education sector that moves schools and systems away from valuing that which has been traditionally measured and toward measuring that which should be valued, and ***underlies*** the constructs that have been traditionally measured. This paradigm shift will push educational measurement to be more grounded in root causes and will create a new accountability system in which schools and systems are holding themselves accountable to the human flourishing design principles that we know lead to both traditional success measures (e.g. GPA, attendance, etc…) and internal student success and long-term thriving. Two primary focus areas for policy reform emerged from our research findings: 1) Ecosystem Level Assessment and Accountability and 2) Student Identity Data and Student Voice.

A summary of related recommendations for each focus area are as follows:

Ecosystem Level Assessment and Accountability - Recommendation 1:

Schools and districts should conduct bi-annual assessments of the degree to which school-level human flourishing design principles exist within specific learning ecosystems. These assessments should in turn: a) inform continuous quality improvement practices, and b) create a basis for developing internal policies, systems, and practices that support educators in assessing their learning ecosystems in relation to students' needs and goals.

Ecosystem Level Assessment and Accountability - Recommendation 2:

Open-source state guidelines and related toolkits and technical assistance resources should be developed to: a) support school leaders in improving learning conditions within their buildings and providing related professional learning supports to educators, and b) support districts and states in leveraging these ongoing assessment data to monitor progress, in an effort to continually improve the learning conditions and experiences that directly impact students' overall wellbeing; academic attitudes, beliefs, and motivations; academic achievement; and academic persistence outcomes.

Student Identity Data and Student Voice - Recommendation 1:

States and districts should develop and use developmentally appropriate assessments of students' perceived racial identity data, in addition to traditionally utilized school-reported race or ethnicity data. While this practice is important for all students, our data indicate that this is particularly important when examining race and ethnicity outcomes for Black and/or Latino/Latina students. To do so, states and districts might consider collecting student questionnaire data, at least once per year, upon enrollment or re-enrollment, that explicitly ask 1) how students believe others view them from a race and ethnicity standpoint, as well as 2) students' own self-reported race and ethnicity data.

Student Identity Data and Student Voice - Recommendation 2:

States and districts should develop systems for identifying and documenting discrepancies between student-reported identity and state or district reported identity data anytime analyses are being conducted, or decisions are being made, that are dependent upon the reliability and fidelity of student race and ethnicity data. Our data indicate that although families report students' race and ethnicity data, there are often even discrepancies between how students identify and what is being reported by schools. In instances of discrepancies, it is advisable that students' self-reported identity data be leveraged for decision-making related to those outcomes that are related to students' internal lived experiences, as it will likely provide a more valid representaiton of the ways in which student race and ethnicity are impacting any particular outcome of interest. Conversely, when leveraging student race and ethnicity data to inform decisions related to more externally-influenced student outcomes, it may be advisable to leverage perceived race and ethnicity data, as these data may be more reliable when considering the ways in which race and ethnicity interact with how students are treated by teachers or other adults in the ecosystem.

CLN's Research for Equity Statement

> *Educational equity means that each child receives what they need to develop to their full academic and social potential.*
>
> *~National Equity Project*

Choice-filled Lives Network approaches all of its research and evaluation work through an equity and justice lens, and in doing so we differentiate between the terms equality, equity, and justice. To this end, when we embark upon any research project, we view equity as a short-term pathway that should ultimately lead to a longer-term outcome of justice. We therefore choose to formally articulate our Research for Equity Statement. In particular, we account for the ways in which race and racism impact both social sector programming and research methods by integrating culturally and historically responsive research, measurement, and assessment paradigms into our work:

1. We operationalize race and ethnicity, not as innate biological characteristics, but rather as socially constructed hierarchical statuses that impact how one interacts with society in terms of access to opportunity and benefits, as well as the allocation of power, resources, and burdens.

2. We examine how race-based biases, assumptions, and politics shape programmatic questions, outcomes, and consequent research conclusions, and subsequently developed measures. In doing so, we consider whose way of knowing is being privileged, how power differentials and the implications for long-term social justice might influence that way of knowing.

3. We acknowledge the pervasiveness of epistemological racism in published research which delegitimizes and erases knowledge produced by scholars from historically and currently marginalized groups, and in turn, do our best to ensure diverse representation of scholarly perspectives and experiences when reviewing literature and/or citing prior work.

4. We practice full transparency in describing how our lenses of race and racism affect our understanding and decision-making processes as researchers, evaluators, and psychometricians. We invite ongoing discussion, inquiry, and transparency from our partners and strive to build an environment of collaborative co-learning and constructive feedback.

We present research findings on inequities, or other social constructs, within the broader historical and cultural context to prevent the misconception that adverse experiences are endemic and shift the focus to targeting hierarchical structures of oppression. In these ways, we ensure that our research and findings always center the lives and realities of students, families, and communities with which we partner and whom we serve, as well as our own lived experiences as women researchers of color.

Introduction

Within the current educational landscape, traditional accountability metrics, including GPA, attendance, and standardized testing scores, have long been established as primary indicators of student success (Darling-Hammond, 2017; Kostyo, Cardichon, & Darling-Hammond, 2018; Sternberg, 2003). However, while advocating for a more comprehensive assessment of student performance, the recent push for data-informed change often overlooks the nuanced nature of what these data truly capture, resulting in a tendency to value only what is easily measured (Deci & Ryan, 2008). This oversight becomes particularly poignant when considering diverse communities, as the historical roots of these metrics often perpetuate systemic biases and emphasize the dominant culture's values in educational research (Deci & Ryan, 2008; Ladson-Billings, 2006). For example, a reliance on grade point averages ignores the inherent bias that exists in the assignment of scores (e.g., removing points for use of African American Vernacular English) and classroom engagement with diverse students. Standardized measures with also tend to advantage those who have the privilege of time and access to prep courses.

The primary objective of this research project is to redirect the focus from valuing what is easily quantifiable, to measuring what we genuinely value in education by examining the educational ecosystem and the human flourishing design principles that allow students of diverse backgrounds to learn and develop a variety of skills (Darling-Hammond, 2017). Importantly, this alignment with human design flourishing principles is grounded in the belief that fostering overall well-being, positive academic attitudes, and intrinsic motivations significantly contributes to improved outcomes for racially diverse communities (Deci & Ryan, 2008; Walton et al., 2015; Waters et al., 2016; Zins et al., 2004). This paradigm shift is substantiated by a synthesis of both qualitative and quantitative research, aligning educational metrics with factors integral to student well-being, college and workforce readiness, and other indicators crucial for long-term success (Deci & Ryan, 2008; Walton et al., 2015; Waters et al., 2016; Zins et al., 2004). Prior efforts to effectively assess these ecosystem-level factors through School Climate measures do not comprehensively address the human flourishing design principles identified in the literature, nor do they meet the highest rating for validation methods in terms of sample diversity and other implementation efficacy criteria identified in our rubric.

The theoretical framework of this study explores how research-grounded human flourishing design principles (defined below) impact well-being, academic attitudes and academic outcomes, providing a foundation for a more equitable and inclusive educational assessment paradigm (Walton et al., 2015; Waters et al., 2016; Zins et al., 2004).

The questions we sought to answer through this study are:

1. If GPA and attendance are known accountability entities, what are the predictive human flourishing design principles that undergird these traditional success measures?

2. How might identifying which conditions and constructs lead to both traditional measures of success and overall student wellbeing, also promote school accountability for creating, sustaining, and measuring the extent to which those conditions are present?

School Accountability Systems

Most educators, researchers, and policymakers would agree that accountability is an important thread in the fabric that upholds the integrity of the United States' educational systems. However, the opinions surrounding which success measures should constitute accountability, for whom, and under what conditions, are more diverse and debated. Currently, our nation's accountability systems and the corresponding measures are rooted in indicators that are primarily 1) central to, and pathologize, the student or learner, and 2) standardized and quantifiable, and therefore easily compared across student populations across the United States. When grade point averages and standardized scores are disaggregated by race and used as sole measures of success, the onus to improve is placed directly on students. Bias is only further perpetuated when reports continue to describe how grades or absenteeism are more or less prevalent across specific racial categories, without explicitly accounting for and calling out the systemic and social structures that link to those outcomes.

To this end, it's understandable how we have landed where we are as a sector. Living in a world in which educators are beholden to wide sweeping pushes for easily quantifiable data to drive decision making, indicators such as standardized test scores, GPA, and attendance become tried and true. The end result is a vicious cycle of accountability systems continuously requiring educators to prioritize what must be measured, as opposed to measuring that which should be valued from a science of learning and human development position. That which should be valued and regularly assessed, in other words, is whether students are receiving what they need to reach their full academic and social potential.

Valuing What We Measure → Measuring What We Value

Additionally, traditional accountability measures and indicators are often acted upon in absence of meaningful consideration of the history, experiences, learning conditions, and other lived realities of the students and communities whose data are being analyzed (Kuh et al., 2006). This reality continues to be an issue for every aspect of measurement, from classroom-based assessments to more standardized assessments, and the psychometric field as a whole (Randall et al., 2022). Randall and colleagues (2022) point out that, historically, the assessment field has perpetuated these injustices, through educators, assessment companies, or developers. The authors go on to uplift a quote by Dixon-Roman (2020) who states: "even with the sociocultural and postmodern turns in educational assessment and measurement, there remains a haunting logic in the epistemology of psychometrics that maintains colonialist formations . . . " (p.94). This quote posits that there is a perpetuation of measurement tools and practices that may harm some groups of students by rewarding or penalizing them for their ability to adopt the norms of the dominant culture. What we then lack are tools and measures that might more keenly inform interventions, or help to improve outcomes, for diverse student communities in a targeted and contextualized manner. Relationships matter, context matters, and an acknowledgment of students' lived experiences matters.

These assertions are beyond theoretical, and have been backed by decades of qualitative and quantitative research (e.g. Au, 2009; Hernstein & Murray, 1994; Hilliard, 1976; Madaus & Clarke, 2001). Increasingly, researchers, education practitioners, and policymakers are placing more emphasis on Social-Emotional Learning (SEL) and development, and the conditions that constitute the health of a school's ecosystem, often referred to as School Climate. These efforts have been fruitful in some instances. For example, in 2017 the Council of Chief State School Officers partnered with the Aspen Institute Education & Society Program to provide guidance for chief state education officers in key levers for improving learning conditions in our districts and schools (Aspen Education & Society Program and the Council of Chief State School Officers, 2017). Additionally, Berger and colleagues (2019) published a report positioning an educational practice agenda that posits the many contextual and relationship-based ways in which learning happens.

Relatedly, years of evidence has pointed to the ways in which environment and context shape brain development and cognitive plasticity (e.g. see Cantor, Osher, Berg, Steyer, and Rose, 2018), and has indicated that children's mastery of academic content and their successes, as defined by traditional success measures such as GPA and attendance, are heavily influenced by ecosystem-level factors such as safety and caring relationships with adults in their lives (Duckworth & Yeager, 2015; Van Eck, Johnson, Betencourt, & Johnson, 2017; Osher, Cantor, Berg, Steyer, & Rose, 2018). However, despite this compelling evidence, we continue to experience research-to-practice and research-to-policy implementation discrepancies that fail to account for how the science of learning and human development can and should inform our states' and districts' accountability systems and measures.

Although the research and guidance on brain development, Social-Emotional Learning (SEL), and School Climate are noble first steps in the direction of acknowledging root causes to student success and thriving, there have been hindrances to implementation and adoption of such guidance. Until these constructs are deeply embedded into school, district, and state accountability systems at scale, we will continue to experience an oversaturation of programs and initiatives that become devalued because they don't ultimately correlate to how students, teachers, and leaders are being held accountable by systems.

The goal of this study is to ignite a paradigm shift in how our country conceptualizes and measures student and school success and accountability – a shift from prioritizing and valuing what we measure (e.g., standardized test results, grades, and attendance), toward measuring what we value (e.g., ecosystem level contributions to student well-being). In doing so, our report proposes a way of assessing student success and well-being by examining eight of the nine research-grounded human flourishing design principles in relation to each of our student success and thriving variables of interest: overall student well-being; students' academic attitudes, beliefs, and motivations; and their school-reported academic achievement as indexed by student's GPA and attendance records.

Ecosystem-Level Human Flourishing Design Principles

Choice-filled Lives Network (CLN) previously conducted a robust and thorough landscape analysis on whole child practices and child and adolescent development in partnership with a group of family foundations in Austin, TX. One of the key findings that emerged from this work was an articulation and documentation of eight key human flourishing design principles that promote student success and flourishing in both traditionally defined ways, as well as more evolved definitions that take into account the development of the whole child. Figure 1, below, provides a summary of these eight ecosystem-level design principles.

Design Criteria	Description
Safety	Safety includes physical safety, but it also includes psychological and identity safety, which means there are both objective and subjective aspects of safety. A classroom, school, or learning space must both *be* safe, and *feel* safe.
Developmental Relationships	Developmental relationships are those that include, "reciprocal human interactions that embody an enduring emotional attachment, progressively more complex patterns of joint activity, and a balance of power that gradually shifts from the developed person in favor of the developing person." (Li & Julian, 2012). The Search Institute framework includes five core elements of Developmental Relationships: Express Care, Challenge Growth, Provide Support, Share Power, and Expand Possibilities.
Autonomy-Support	Autonomy is when a behavior is both volitional (chosen) and self-endeavored (it originated from the person themself, not from external control). A behavior is nonautonomous when it is a controlled behavior - through either direct control or through external pressures.
Intention, Action, Reflection Cycles	Intention - Consider personal goals, analyze what is required to reach them, and plan. Action - Execute the plan, and monitor progress toward the intended goal. Reflection - Assess how the plan is working (change strategy/tactic if necessary; consider how and why it was successful and/or how, why, where it failed).
Authentic, Real-World Learning Experiences	Authentic learning experiences are those carried out in either real-world contexts, or are done in ways that have high transferability to a real-world setting. They are "authentic" in the sense that the desired outcomes have actual consequences in the 'real' world, generally for others beyond just the student and their learning.
Rich, Varied, and Exciting Learning Experiences	Creating rich, varied, and exciting learning experiences involves exposing young people to a wide array of ideas, experiences, and environments. This means learning in multiple kinds of settings, engaging in different kinds of projects, and being in relationships with adults who have diverse styles, life experiences, and perspectives.
Beyond the Self Learning Experiences	Beyond-the-self purpose is, "active engagement toward goals that are meaningful to the self and contribute to the world beyond the self." This happens on three different levels: 1) individual purpose; 2) shared purpose; and, 3) learning about the systems within which one is situated.
Joy (Positive Emotion)	Positive emotions are, "an emotional reaction designed to express a positive affect, such as happiness when one attains a goal, relief when a danger has been avoided, or contentment when one is satisfied with the present state of affairs." Joy is a particularly strong positive emotion: "a feeling of great pleasure and happiness."

Figure 1. Eight Human Flourishing Design Principles that Impact Student Success and Learning (Kenner & Raab, 2021)

These eight constructs have emerged from large bodies of evidence to be predictive of students' overall success in school and in life across diverse ethnic and socioeconomic student populations (Kenner & Raab, 2021). The key missing link lies in translating these constructs into accountability metrics for schools. This landscape analysis also included interviews with 11 experts in the field, and almost all of them indicated a need for an intensive focus on developing measures that will tap into ecosystem-level constructs in service of gaining a more valid measure of the variables impacting students' learning and development. Through additional research and practice efforts with community and school partners, our team went on to identify a 9th design principle: Culturally and Historically Relevant Language and Literacy practices. Efforts are currently underway to examine this construct in relation to student achievement outcomes more closely.

Additionally, in partnership with the Chan Zuckerberg Initiative, our team conducted a landscape analysis of existing reputable SEL and School Climate measures. We rated the most widely used and practitioner-facing measures and tools against a peer-vetted equity and efficacy/measures feasibility rubric that was developed.

These ratings revealed the need for the development of more comprehensive, culturally representative, and accessible school ecosystem and climate measures. The current research aims to take steps toward validating the predictive value of the research-grounded human flourishing design principles within diverse student populations, in an effort to inform system accountability policy transformation efforts, as well as the future development of more robust, culturally relevant, and accessible school ecosystem-level measures.

Research Questions

The primary research questions guiding this study are as follows:

1. How do student-perceived, research-grounded, school ecosystem-level indicators of human flourishing design principles and practices predict students' self-reported overall wellbeing and self-reported academic attitudes and beliefs?

2. How do differences in school level human flourishing design principles and practices (high vs. low) predict students' documented academic achievement, as measured by GPA and attendance records?

Method

This project was part of a larger data collection effort that included a variety of studies designed by scientists affiliated with Character Lab Research Network (CLRN). CLRN simultaneously rolled out multiple independent studies, and students were randomized to one of the studies running in their school.

Participants

While our initial application for data collection requested a sample of racially diverse students from urban schools, the actual pool of students from which this sample was pulled was restricted by schools' willingness to engage in the midst of the Covid-19 pandemic (Fall 2021, Spring 2022). Students who were randomly assigned to this study included primarily 7th-10th graders from schools in Florida. More specifically, 94% of the 1839 of students in the fall and 97% of the 938 students in the Spring were from Florida. This drop in sample size was due to participation constraints that evolved from various districts in the midst of debates surrounding Critical Race Theory. Other demographic characteristics including sex, english learner status, and special education status are in Table 1.

Procedure

This study was conducted on school computers during class time in participating schools over the course of a two- to three-week testing window. On a predetermined testing day, a teacher proctor at each school administered the CLRN research activities to students. To introduce the study, teachers read a script that explained to students that all research activities were part of an educational research initiative at their school, that participation was voluntary and they were not being graded, and that teachers would not see their answers. Teachers also instructed students to focus on their own computers and not to look at classmates' screens. Upon logging into the CLRN platform, all students first viewed an assent screen that reiterated this information and, in addition, explained that parents would not see their responses and that their names and any other unique identifying information would not be shared with researchers. Students who agreed to participate were then directed to the survey.

One key aspect of the questionnaire design process involved high-school students within the Character Lab Network Internship Program, These students vetted the questionnaire through a student-centered lens, and proposed edits and feedback that were in turn incorporated into the questionnaire design. These same students then piloted the questionnaire from a standpoint of feasibility of time for completion, logic, and flow.

After the questionnaire was finalized and approved for use by the Character Lab students, it was disseminated and administered to the students in the study sample. Questionnaire data were collected in two waves, fall 2021 and spring 2022. Questions asking students to reflect on their race, ethnicity, gender, bullying experiences, and home life were not approved for the spring

data collection point, as districts communicated that they were too closely linked to aspects of Critical Race Theory.

Measures

Human Flourishing Design Principles Questionnaire

Students completed a researcher-developed questionnaire that assessed the degree to which they have experienced the eight key research-grounded design principles of human flourishing that were identified in the aforementioned adolescent development literature review and landscape analysis. The survey consisted of a total of 60 likert-style questions and 3 free-response questions, and took approximately 26 minutes to complete.

Items were adapted from some existing and validated School Climate measures such as the Comprehensive School Climate Inventory, the Nevada School Well-being Survey, and the Alaska School Climate and Connection survey among others. Questions that were unique to our survey were those assessing how students' autonomy was supported in the classroom (autonomy support), if students had the opportunity to consider personal goals, analyze what is required to reach those goals, and make a plan (intention-action-reflection cycles), opportunities for students to explore purposeful projects that have an impact in the community or world (beyond the self learning experiences), and opportunities to learn through different methods and avenues (rich, varied, and exciting learning experiences).

Our questionnaire also reenvisioned constructs such as safety and developmental relationships that are broadly defined within the School Climate and SEL literature and captured in traditional measures. Safety was conceptualized to include physical (e.g., gang violence, rule breaking, property damage), psychological (e.g., predictability), and identity (e.g., bullying related to identity such as race, ethnicity, gender, etc.) safety. Developmental relationships were conceptualized as relationships with adults in the school setting that provide support, express care, and challenge growth.

Racial and Ethnic Identity Data

In line with our approach to equitable assessment procedures, we operationalized race as a social construct aimed to capture both how students identify, as well as how students believe they are perceived by others. To this end, in addition to gathering school-reported race data, we asked students to report their race and ethnicity according to 7 categories, and to identify the race that they believe a stranger might assign to them if they were walking by on the street. Student responses allowed us to clearly examine how their racial identity, as constructed by society, reshaped how the various ecosystem level design principles might impact students' well-being, attitudes, performance, and persistence. Students were also asked if they identified as Hispanic. Students were only asked to report on their race in these ways during the Fall data collection window, due to restrictions placed by partner school sites in Spring.

Perceived Race

If you were walking down the street, what race and/or ethnicity do you think other Americans who do not know you personally would assume you were, based on what you look like? Black or African American, Native American or Alaska Native, Native Hawaiian or Pacific Islander, White or Caucasian, Asian or Asian American, Middle Eastern, Latino or Latina.

Student-Reported Race

What are your race and ethnicity? Select all that apply. Black or African American, Native American or Alaska Native, Native Hawaiian or Pacific Islander, White or Caucasian, Asian or Asian American, Middle Eastern, Latino or Latina.

School-Reported Race

White, Black, Asian, Hispanic, American Indian, Pacific Islander, Multiracial

Other School-Reported Data

Upon study questionnaire completion, the Character Lab Research Network shared data from the schools including: grade point average records, attendance records, English learner status, special education status, race, age, sex, and grade level.

Analyses

Across both fall and spring data collection windows, we examined the effects of the identified human flourishing principles on each of our dependent variables (i.e, overall student-reported well-being, academic attitudes, beliefs, and motivations, academic performance (overall GPA), and persistence in school (attendance) in separate regression models. White or Caucasian students were set as the reference, such that each model testing the moderation effect of school-reported, or perceived race, compared all other groups to the reference group. Perceived race (fall only), self-reported race (fall only) and school-reported race (fall and spring) were added as moderators to examine how the relationship between each of the flourishing principles and student outcomes varied by racial identity.

Findings

Demographic Data Distributions

Overall the student well-being variable and academic attitudes, beliefs, and motivations variable were both normally distributed across both fall and spring samples. Academic achievement (overall grade point average) and total absences were both slightly skewed right and left, respectively, meaning that a majority of students had mid to high GPA and low number of absences overall. Students' sex, gender, grade level, English language learner status, special education status, mean grade point average, and average number of absences are summarized in Table 1. Our moderation analysis method of multiple regression compares all racial groups to our reference group, which was set as White or Caucasian. In other words, findings describing which relationships are strongest, refer to those that are most different from White or Caucasian students.

Table 1. Demographic Characteristics of Students by Fall or Spring

	Fall (n = 1839)	**Spring (n = 938)**
Student Sex (School Reported)		
Male	840	442
Female	870	491
Gender (Student Reported)		
Male	859	-
Female	829	-
Other	57	-
Prefer not to say	39	-
Grade Level		
6th Grade	4	-
7th Grade	490	294
8th Grade	444	223
9th Grade	445	228
10th Grade	446	188
11th Grade	0	-
12th Grade	10	-
English Language Learner	129	74
Special Education Status	353	192
Mean Grade Point Average	85.61%	85.94%
Total Absences	2.80	2.76

Racial Identity

Racial and Ethnic Identity - Fall and Spring Findings:

Race and ethnicity characteristics are summarized in Table 2. Students' racial identity differed significantly among their self-reported race in our survey, the school-reported race, and students' identification of how others might perceive their race (i.e., perceived race) in the fall. According to school-reported data in the fall, 62% of students are White and 55% of those White students are also Hispanic. In contrast, only 36% of students self-reported as White (among other selections) in our survey, with 24% of them also identifying as Hispanic. Perceived-race and self-reported race were relatively similar across most racial categories, with the exception of stark differences seen in the African American/Black and Latino/Latina categories. Recall that only school-reported race data were available for the spring time point. For the following key findings, self-reported race was not examined because students were able to select more than one category, which resulted in several different categories of mixed racial identities.

First, we summarize findings without any moderators added to understand how each of flourishing design principles impact each of our outcomes of interest. Next, we provide more detailed findings, including school-reported race as a moderator. Finally, we clarify how perceived-race in the fall further explains or clarifies the findings. Importantly, White or Caucasian was set as the reference group in our multiple regression model, as they were the largest represented group, so all moderation findings answer the question, "How different is the relationship between the flourishing principle and this racial group, relative to White students?"

Table 2. Racial Characteristics of Students by Reporting Type Fall and Spring

	Fall Perceived Race (n = 1839)	Fall School Reported Race (n = 1839)	Fall Student Reported Race (n = 1839)	Spring School Reported Race (n = 938)
Hispanic	-	698	777	377
Multiracial/Multiethnic				
Caucasian/White	617 (29%)	1143 (55%)	663 (24%)	633 (54%)
Multiracial/Multiethnic	-	58 (33%)	-	28 (21%)
Latino/Latina	512 (86%)	-	719 (96%)	-
Middle Eastern	21 (43%)	-	49 (29%)	-
African American/Black	373 (19%)	374 (11%)	479 (23%)	193 (14%)
Asian American /Asian	126 (15%)	108 (4%)	173 (12%)	64 (2%)
Native Amer./Alaska Native	36 (50%)	11 (27%)	59 (39%)	6 (50%)
Native Hawaiian/ Pacific Islander	19 (42%)	16 (19%)	20 (50%)	9 (11%)

Note. Percentages after each number represent the percent of students of that racial category that also identify as Hispanic. Fall Perceived Race includes student responses to the question: *If you were walking down the street, what race and/or ethnicity do you think other Americans who do not know you personally would assume you were, based on what you look like?* 135 students did not answer the Fall Perceived Race question. Fall Student Reported Race is a multi-response question, so the total number of each race will add up to greater than 1839. Fall School Reported Race and Spring School Reported Race are collected from school records. 129 students in the Fall and 5 students in the Spring had missing School Reported Race data.

Student Outcomes Findings

Tables 3 and 4 below depict the human flourishing design principles that significantly predicted each of the student outcomes of interest for both the overall sample, and by student race and ethnicity, respectively. Table 5 depicts the human flourishing design principles that were the most strong predictors of student outcomes by school-reported racial and ethnic identity.

Table 3. Significant Human Flourishing Predictors of Student Outcomes without School-Reported Race as a Moderator

	Student Outcomes of Interest - Fall & Spring							
Human Flourishing Design Principle Predictor Variables	**Overall Well-being Fall**	**Overall Well-being Spring**	**Academic Attitudes, Beliefs and Motivations - Fall**	**Academic Attitudes, Beliefs and Motivations - Spring**	**Academic Achievement (Overall GPA)- Fall**	**Academic Achievement (Overall GPA) - Spring**	**Academic Persistence (Absenteeism Rate) - Fall**	**Academic Persistence (Absenteeism Rate - Spring**
Safety - Identity								
Safety - Physical	✓	✓	✓	✓	✓		✓	
Safety - Psychological	✓	✓	✓	✓	✓	✓	✓	✓
Developmental Relationships - Care	✓	✓	✓	✓	✓	✓	✓	✓
Developmental Relationships - Growth	✓	✓	✓	✓	✓	✓	✓	✓
Developmental Relationships - Support					✓	✓	✓	✓
Autonomy-Support	✓	✓	✓	✓	✓		✓	
Intention, Action, Reflection Cycles	✓	✓	✓	✓	✓		✓	
Authentic, Real-World Learning Experiences	✓	✓	✓	✓	✓	✓	✓	✓
Rich, Varied, and Exciting Learning Experiences	✓	✓	✓	✓	✓		✓	
Beyond the Self Learning Experiences						✓		✓
Joy (Positive Emotion)	✓	✓	✓		✓	✓	✓	✓

✓ = Significant predictive relationships

Table 4. Significant Human Flourishing Predictors of Student Outcomes with School-Reported Race as a Moderator

Note: *After including school-reported race as a moderator, the following ecosystem level human flourishing principles significantly predicted higher levels of students' overall wellbeing, Academic Attitudes Beliefs and Motivations, Academic Achievement, and Academic Persistence, regardless of their school-reported racial identity.*

	Student Outcomes of Interest - Fall & Spring (School-reported Race as a Moderator)							
Human Flourishing Design Principle Predictor Variables	**Overall Well-being Fall**	**Overall Well-being Spring**	**Academic Attitudes, Beliefs and Motivations - Fall**	**Academic Attitudes, Beliefs and Motivations - Spring**	**Academic Achievement- Fall**	**Academic Achievement - Spring**	**Academic Persistence - Fall**	**Academic Persistence - Spring**
Safety - Identity	✓							
Safety - Physical			✓		✓			
Safety - Psychological			✓	✓	✓			
Developmental Relationships - Care	✓	✓				✓		
Developmental Relationships - Growth		✓						
Developmental Relationships - Support								
Autonomy-Support		✓	✓			✓		
Intention, Action, Reflection Cycles	✓	✓						
Authentic, Real-World Learning Experiences	✓					✓		
Rich, Varied, and Exciting Learning Experiences							✓	
Beyond the Self Learning Experiences						✓		
Joy (Positive Emotion)				✓				

✓ = Significant predictive relationships

Table 5. Strongest Significant Human Flourishing Predictors of Student Outcomes by School-Reported Racial & Ethnic Identity

After including school-reported race as a moderator, the following ecosystem level human flourishing principles were particularly stronger predictors for the following groups of students, in relation to their White or Caucasian peers

	Student Outcomes of Interest - Fall & Spring Strongest Human Flourishing Predictors by School-reported Racial & Ethnic Identity							
Human Flourishing Design Principle Predictor Variables	**Overall Well-being Fall**	**Overall Well-being Spring**	**Academic Attitudes, Beliefs and Motivtions - Fall**	**Academic Attitudes, Beliefs and Motivations - Spring**	**Academic Achievement-Fall**	**Academic Achievement-Spring**	**Academic Persistence - Fall**	**Academic Persistence-Spring**
Safety - Identity			Native Hawaiian or Pacific Islander		American Indian			
Safety - Physical						Hispanic		
Safety - Psychological	Native Hawaiian or Pacific Islander			Asian		Hispanic	Pacific Islander	
Developmental Relationships - Care			Multiracial	Asian	American Indian			
Developmental Relationships - Growth	Native Hawaiian or Pacific Islander; Multiracial		Native Hawaiian or Pacific Islander	Black	American Indian	Black		
Developmental Relationships - Support					American Indian		Pacific Islander	
Autonomy-Support	Black			Asian, Black, Multiracial	American Indian			
Intention, Action, Reflection Cycles			Native Hawaiian or Pacific Islander		American Indian		Pacific Islander	
Authentic, Real-World Learning Experiences					American Indian			
Rich, Varied, and Exciting Learning Experiences	Black	Black	American Indian; Black; Multiracial; Pacific Islander	Black	American Indian; Black			
Beyond the Self Learning Experiences			American Indian					
Joy (Positive Emotion)	Hispanic	Black	Black		American Indian	Black		

Overall Well-being

Overall Well-being - Fall Findings:

In the fall, we observed a significant, positive relationship between well-being and ***Authentic Real World Learning Experiences; Physical Safety; Psychological Safety; Developmental Relationships, Care and Growth; Intention, Action, Reflection Cycles; Rich, Varied and Exciting Learning Experiences; Joy; and Autonomy.***

After including school-reported race as a moderator, the following ecosystem level human flourishing principles significantly predicted higher levels of students' overall wellbeing, regardless of their school-reported racial identity.

Authentic Real-World Learning Experiences. $F(13,1164) = 3.817$ $p < .001$
Identity Safety. $F(13, 1262) = 2.19$, $p < .01$
Developmental Relationships Care. $F(12,1273)=3.93$, $p < .001$
Intention, Action, Reflection Cycles. $F(13, 1245) = 2.84$, $p <.001$

Rich, Varied, and Exciting Learning Experiences had a stronger positive relationship to wellbeing if students' school-reported racial identity was Black, ($F(13, 1084) = 2.31$ $p < .01$). Joy was most impactful of overall wellbeing for Hispanic students, ($F(13, 1165) = 17.5$, $p <.001$), and Autonomy was most impactful for Black students. ($F(13, 1282) = 1.82$ $p < .05$). ***Psychological Safety and Developmental Relationships Growth*** were the strongest predictors of wellbeing for students whose school-reported race was Native Hawaiian or Pacific Islander, with Developmental Relationships Growth also strongly predicting wellbeing for students identified as multiracial ($F(13, 1277) = 1.97$ $p < .05$), ($F(13, 1151) = 4.77$, $p < .001$).

After accounting for perceived-race in the fall, ***Physical Safety*** and ***Identity Safety*** impacted well-being most strongly for students perceived as Native Hawaiian or Pacific Islander, ($F(20, 1049) = 2.56$, $p < .01$), ($F(15, 1237) = 2.86$, $p < .001$). ***Developmental Relationships Care and Intention, Action, Reflection Cycles*** were most strongly associated with students perceived as Middle Eastern.

Overall Well-being - Spring Findings:

In the spring, we observed a significant, positive relationship between well-being and ***Authentic Real-World Learning Experiences, Physical Safety, Psychological Safety, Developmental Relationships Care and Growth, Intention, Action, Reflection Cycles, Rich, Varied and Exciting Learning Experiences, Joy, and Autonomy.***

After adding school-reported race as a moderator in spring, the following ecosystem level human flourishing design principles were predictive of higher overall wellbeing regardless of race:

Developmental Relationships Care. $F(13, 762) = 2.0$, $p = .02$
Developmental Relationships Growth. $F(13, 714) = 2.88$, $p < .001$
Intention, Action, Reflection Cycles. $F(13, 760) = 2.71$, $p < .001$
Autonomy. $F(13, 765) = 4.12$ $p< .001$

Rich, Varied, and Exciting Learning Experiences and Joy were strongest predictors of wellbeing for students whose school-reported race was Black (F(13, 691) = 3.61 p < .001), (F(13, 718) = 6.33, p < .001).

Academic Attitudes, Beliefs and Motivations

Academic Attitudes, Beliefs and Motivations - Fall Findings:

In the fall, we observed a significant, positive relationship between academic attitudes, beliefs, and motivations and: ***Authentic Real-World Learning Experiences; Physical Safety; Psychological Safety; Developmental Relationships-Growth and Care; Intention, Action, Reflection Cycles; Rich, Varied and Exciting Learning Experiences; Joy; and Autonomy.***

After adding school-reported race as a moderator in fall, the following ecosystem level human flourishing principles significantly predicted students' academic attitudes, beliefs, and motivations, regardless of their school-reported racial identity:

Physical Safety. F(13, 1432) = 11.35, p <.001
Psychological Safety. F(13, 1158) = 3.49, p < .001
Autonomy. F(13, 1164) = 4.77, p <.001

Identity Safety (F(13, 1456)=12.68, p < .001), ***Developmental Relationships-Growth***, (F(13, 1145) = 3.63, p <.001), and ***Intention, Action, Reflection Cycles*** (F(13, 1137) = 3.52, p <.001) uniquely predicted greater academic attitudes, beliefs and motivations for students whose school-reported racial identity was Native Hawaiian or Pacific Islander. ***Developmental Relationships-Care*** predicted more positive academic attitudes, beliefs, and motivations for students who were identified as multiracial, (F(13, 1156) = 3.64, p < .001). Rich, Varied, and Exciting Learning Experiences were predictive for (F(13, 1076) = 4.63, p <.001), American Indian, Black, Multiracial, and Pacific Islander students. ***Joy*** strongly predicted academic attitudes for those identified as Black (F(13, 1154) = 3.66 p < .001), and ***Beyond the Self Learning*** Experiences predicted greater academic attitudes, beliefs, and motivations for students identified as American Indian (F(13, 1069) = 2.44 p <.01).

Perceived-race did not further explain these differences.

Academic Attitudes, Beliefs and Motivations: Spring Findings

In the spring, we observed a significant, positive relationship between academic attitudes, beliefs, and motivations and ***Physical Safety, Psychological Safety, Developmental Relationships Support, Care, and Growth, Intention, Action, Reflection Cycles, Rich, Varied and Exciting Learning Experiences, and Autonomy.***

After adding school-reported race as a moderator in the spring, ***Physical Safety*** and ***Joy*** significantly predicted academic attitudes, beliefs, and motivations regardless of school-reported race, (F(13, 841) =5.72, p < .001, F(13, 717) - 1.86, p <.05).

Psychological Safety (F(13, 719) = 2.56, p <.002) and ***Developmental Relationships Care*** strongly predicted greater academic attitudes for students identified as Asian, (F(13, 716) = 1.83, p <.05). ***Developmental Relationships Growth*** (F(13, 713) = 3.72, p <.001) and ***Rich, Varied, and Exciting Learning Experiences*** (F(13, 689) = 4.06, p < .001), predicted more positive academic attitudes, beliefs, and motivations for students identified as Black. ***Autonomy*** was most strongly predictive for students identified as Asian, Black, and Multiracial (F(13, 719) = 9.02, p <.001).

Academic Achievement

Academic Achievement - Fall Findings:

In the fall, we observed a significant, positive relationship between academic achievement (overall grade point average) and ***Authentic Real-World Learning Experiences, Physical Safety, Psychological Safety, Developmental Relationships Support, Care, and Growth, Intention, Action, Reflection Cycles, Rich, Varied and Exciting Learning Experiences, Joy, and Autonomy.***

After adding school-reported race as a moderator in fall, ***Physical Safety and Psychological Safety*** predicted students' overall GPA regardless of race. ***Rich, Varied, and Exciting Learning Experiences*** predicted academic achievement most strongly for those identified as American Indian or Black, ($F(13, 1084) = 9.32$, $p < .001$). The positive relationship between the following human flourishing principles and GPA was strongest for those identified as American Indian in school-reported race:

Authentic Real-World Learning Experiences. $F(13, 1165) = 9.78$, $p < .001$
Identity Safety. $F(13, 1456) = 12.68$, $p < .001$
Developmental Relationships Support. $F(13, 1297) = 11.84$, $p < .001$
Developmental Relationships Care. $F(13, 1289) = 12.58$, $p < .001$
Developmental Relationships Growth. $F(12, 1152) = 11.51$, $p < .001$
Intention, Action, Reflection Cycles. $F(13, 1263) = 10.58$, $p < .001$
Joy. $F(13, 1169) = 10.98$, $p < .001$
Autonomy. $F(13, 1478) = 13.95$, $p < .001$

After accounting for perceived race in the fall, ***Physical Safety*** was associated with GPA most strongly for students perceived as Black or Native Hawaiian or Pacific Islander, ($F(15, 1401) = 9.18$, $p < .001$).

Academic Achievement - Spring Findings:

In the spring, we observed a significant, positive relationship between academic achievement (overall grade point average) and ***Authentic Real-World Learning Experiences, Beyond the Self Learning Experiences, Psychological Safety, Developmental Relationships Support, Care, and Growth, and Joy.***

After accounting for school-reported race in spring, ***Authentic Real-World Learning Experiences,*** ($F(13, 719) = 4.50$, $p < .001$), ***Beyond the Self Learning Experiences*** ($F(13, 686) = 4.12$, $p < .001$), ***Developmental Relationships Care*** ($F(13, 776) = 5.38$, $p < .001$), and ***Autonomy*** ($F(13, 778) = 4.82$, $p < .001$) predicted greater GPA regardless of race.

Physical Safety ($F(13, 841) = 5.72$, $p < .001$) and ***Psychological Safety*** ($F(13, 850) = 6.08$, $p < .001$) were strongest predictors of GPA if students were identified as Hispanic by their school. ***Developmental Relationships Growth*** ($F(13, 713) = 6.22$, $p < .001$) and ***Joy*** were the strongest predictors of GPA if students' school-reported race was Black, ($F(13, 717) = 4.84$, $p < .001$).

Academic Persistence

Academic Persistence - Fall Findings:

In the fall, we observed a significant, positive relationship between academic persistence (lower percent absent) and ***Authentic Real-World Learning Experiences, Physical Safety, Psychological Safety, Developmental Relationships Support, Care, and Growth, Intention, Action, Reflection Cycles, Rich, Varied, and Exciting Learning Experiences, Joy, and Autonomy.***

After adding school-reported race as a moderator, ***Rich, Varied, and Exciting Learning Experiences*** predicted lower rates of absences regardless of school-reported racial identity, ($F(13, 1085) = 3.54$, $p < .001$). ***Psychological Safety***, ($F(13, 1433) = 5.35$, $p < .001$), ***Developmental Relationships Support***, ($F(13, 1298) = 4.751$ $p < .001$), and ***Intention, Action, Reflection Cycles*** ($F(13, 1264) = 3.81$, $p < .001$) were predictive of lower rates of absences if students were identified as Pacific Islander by their school.

After accounting for perceived-race in fall, ***Rich, Varied, and Exciting Learning Experiences*** demonstrated the strongest relationship to lower absences for students perceived as Black, ($F(15, 1062) = 6.69$, $p < .001$). ***Autonomy*** significantly predicted lower rates of absence for students perceived as Latina/Latino/Latinx, ($F(15, 1448) = 4.78$, $p < .001$).

Academic Persistence - Spring Findings:

In the spring, we observed a significant, positive relationship between academic persistence (lower percent absent) and ***Authentic Real-World Learning Experiences, Beyond the Self Learning Experiences, Psychological Safety, Developmental Relationships Support, Care, and Growth, and Joy.***

After accounting for school-reported race, no significant relationships were observed between the human flourishing design principles and academic persistence in spring.

Summary of Findings

There are several meaningful takeaways from this study. First, our findings provide evidence for a clear positive relationship between the degree to which students are immersed in several of the identified human flourishing design principles, and not only their self-reported overall well-being and academic attitudes and beliefs about their success in school, but importantly, from a standpoint of what has traditionally been valued by policy-makers and the field, students' documented success in school, as measured by GPA and attendance. All of the design principles except ***Beyond the Self Learning Experiences*** significantly predicted better student outcomes in the fall. In the Spring, we observed strong relationships between five of the design principles and student outcomes, with ***Safety, Beyond the Self Learning Experiences***, and ***Developmental Relationships*** being the most consistent across all four outcomes. Of note is the predictive nature of ***Beyond the Self Learning Experiences*** shifting from fall to spring. One potential explanation for this might be that students were just beginning to return to school after the COVID-19 pandemic in fall, and had not yet been immersed in sufficient experiences until the spring.

Next, it is important to note our findings regarding the high variability in students' race and ethnicity data, depending upon how the data were collected. In other words, we identified many documented discrepancies between how students self-report their racial identity and how schools have reported students' racial identities, as well as what students believe others on the street might perceive their racial and ethnic identities to be. For example, while schools collect data regarding whether students identify as Hispanic, they don't collect data specific to Latino/Latina identity.

In Table 1, it is clear that Hispanic identity is widespread across all racial categories, and does not accurately capture any one identity within an ethnicity (i.e., Latino/Latina). This means that within our student sample, data that are based on school-reported race and ethnicity alone cannot explain differences in outcomes for Latino/Latina students. This may lead to detrimental false conclusions if Hispanic identity is conflated with Latino/Latina identity, which encompasses many different countries of origin, and unique cultural experiences and norms that cannot be lumped into one narrow category of "Hispanic". Relatedly, schools also do not typically include the option for students to identify as Middle Eastern. Middle Eastern students and adults alike are known to select Asian, White, or Black/African American in these cases. Also, multi-racial students, who are growing in proportion in the United States, are poorly represented if at all, and it goes without saying that not all multiracial students have the same experiences simply because they are multiracial.

Finally, after including school-reported race and perceived-race as moderators, we found several interesting relationships between the design principles and student outcomes based on their racial identity. While unequal group sizes make it difficult to make conclusions, it remains true that there is significant variability based upon students' identity. These findings call for a more nuanced root cause approach to measuring and reporting student success and well-being, and indicate that as a field, we may not be placing as much emphasis as we should be on the types of environments and relationships students are experiencing in school.

Of equal importance, while these findings cannot make assumptions about why these relationships are different across student-reported racial identity vs. school-reported racial identity, what's important to note is that the differences do indeed exist. In other words, these findings yield one example of the ways in which representation and student voice matter when collecting data, and particularly when leveraging such data to make informed decisions. In this one area of racial identity demographic data, our data that were grounded in student voice and self-report yielded different results than the data that were reported by schools. This begets a bigger question: How often might we as an education sector be making inferences about, and acting upon decisions made, from data that are flawed because we haven't centered students' voices and lived truths and experiences?

Limitations & Future Directions

Limitations

Sample Variability

An important limitation of this study was a lack of variability in the degree to which students were immersed in ecosystems with relatively high exposure to many of the human flourishing design principles. This did not allow us to examine a dichotomy of experiences between groups of students who do vs. do not experience ecosystems that have these principles present in practice.

Different patterns could emerge with educational contexts that vary in exposure to human flourishing principles (i.e. where students feel very unsafe v. safe v. very safe), particularly with the inclusion of students from diverse racial groups. That said, despite the lack of drastic variability, we indeed found significant predictive relationships between the degrees to which these design principles were present and each of the student success and achievement variables of interest. To some degree the strong predictive relationships that have emerged, despite a lack of significant variability, present an even more compelling argument for schools and systems to focus on how they might measure both the quantity and quality of evidence-based human flourishing design principles present in learning environments. One might, for example, be tempted to infer that since strong predictive relationships have been found within limited variability, with additional variability in design principle ecosystem presence, the relationships may be even stronger. Future efforts should examine human flourishing design principle presence in more variable environments to further explore whether this hypothesis indeed holds true.

Sample Size

When examining our findings that were moderated by race and ethnicity, it is important to note that some groups of students had small sample sizes, which we know can impact the generalization of results. That said, whether the specific student population of interest has a large or small sample size, it is also important to always acknowledge that any aggregated findings are just that, and that variability of experiences, motivations, and beliefs will exist within any sample.

Considering the Socio-Political Climate

During the 2021-2022 academic year, we were in unprecedented times in the midst of the COVID-19 pandemic. At the time of data collection, the majority of the students in our study had resumed in person learning. However, we must note the potential impact this had on their state of mind. Students from diverse racial and ethnic backgrounds may be uniquely affected by the impact of the COVID-19 pandemic (Novacek et al., 2020).

Our biggest limitation for this study involved the volatility in discourse regarding social and emotional learning within the current socio-political context. Florida, the state from which a large majority of our student data derived, had recently outlawed Critical Race Theory (CRT). This impacted our ability to continue collecting data on students' self reported gendered, racial, and ethnic identities, as well as to dive deeper into the nuances surrounding their access, or lack thereof, to the identified flourishing principles.

Future Directions

The data presented in this study are rich and only scratch the surface of how ecosystem level factors might interact with students' individual identities. To understand the findings more deeply, focus groups that collect qualitative information about students' lived experiences and exposure to the human flourishing design principles could potentially add additional nuance and clarity to any quantitative data that are also collected. Focus groups might also significantly improve our understanding of how to support diverse students and, for example, bring awareness to specific cultural norms or realities that may impact how students engage with, or experience, their particular learning environments at both individual and within-group levels. Further, an examination of how each individual design principle uniquely interacts with the other 7 principles to impact student outcomes, might clarify how discrete combinations of environmental and relationship-based experiences may impact students from various backgrounds and lived experiences.

Future efforts should also examine the relationships examined in this study in more diverse settings, in terms of the degree to which students are immersed in environments that uphold the human flourishing design principles. The Character Lab Network provided an opportunity for us to begin asking our key research questions within a large sample of students during a time in which school and student research partnership recruitment has been a challenge. However, due to the intentional recruitment efforts that take place within the Character Lab Research Network, many of the participating schools in the network have an intentional focus on supporting all aspects of student growth, learning, and development in an evidence-based way. That said, our study still yielded compelling results, despite limited human flourishing principle ecosystem variability.

Choice-filled Lives Network recently secured a partnership with a large urban school district in the Southwest region of the country. In the upcoming academic year, schools will be recruited to participate in the next study, which will allow for more variability in terms of school culture, climate and norms. Additionally, we do not anticipate experiencing the same challenges around student-report of demographic data with this research partner as we experienced in the current study.

Policy Implications & Recommendations

While we do know and acknowledge that there is value in individual student assessment **(particularly formative assessment that can guide the instructional needs of each individual learner)**, and progress monitoring, our work in this study is specifically focused on situating individual student learning and success within the context of their individual learning ecosystems. In other words, we set out to understand the degree to which specific ecosystem-level and relationship-based experiences might be driving the more traditionally measured individual-student level outcomes. Our key findings indicate that: 1) between both fall and spring cohorts, there were significant relationships between all of the human flourishing design principles and our four student outcomes of interest: Overall Wellbeing; Academic Attitudes, Beliefs, and Motivations; Academic Achievement (i.e. overall GPA), and Academic Persistence (i.e. attendance); and 2) after including school-reported race and perceived-race as moderators, there were several interesting relationships between the design principles and student outcomes based upon, and differentiated by, their particular racial identities. Policy implications and recommendations related to these findings are detailed as follows:

1. ECOSYSTEM-LEVEL ASSESSMENT AND ACCOUNTABILITY

All eight of the research-grounded design principles significantly predicted students' overall well- being, academic attitudes, beliefs, and motivation, academic performance, and academic persistence. Taking these design principles into account when assessing for students' outcomes will allow practitioners and decision-makers alike to shift their focus away from only assessing the individual student's academic and attendance outcomes in isolation, and target system- and ecosystem-level changes that create and sustain the conditions necessary for students to succeed. In other words, in addition to leveraging student-level data to inform and report against customized interventions for individual students or particular student groups, a customized ecosystem-level assessment and accountability system that is grounded in these research-grounded human flourishing design principles should be developed and adopted by districts and states to shift the accountability focus away from solely the individual child, and towards a system of more shared accountability - a system in which students are indeed responsible for stewarding their life's paths, but simultaneously the ecosystem in which the child is immersed, including the adults in that ecosystem, are held accountable for creating and sustaining the conditions necessary for students to flourish and thrive.

To this end, our findings indicate that efforts should be made to embed the prevalence of these ecosystem-level student flourishing principles and success indicators into school, district, and state student accountability systems that measure student success and achievement as follows:

Ecosystem Level Assessment and Accountability - Recommendation 1:

Schools and districts should conduct bi-annual assessments of the degree to which school-level human flourishing design principles exist within specific learning ecosystems. These assessments should in turn: a) inform continuous quality improvement practices, and b) create a basis for developing internal policies, systems, and practices that support educators in assessing their learning ecosystems in relation to students' needs and goals.

Ecosystem Level Assessment and Accountability - Recommendation 2:

Open-source state guidelines and related toolkits and technical assistance resources should be developed to: a) support school leaders in improving learning conditions within their buildings and providing related professional learning supports to educators, and b) support districts and states in leveraging these ongoing assessment data to monitor progress, in an effort to continually improve the learning conditions and experiences that directly impact students' overall wellbeing; academic attitudes, beliefs, and motivations; academic achievement; and academic persistence outcomes.

2. STUDENT IDENTITY DATA AND STUDENT VOICE

Social science, public health research broadly, and education research in particular, have long used data to marginalize students and families, since the inception of Indigenous boarding schools, and to and through the separate but equal policies of the Jim Crow South, up to and through today (see for example Haag, 2007 and Nekkanti & Kenner, 2022). The ways in which we talk about and conceptualize student identity, be it racial, gender, cultural, ethnic, or an intersection of them all, needs to shift in our sector toward residing within the voice of the individual. In addition to student voice being important from a standpoint of students feeling valued and heard, our findings indicate that there are often nuances to the ways in which one's identity informs their particular outcomes, and these relationships can vary based upon who holds agency in terms of students' assigned racial and ethnic identities. While some design principles like safety and developmental relationships resulted in similar relationships across some racial groups, other design principles varied significantly, and further, varied as a result of who had identified the students' racial and/or ethnic identity. Specifically, our study demonstrates that student racial identity, defined as the race that a common stranger might assume of the student, is a more robust predictor of student outcomes relative to school-reported racial identity. Further, even among single race/ethnicity categories, we found significant differences between students that self-identified and self-reported that they identify as White or Caucasian versus Middle Eastern. Note that Middle Eastern students traditionally tend to select "White", "Asian", "Black", or "Other".

Our data also revealed discrepancies between students' self-reported race and ethnicity data and school-reported race and ethnicity data, indicating that schools and districts are not always collecting race and ethnicity data directly from the student or family, and therefore assumptions are likely being made about students' identities. It is therefore important to consider the source of student race and ethnicity data reporting when leveraging these demographic data to inform decision making. For example, while traditional metrics of race and ethnicity may provide insights into potential systemic or intergenerational processes, a student-reported race and ethnicity metric may provide more insight into how a student's identity is impacting their self-directed or self-guided interactions within the classroom, school, or other ecosystems. Further, metrics of how others in the world perceive a student's race or ethnicity may provide a more accurate indicator of how students experience the world around them and/or the treatment they receive from adults and peers in their environments.

Overall, there is a clear necessity for schools to align around how racial identity is captured, understood, and interpreted. We must ask, "Why do we want to understand how outcomes vary by race?", and "What are we assuming about what race, a social construct, is actually telling us about this student or community of learners both in general, but also within particular contexts?"

Policy recommendations related to these insights are as follows:

Student Identity Data and Student Voice - Recommendation 1:

States and districts should develop and use developmentally appropriate assessments of students' perceived racial identity data, in addition to traditionally utilized school-reported race or ethnicity data. While this practice is important for all students, our data indicate that this is particularly important when examining race and ethnicity outcomes for Black and/or Latino/Latina students. To do so, states and districts might consider collecting student questionnaire data, at least once per year, upon enrollment or re-enrollment, that explicitly ask 1) how students believe others view them from a race and ethnicity standpoint, as well as 2) students' own self-reported race and ethnicity data.

Student Identity Data and Student Voice - Recommendation 2:

States and districts should develop systems for identifying and documenting discrepancies between student-reported identity and state or district reported identity data anytime analyses are being conducted, or decisions are being made, that are dependent upon the reliability and fidelity of student race and ethnicity data. Our data indicate that although families report students' race and ethnicity data, there are often even discrepancies between how students identify and what is being reported by schools. In instances of discrepancies, it is advisable that students' self-reported identity data be leveraged for decision-making related to those outcomes that are related to students' internal lived experiences, as it will likely provide a more valid representaiton of the ways in which student race and ethnicity are impacting any particular outcome of interest. Conversely, when leveraging student race and ethnicity data to inform decisions related to more externally-influenced student outcomes, it may be advisable to leverage perceived race and ethnicity data, as these data may be more reliable when considering the ways in which race and ethnicity interact with how students are treated by teachers or other adults in the ecosystem.

Conclusion

This study is one of the first critical steps necessary to create a sector-wide, newly evolved definition of student and school success and thriving, and an aligned newly evolved student and school success and accountability system. We have clearly demonstrated that: 1) the eight research grounded ecosystem-level student flourishing design principles are significantly related to our four key student outcomes of interest *(Overall-Wellbeing; Academic Attitudes, Beliefs, and Motivations; Academic Achievement (i.e. overall GPA), and Academic Persistence (i.e. attendance)*); 2) the relationships between ecosystem-level factors and our outcomes of interest vary significantly by students' racial and ethnic identities, and 3) discrepancies exist in the degree to which accounting for race and ethnicity impact these various outcomes, depending upon whose agency and voice has been upheld in identifying and documenting the specific race and ethncity data.

Based upon the results of our study, we call for policy reform and key recommendations in two critical focus areas: *1) Ecosystem Level Assessment and Accountability and 2) Student Identity Data and Student Voice*. Taking our findings into account, and leveraging our proposed policy recommendations, this work has promising potential to impact not only school-based policy, accountability, and practice, but also system-level policy, accountability, and practice, in an effort to ensure that all students have an opportunity to thrive and reach their full potential.

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Appendices

Table 1. Demographic Characteristics of Students by Fall or Spring

	Fall (n = 1839)	Spring (n = 938)
Student Sex (School Reported)		
Male	840	442
Female	870	491
Gender (Student Reported)		
Male	859	-
Female	829	-
Other	57	-
Prefer not to say	39	-
Grade Level		
6th Grade	4	-
7th Grade	490	294
8th Grade	444	223
9th Grade	445	228
10th Grade	446	188
11th Grade	0	-
12th Grade	10	-
English Language Learner	129	74
Special Education Status	353	192
Mean Grade Point Average	85.61%	85.94%
Total Absences	2.80	2.76

Table 2. Racial Characteristics of Students by Reporting Type Fall and Spring

	Fall Perceived Race (n = 1839)	Fall School Reported Race (n = 1839)	Fall Student Reported Race (n = 1839)	Spring School Reported Race (n = 938)
Hispanic	-	698	777	377
Multiracial/Multiethnic				
Caucasian/White	617 (29%)	1143 (55%)	663 (24%)	633 (54%)
Multiracial/Multiethnic	-	58 (33%)	-	28 (21%)
Latino/Latina	512 (86%)	-	719 (96%)	-
Middle Eastern	21 (43%)	-	49 (29%)	-
African American/Black	373 (19%)	374 (11%)	479 (23%)	193 (14%)
Asian American /Asian	126 (15%)	108 (4%)	173 (12%)	64 (2%)
Native Amer./Alaska Native	36 (50%)	11 (27%)	59 (39%)	6 (50%)
Native Hawaiian/ Pacific Islander	19 (42%)	16 (19%)	20 (50%)	9 (11%)

Note. Percentages after each number represent the percent of students of that racial category that also identify as Hispanic. Fall Perceived Race includes student responses to the question: *If you were walking down the street, what race and/or ethnicity do you think other Americans who do not know you personally would assume you were, based on what you look like?* 135 students did not answer the Fall Perceived Race question. Fall Student Reported Race is a multi-response question, so the total number of each race will add up to greater than 1839. Fall School Reported Race and Spring School Reported Race are collected from school records.

Table 3. Significant Human Flourishing Predictors of Student Outcomes without School-reported race as a moderator

	Student Outcomes of Interest - Fall & Spring							
Human Flourishing Design Principle Predictor Variables	Overall Well-being Fall	Overall Well-being Spring	Academic Attitudes, Beliefs and Motivations - Fall	Academic Attitudes, Beliefs and Motivations - Spring	Academic Achievement (Overall GPA)- Fall	Academic Achievement (Overall GPA) - Spring	Academic Persistence (Absenteeism Rate) - Fall	Academic Persistence (Absenteeism Rate - Spring
Safety - Identity								
Safety - Physical	✓	✓	✓	✓	✓		✓	
Safety - Psychological	✓	✓	✓	✓	✓	✓	✓	✓
Developmental Relationships - Care	✓	✓	✓	✓	✓	✓	✓	✓
Developmental Relationships - Growth	✓	✓	✓	✓	✓	✓	✓	✓
Developmental Relationships - Support					✓	✓	✓	✓
Autonomy-Support	✓	✓	✓	✓	✓		✓	
Intention, Action, Reflection Cycles	✓	✓	✓	✓	✓		✓	
Authentic, Real-World Learning Experiences	✓	✓	✓	✓	✓	✓	✓	✓
Rich, Varied, and Exciting Learning Experiences	✓	✓	✓	✓	✓		✓	
Beyond the Self Learning Experiences						✓		✓
Joy (Positive Emotion)	✓	✓	✓		✓	✓	✓	✓

Table 4. Significant Human Flourishing Predictors of Student Outcomes with School-reported race as a moderator

	Student Outcomes of Interest - Fall & Spring (School-reported Race as a Moderator)							
Human Flourishing Design Principle Predictor Variables	**Overall Well-being Fall**	**Overall Well-being Spring**	**Academic Attitudes, Beliefs and Motivations - Fall**	**Academic Attitudes, Beliefs and Motivations - Spring**	**Academic Achievement- Fall**	**Academic Achievement - Spring**	**Academic Persistence - Fall**	**Academic Persistence - Spring**
Safety - Identity	✓							
Safety - Physical			✓		✓			
Safety - Psychological			✓	✓	✓			
Developmental Relationships - Care	✓	✓				✓		
Developmental Relationships - Growth		✓						
Developmental Relationships - Support								
Autonomy-Support		✓	✓			✓		
Intention, Action, Reflection Cycles	✓	✓						
Authentic, Real-World Learning Experiences	✓					✓		
Rich, Varied, and Exciting Learning Experiences							✓	
Beyond the Self Learning Experiences						✓		
Joy (Positive Emotion)				✓				

Table 5. Strongest Significant Human Flourishing Predictors of Student Outcomes by School-reported Racial & Ethnic Identity

After including school-reported race as a moderator, the following ecosystem level human flourishing principles were particularly stronger predictors for the following groups of students, in relation to their White or Caucasian peers

	Student Outcomes of Interest - Fall & Spring Strongest Human Flourishing Predictors by School-reported Racial & Ethnic Identity							
Human Flourishing Design Principle Predictor Variables	**Overall Well-being Fall**	**Overall Well-being Spring**	**Academic Attitudes, Beliefs and Motivtions - Fall**	**Academic Attitudes, Beliefs and Motivations - Spring**	**Academic Achievement-Fall**	**Academic Achievement-Spring**	**Academic Persistence - Fall**	**Academic Persistence-Spring**
Safety - Identity			Native Hawaiian or Pacific Islander		American Indian			
Safety - Physical						Hispanic		
Safety - Psychological	Native Hawaiian or Pacific Islander			Asian		Hispanic	Pacific Islander	
Developmental Relationships - Care			Multiracial	Asian	American Indian			
Developmental Relationships - Growth	Native Hawaiian or Pacific Islander; Multiracial		Native Hawaiian or Pacific Islander	Black	American Indian	Black		
Developmental Relationships - Support					American Indian		Pacific Islander	
Autonomy-Support	Black			Asian, Black, Multiracial	American Indian			
Intention, Action, Reflection Cycles			Native Hawaiian or Pacific Islander		American Indian		Pacific Islander	
Authentic, Real-World Learning Experiences					American Indian			
Rich, Varied, and Exciting Learning Experiences	Black	Black	American Indian; Black; Multiracial; Pacific Islander	Black	American Indian; Black			
Beyond the Self Learning Experiences			American Indian					
Joy (Positive Emotion)	Hispanic	Black	Black		American Indian	Black		