

Metrics for education for flourishing: A framework

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Abstract: The present paper puts forward a framework for the development, use, and selection of metrics concerning education for flourishing, intended to assist with the assessment of educational efforts to promote student flourishing. These metrics pertain to education policies and practices aimed at both traditional cognitive and epistemic aims and aspects of flourishing that extend beyond those aims, and to both present and subsequent flourishing. Various methodological considerations are discussed and three sets of individual and systems-level metrics are put forward. Both the individual and the systems-level metrics are structured around three broad, interrelated categories: (i) present flourishing; (ii) academic achievement; and (iii) social, emotional, and character-related capacities. We focus on metrics that are constitutive of and/or causally efficacious for present and subsequent flourishing and that also fall within the purview of what an educational system can reasonably alter. Discussion is given to the uses, implications, and limitations of this framework and how it might be helpful in advancing efforts at education for flourishing.

Keywords: education; flourishing; well-being; character; social emotional learning

1. Introduction

There has been considerable and increasing interest in, and debate concerning, ways in which formal educational institutions can enhance student flourishing (Brighouse, 2008; White, 2011; Carr, 2021; Ellyatt, 2022; Kristjánsson, 2022; VanderWeele, 2022; Stevenson, 2022; de Ruyter et al., 2022; Hand, 2023; Siegel, 2023). Undoubtedly, education's traditional aim of developing students' knowledge, understanding, and cognitive capacities itself contributes a great deal to student flourishing, as being both constitutive of flourishing and enabling the pursuit of future goals. However, there has also been important recognition that education can contribute to student flourishing in ways that extend beyond education's cognitive and epistemic aims. Programs to enhance student flourishing span a diverse range of activities ranging from character formation, to mental health awareness and well-being enhancement, to the development of capacities for adaptive problem-solving, ethical reasoning, and aesthetic perception, to practical skills like financial management. As efforts to promote these various other aspects of student flourishing continue to increase, it becomes important also to evaluate how effective various programs and various schools and educational systems are at achieving the goals and ends which they purport to accomplish.

In this paper we will put forward a framework for metrics concerning education for flourishing. The framework is intended to assist with the evaluation of programs, schools, and educational systems to help assess whether stated aims of student flourishing are in fact being achieved and to assist also with reflection and refinement of efforts to promote student flourishing. Of course, school education is intended not only to contribute to immediate student

well-being, as important as this is, but also to equip students for the pursuit of subsequent flourishing in adult life and in society. The intent of the framework that will be developed in this paper is thus not only to evaluate how, at both an individual and systems level, present student flourishing is being attained but also to provide some indication of whether there are signs that the future flourishing of the students is being enabled.

The paper will be structured as follows. In the first section we will provide an outline of what we see as the appropriate scope of educational efforts to promote student flourishing so as to more clearly specify the objectives which metrics concerning education for flourishing might be intended to evaluate. In the second section we will put forward a number of further methodological considerations relevant to the development of a framework to evaluate the enabling of student flourishing. In the third section we will lay out three individual-level pillars of our framework for metrics for education for flourishing that might be employed to help evaluate the extent to which individual students or, in aggregate, students in programs or schools, have been enabled or equipped to flourish later in life. In the fourth section, we will put forward three corresponding systems-level pillars for our framework for metrics for education for flourishing, that may be of use in helping to assess, at a systems level, whether environments, structures, and programmatic efforts are in place to support the enabling of student flourishing. In the fifth section, we give consideration to the uses, implications, and limitations of the proposed framework and offer some final concluding remarks.

The intent of this paper is not to propose specific metrics for the evaluation of education for flourishing efforts. Rather, it is to provide a framework for the development and selection of such metrics and a justification for the importance of the development of these metrics. The specific metrics that are used in any given context will need to take into account several contextual factors, including the more specific goals of the educational system, the resources that are available, and the cultural context of the students and the institutions involved. It would arguably not be appropriate to propose a set of metrics as being supposedly useful for all purposes, contexts, times, and places. Nevertheless, we believe that some of the contours of an approach to assessment concerning education for flourishing may be shared across contexts, and that some of the principles that might guide the selection of metrics may be similar across contexts. The framework that we put forward is intended to capture of some these similarities and shared principles. It is hoped that the framework might help guide the selection of metrics concerning education for flourishing in more specific contexts and settings. In what follows, we will discuss certain specific metrics as illustrative examples to indicate what types of assessments might be useful in what contexts, and some of these specific metrics might indeed have potential for wide application in assessments of education for flourishing. However, the principal focus of the paper is not on the metrics themselves but on the development of a framework within which to situate, select, and tailor metrics to more particular contexts.

2. The scope of education for flourishing

In considering a framework for metrics concerning education for flourishing it is important to consider the appropriate scope of educational efforts to enhance student flourishing. Education undoubtedly plays an important role in shaping the flourishing of students. Educational systems shape student knowledge, understanding, cognition, development and numerous other aspects of students' lives that help prepare them for adulthood and engagement in society. Nevertheless, schools are of course not the only institutions that shape student flourishing. Families, neighborhoods, religious communities, other organizations, and governments all also play important roles. Schools are not responsible for all aspects of a student's flourishing.

Nevertheless, it would also seem a missed opportunity to restrict the principal aspirations of a school or an educational system to the accomplishing of its cognitive and epistemic aims. Schools and teachers can and do contribute to students' lives in so many other ways as well. The appropriate scope of what is aimed at in "education for flourishing" thus arguably encompasses both the epistemic aims and certain other aspects of student flourishing, which are inextricably linked in development, experience, brain, and behavior (Almlund et al., 2011; Carneiro et al., 2007; Heckman et al., 2006; Hinton and Fischer, 2010; Hinton et al., 2008; Immordino-Yang, 2011; Immordino-Yang and Damasio, 2007; Jones and Zigler, 2002; OECD, 2007; Porticus, The Lego Foundation, and Jacobs Foundation, 2023; Osher et al., 2017; The Aspen Institute, 2018).

Although education might aim at many aspects of students' flourishing, it arguably does not encompass all. Flourishing, in its broadest sense, might be defined as "the relative attainment of a state in which all aspects of a person's life are good, including the contexts in which that person lives" (VanderWeele and Lomas, 2023). Education for flourishing in principle then might include the flourishing of individual students as well as the flourishing of the communities and the natural environment in which students live. Education policies and practices that promote the well-being of a select few at the expense of others or of our natural environment are not policies and practices consistent with that full understanding of flourishing. Education policies and practices that prepare students to foster their own well-being alone are insufficient for flourishing. Ideally education for flourishing would include policies and practices that will equip students to care for themselves as well as make contributions to others and the wider world. And yet, as noted above, it would not seem appropriate to suggest that schools be responsible for the whole of flourishing or even student flourishing. The proper scope of "education for flourishing" arguably lies between the poles of only the cognitive and epistemic aims on the one hand, and the whole of student flourishing on the other.

We believe that the scope of education for flourishing might be specified as (i) the developing of students' knowledge, understanding, and the cognitive skills and epistemic virtues that facilitate knowledge and understanding, all of which itself enables present and future student flourishing and also (ii) the promotion of those aspects of student flourishing around which broad consensus can be attained, and concerning which teachers and educational leaders are prepared to address (cf. Kristjánsson and VanderWeele, 2023). The first of these components seems relatively uncontroversial and is a fundamental and central contribution that institutional education makes towards student flourishing. The second of these components recognizes that teachers and schools contribute to many other aspects of students' lives as well. And yet this second component, we propose, does not extend to all aspects of student flourishing. It is restricted in two ways. First, it is restricted insofar as we would propose that efforts to promote student flourishing in school contexts be focused on those aspects of student flourishing around which broad consensus can be attained. Conceptions of flourishing and understandings of well-being will vary across cultures, persons, and religious and philosophical traditions. Such understandings may be especially diverse in more pluralistic contexts. Nevertheless, while well-developed conceptions of flourishing or of what is good may vary by culture and person, there will often arguably also be a lot that is shared (Dahlsgaard et al., 2005; VanderWeele, 2017). We would propose that efforts at education for flourishing focus upon those aspects of student flourishing around which broad consensus can be attained. That consensus would ideally pertain to teachers, educational leaders, parents, and, when age-appropriate, students. The focus on those aspects of well-being that are more universally valued will help ensure support of such efforts, will minimize disputes and thereby also face less resistance. As discussed further below, however, we would argue that the scope of potential consensus is in fact relatively broad and

may include aspects of well-being as diverse as happiness, health, meaning, character, and social relationships (VanderWeele, 2017). The extent to which consensus is attainable will vary by country, culture and context and may be greater for more homogeneous countries than more heterogeneous ones, and may be greater for parochial or smaller school systems than state or public school systems. But again, even in a more pluralistic context, we believe a reasonably broad consensus can be attained on a number of aspects of well-being.

The second proposed restriction in the scope of education for flourishing pertains to those aspects of student flourishing concerning which teachers and educational leaders are prepared to address. Such preparedness includes both a psychological willingness to engage, and a preparedness in terms of having the skills and capacities to promote those particular aspects of student well-being that are in view. Such preparedness will be greater for some teachers than for others and may be greater in certain schools or educational systems than others. Importantly, however, such preparedness is not static; with appropriate training or the introduction of new efforts and programs, preparedness to address student flourishing can be expanded. Nevertheless, the restriction seems important both in respecting the central role of schools in the achieving of the cognitive and epistemic aims of education and with respect to time available to address other aspects of student flourishing. However, because preparedness of teachers or an educational system to address student flourishing is alterable, this second restriction in some ways is not, in principle, as limiting as it may at first seem. It is also, in some ways, aspirational as it points towards what might be possible with further preparedness, training, resources, or additional programs. Thus within its potential purview are, for example, character development, aesthetic awareness and perception, skills concerning adaptive problem-solving and ethical judgement (Stevenson, 2022), the enhancement of mental health and well-being, and more specific practical skills like nutritional decision-making or financial management.

We believe that this proposal that the proper scope of education for flourishing is: the developing of students' knowledge, understanding, and the cognitive skills and epistemic virtues that facilitate knowledge and understanding along with the promotion of those aspects of student flourishing around which broad consensus can be attained, and concerning which teachers and educational leaders are prepared to address (Kristjánsson and VanderWeele, 2023) helps provide a focus for educational efforts to promote student flourishing; clarifies that not all aspects of student flourishing are a school's responsibility; and yet also points towards further possibilities for the enhancement of student flourishing and the interdependent flourishing of their communities and the wider world if additional resources are available. All of this of course also thereby helps inform what types of metrics might be most suitable for evaluating efforts concerning education for flourishing.

3. Methodological considerations

Before moving on towards the development and exposition of a framework for metrics concerning education for flourishing, several additional methodological considerations are important to recognize in the context of such development.

First, if the purpose of the metrics themselves is such that they are eventually used not only to assess the likelihood of student flourishing, but also as potential targets for change, then it will be important that the metrics assess phenomena or aspects of student life that are not just predictive of student flourishing, but are in fact causally efficacious for subsequent student flourishing. It is not infrequent to sometimes use predictive assessments as surrogates for the outcomes that one ultimately cares about. However, one must be cautious. Often it is the case that, even if an assessment is initially intended only as something predictive, or as a surrogate

assessment, the metrics themselves may eventually become the primary target for change. If the target for change is not itself causally efficacious, considerable resources can be squandered without affecting the outcomes that one cares about, and harm can even be done. The point may seem a trivial one, but it is not.

Examples abound within medicine in which decision-making based on an inappropriate surrogate resulted in waste or even harm or death (Moore, 1995; Fleming and DeMets, 1996; VanderWeele, 2013). As one relatively dramatic lethal instance of this, studies indicating strong association between ventricular arrhythmia and mortality gave rise to taking the suppression of ventricular arrhythmia itself as the target of randomized trials in drug development; the drugs successfully suppressed ventricular arrhythmia, and were approved by the Food and Drug Administration, but subsequent randomized trials examining mortality indicated that the drugs had caused substantial harm, possibly resulting in as many as 50,000 excess deaths due to their use (Moore, 1995).

Analogous phenomena are of course possible within education. It is for example, quite possible that prevalence of smart phones within schools might well be *associated* with positive educational and well-being outcomes. Such associations might arise simply because students with smart phones are more likely to have parents who are financially well-off and have the material and cognitive resources to help their children in their educational, and other, pursuits. Because of this, this positive association between smart-phones and well-being might arise even if the actual effect of student smart-phone use on educational and well-being outcomes were detrimental. If, however, because of the positive associations, smart phone use became a target for intervention, the effects of increasing the prevalence of smart-phone use in schools might well be detrimental to well-being. Similar phenomena are conceivable with the prevalence and use of other technologies as well. In any case, the point here is simply that, methodologically, the metrics of interest should pertain to phenomena that are beneficially *causally* efficacious for subsequent student flourishing. Ideally, existing theoretical and empirical evidence would support such causal relationships and this will be a guiding principle in the development of our framework below.

A second, and somewhat related, consideration pertains to trying to ensure that metrics and intervention targets for subsequent student flourishing are within the purview of the education system. Ideally, in order for metrics for student flourishing to be useful in the development, evaluation, and refinement of efforts to enhance student flourishing, such metrics should pertain to phenomena and aspects of student and school life that are within the purview of the educational system itself to alter and change. There are arguably a wide array of policies and activities that might well enhance student flourishing, cognitive capacities, and educational outcomes, that are causally efficacious and potential targets of change, but that are not specifically within the purview of an educational system. One might imagine that better workplace parental leave policies might allow for enhanced early parent-child bonding and nurturing, which may in turn affect child cognitive development and subsequently greater educational achievement and enhanced flourishing. The same might well be true of rates of maternal breast-feeding for example. Similarly, somewhat greater equality in the distribution of incomes may help provide poorer families with additional resources important in ensuring learning opportunities both prior to and during school years. Policies and efforts to bring such changes about may have profound effects on the educational and well-being outcomes of students, and may be laudable policy goals, but are not specifically within the purview or control of the educational system. They pertain to a much broader set of economic, workplace, and health considerations as well. Teachers, parents, and those within the educational system might well be

advocates, but it seems less clear that metrics pertaining to these phenomena and policies should be used to evaluate the adequacy of the efforts of a particular school or system. It would perhaps be somewhat odd to evaluate a school based on the proportion of students' parents that were in workplaces that provided longer period of parental leave, even if such metrics are highly predictive, and concern causally efficacious phenomena that are amenable to change. Rates of students who were breast-fed as infants might likewise seem like an odd metric on which to evaluate individual schools. Once again, ideally, school metrics concerning subsequent student flourishing should pertain to phenomena, policies, and aspects of student life that are within the specific purview of the educational system to alter and change. We will however return to the limits of this principle below.

A third methodological consideration, to which we will also return in the final concluding section, concerns of the use of metrics that are obtained by self-report. Certain aspects of well-being and many assessments of well-being have an inherently subjective dimension (Diener et al., 1985; Ryff, 1989; National Research Council, 2013; OECD, 2013; Su et al., 2014; VanderWeele, 2017; Lee et al., 2021). While particular facets of well-being, such as aspects of physical health and certain cognitive capacities, can be assessed on more objective grounds, this is much more challenging with various other facets. The assessment of happiness or a sense of purpose, for example, most frequently takes place through a series of self-reported survey questions. It is difficult to assess someone's happiness or sense of meaning and purpose in life without asking them, or others around them. Many such self-report assessments have good psychometric properties, are reasonably reliable, and there is considerable evidence that the phenomena to which they relate are not only highly predictive of, but also causally efficacious for, a number of other subsequent objective and subjective well-being outcomes (Lyubomirsky et al., 2005; Steptoe, 2019; Trudel-Fitzgerald et al., 2019a; Kim et al., 2021; Chen et al., 2022). But such assessments are nevertheless self-reported. For such self-report to be moderately reliable, it is important that any incentive to mis-report be minimized. Incentives to mis-report cannot be avoided entirely – there will almost always be social desirability biases and self-deception biases at play, but the magnitude of these biases can vary enormously by context. In particular, it is especially important that such self-report assessments are not used in high-stakes settings. If the resources given to a school, or to a teacher, depend in part on an evaluation that employs self-report well-being metrics, then there will almost inevitably be strong incentives created for exaggeration and mis-reporting. Self-report metrics should, whenever possible, be avoided in high stakes settings. This is not an argument against self-report metrics. Arguably no assessment of well-being is complete without such self-report assessments. There are, moreover, plenty of worthwhile uses of such self-report metrics such as tools for self-reflection; identifying which students or groups are struggling, and in what ways, so that they can be offered help; or for tracking over time to discern which aspects of well-being are improving and which are not. This third methodological point is thus not that self-report metrics should be excluded; it is simply a caution as to the necessity of appropriately limiting the use of such self-report metrics to exclude high-stakes settings and contexts in which their employment would be counter-productive.

A final methodological point pertains to the evaluation of metrics for *subsequent* student flourishing. In the sections that follow we will put forward a framework for thinking about and selecting metrics both at an individual and at a systems level that will be useful for developing, evaluating, and refining efforts to promote student flourishing. However, if the goal of these metrics and efforts is not merely student flourishing in the present but the enabling of the subsequent flourishing of students in adulthood, then full validation of any set of metrics that is selected will ultimately take considerable time. Rigorous empirical validation would require the

assessment of the relevant individual and systems-level metrics at the time the students were in school and then further assessments of various aspects of the students' flourishing sometime after they reach adulthood. Depending on the level of education that is being evaluated, it is conceivable that one might desire a lag of at least ten or twenty years. This unfortunately is a limitation of any assessment approach intended for outcomes that only temporally occur much later. In the development of the framework for metrics below we will be drawing upon and making use of longer-term longitudinal studies to try to inform the types of metrics that are indeed likely to relate to what is causally efficacious for subsequent student flourishing. However, in the development of the framework we are proposing, given the length of time required for fuller empirical validation, we aim to make the framework sufficiently flexible so that, as knowledge emerges and evidence accumulates concerning which assessments, programs, and efforts are conducive to subsequent student flourishing, the framework and sets of metrics can be adapted to take into account new knowledge and new developments. With these various methodological considerations in mind, let us thus now turn to the proposed framework for metrics concerning the enabling of subsequent student flourishing.

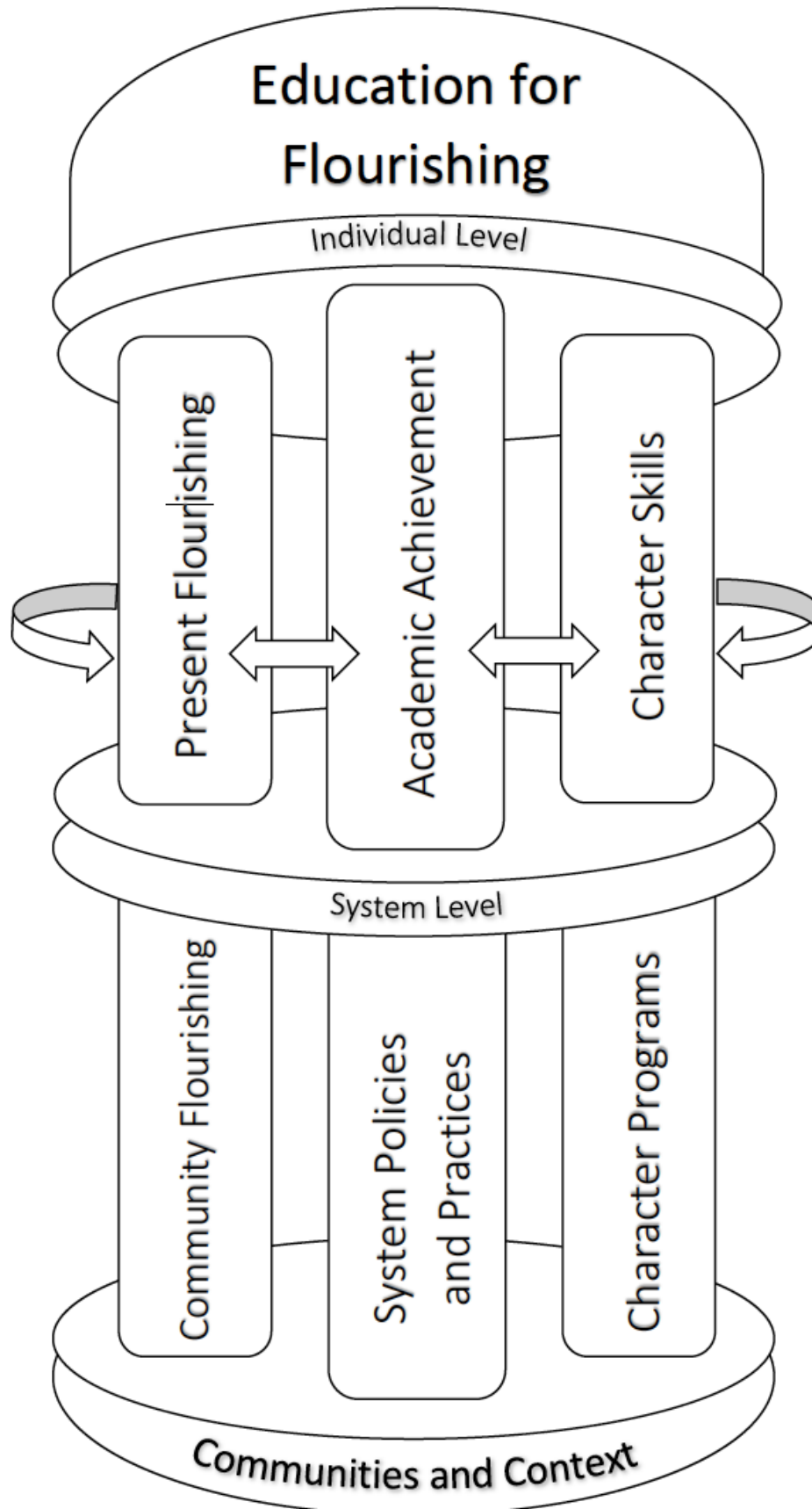
4. Three individual pillars

The proposed framework will be built around three individual "pillars" or sets of metrics, and three analogous systems-level "pillars" or sets of metrics. As discussed above, our primary purpose in this paper is not to put forward specific metrics, but rather a framework within which one can think about and appropriately select metrics for specific contexts and uses, that respect the methodological considerations above, and that has sufficient breadth to cover much of what was proposed above as the appropriate scope of education for flourishing. We will consider some specific metrics as illustrative examples, but these often will be potentially interchangeable with other alternatives and may be adapted or refined based on context, or may be altered or replaced as new knowledge emerges.

As we will discuss in the final section of this paper, the potential uses of metrics concerning education for flourishing are quite diverse. Such potential uses might include evaluation of schools or educational systems; identification of educational policy priorities; the development, implementation, evaluation, and refinement of programs to support student flourishing; and the identification of students or schools who are at high risk for not subsequently flourishing so that additional support can be provided. Not every category of the metrics we consider in the next two sections will be relevant for each of these various possible uses. In some cases, some subset of the proposed metrics would suffice; in other cases, additional metrics, extending beyond what we consider here and beyond those targeted specifically to education for flourishing will be needed. However, we believe the categories of metrics considered below are important in a wide range of contexts and for a wide range of uses in thinking about the evaluation and promotion of student flourishing.

We will structure our discussion, both of the individual and of the systems-level pillars, around three broad categories: (i) present flourishing; (ii) academic achievement; and (iii) social, emotional, and character-related capacities. We refer to these categories of metrics as "pillars" insofar as to we are trying to construct a framework or foundation for developing, selecting, and using metrics to promote education for flourishing. With regard to the foundation of a particular structure, a pillar might be understood as that which supports the structure, or even that without which the structure cannot stand (see Figure below).

Three Pillars for Education for Flourishing



We believe each of our “pillars,” or categories of metrics, is critical in assessment activities concerning education for flourishing. One might add additional structure or assessments to these pillars but without *at least* these three individual and systems level pillars, any measurement approach will be partially inadequate. At the individual level, the states, capacities, skills, and dispositions that these three pillars measure are inextricably intertwined so measuring all three pillars will provide a holistic understanding. Current PISA High Performing Systems for Tomorrow (HPST) project emphases of adaptive problem solving, ethical reasoning and aesthetic perception (Stevenson, 2022) might, for example, be placed in the second category (for adaptive problem solving) and third category (for ethical reasoning and aesthetic perception) categories respectively. However, undoubtedly adaptive problem solving likewise affects social and emotional capacities as well, which in turn affect academic achievement, and the various capacities and achievements affect present student flourishing and vice versa. Similarly, at the systems level, policies and practices that enable one pillar generally strengthen the other pillars as well (Porticus, The Lego Foundation, and Jacobs Foundation, 2023). For each “pillar,” or category of metrics, that we discuss, we will consider what is within the purview of an educational system to change or alter, and we will also provide theoretical and empirical evidence as to why these various metrics pertain to phenomena that are causally efficacious for subsequent student flourishing. We will begin with these sets of metrics at the individual level in this section and then, in the next section, we will consider their systems-level analogues.

4.1 Present student flourishing

In thinking about what shapes *subsequent* student flourishing, a natural starting point would be *present* student flourishing. There is evidence from a number of studies that those who are doing well at a given point in time are more likely to do well at a subsequent point in time (Chen et al., 2022; de la Fuente et al., 2023). The relations are of course not perfect. Present suffering can itself sometimes even be a source of growth (Tedeschi and Calhoun, 2004), though this of course does not always occur. Life circumstances can also change in other ways. Mishaps and accidental events can sometimes have profound and devastating life consequences. Nevertheless, that someone is flourishing at present provides some indication of their subsequent flourishing as well. The mechanisms for this relationship are likely quite diverse. Some of this may relate to the resources a student or person has available and the persistence of these resources. Some of it may relate to having acquired various skills and capacities, such as character skills that support close social relationships or the ability to be happy and content in various circumstances. Some of this may relate to the fact that when things are going well in one area of life this in fact provides resources to achieve also in other areas of life. There is evidence for example, that happiness often gives rise to subsequently better health, social relations, and workplace success (Lyubomirsky et al., 2005; Kim et al., 2021). There is evidence that good social relationships give rise to greater levels of mental and physical health, and greater happiness and of meaning (Kim et al., 2020; Holt-Lunstad, 2022; Weziak-Bialowolska et al., 2022). There is evidence that purpose in life gives rise to better health, happiness, and social relationships (Chen et al., 2019; Kim et al., 2022). Each of the various facets of well-being tends to subsequently, on average, also affect others (Chen et al., 2022). In any case, there is evidence for causal relationships between present flourishing and the subsequent flourishing of that person. It might be argued that this is particularly true for children and adolescents as well-being in childhood and adolescence powerfully shapes a wide range of later adult outcomes related to flourishing (Campbell and Ramey 1994; Cunha et al., 2006; Hoyt, et al., 2012; Knudsen et al., 2006; OECD, 2009; Olsson et al., 2013; Schweinhart et al., 2005; Shonkoff and Phillips, 2000).

Present student flourishing is of course not wholly within the purview of a school or educational system. It is shaped by numerous other factors concerning the student's broader social, family, neighborhood, political, religious, and organizational engagement contexts. Nevertheless, teachers, schools, and educational systems can and do powerfully shape student well-being. Students spend a considerable proportion of their waking hours in school settings and those contexts shape their happiness. The achieving of education's traditional cognitive and epistemic aims enhances students' knowledge and capacities and is constitutive of well-being; the social context that the school provides shapes students' relationships and social connectedness. A good teacher might well help shape a student's character, or sense of purpose. Moreover, as we will discuss in the following section concerning systems-level pillars, there are numerous evidence-based well-being practices that could be widely employed within schools. Teachers and schools can and do shape and alter students' well-being.

We would thus argue that an important component of evaluating *subsequent* student flourishing is some type of assessment of *present* student flourishing or well-being. The literature on well-being assessment is vast. Numerous metrics have been put forward (Diener et al., 1985; Ryff, 1989; National Research Council, 2013; OECD, 2013; Su et al., 2014; VanderWeele, 2017; Lee et al., 2021). The preferred metric depends in part on the context and intended use, and the resources and constraints concerning the length of the assessment (VanderWeele et al., 2020). One possible relatively brief flourishing assessment uses two survey questions in each of five domains of human well-being (VanderWeele, 2017): (i) happiness and life satisfaction; (ii) physical and mental health; (iii) meaning and purpose; (iv) character and virtue; and (v) close social relationships. The questions are drawn principally from the existing well-being literature with a focus on questions that have been widely used and have received some degree of empirical validation. Each of the five domains above is arguably nearly universally desired and constitutes an end (i.e. it is not merely a means to some other end). These two criteria of being nearly universally desired and being an end might help shape consensus around what to measure, and such consensus, as argued above, is important with respect to the appropriate scope of education for flourishing and its assessment.

We do not view these five domains, or the various questions within them, as in any way being exhaustive of flourishing. Flourishing itself might be defined as the *relative attainment of a state in which all aspects of a person's life are good* (VanderWeele, 2017; VanderWeele & Lomas, 2023), which is effectively all-encompassing. Thus, any well-developed conception of flourishing would include considerably more than the five aforementioned domains of well-being. However, again as noted above, fully developed conceptions of flourishing are likely to vary across individuals and cultures and across religious and philosophical traditions. Since it may be preferable to principally focus education for flourishing efforts around those aspects of flourishing concerning which relatively broad consensus can be attained, we believe these five domains of well-being provide a reasonable starting point. The ten well-being questions concerning these five domains are typically also supplemented by two additional questions (VanderWeele, 2017) on (vi) financial and material stability which are important means for attaining these other ends. Thus the assessment as a whole typically employs 12 questions.

These six domains may thus constitute a reasonable approach to assessing a fairly broad, though certainly non-exhaustive, range of present well-being outcomes. The original assessment was developed, and cross-culturally validated, for adults (VanderWeele, 2017; Węziak-Białowolska et al., 2019). However, the assessment has been adapted and evaluated for use by adolescents (ages 12-18), by replacing four questions with others that are more age-appropriate (VanderWeele, 2019; Kelly-Hendrick et al., 2022) and the full version of this adolescent

flourishing assessment is given in Appendix 1. Current work is underway for adapting this assessment further for students aged 9-11.

As noted above, different assessments will be useful for different purposes. There are of course other child and adolescent well-being assessments that are available (e.g. Patrick et al., 2002; Carle et al., 2014;). Some of these are more extensive and utilize a much larger number of questions. Some of these are narrower in terms of the scope of well-being that is assessed. Student well-being assessments can be utilized and adapted to fit the context and use. The example we have given here of this particular adolescent flourishing assessment (VanderWeele, 2019; Kelly-Hendrick et al., 2022) is only one possible approach.

Alongside measuring present student flourishing, such assessment could be supplemented by measuring various demographic, economic, or psychological variables to understand how flourishing varies with respect to these. This will enable a better understanding of the distribution of flourishing across groups. While the relevant variables will vary across context, OECD (2013) provides useful guidelines on co-variables to consider, including demographic, economic, and psychological measures.

In summary, we would maintain that some assessment should be made of student well-being in ways that extend beyond the student's attainment of education's cognitive and epistemic aims. Such cognitive and epistemic aims are, however, of course also critical in enabling subsequent student flourishing and so it is to metrics concerning these cognitive and epistemic aims that we now turn to as our second individual-level pillar.

4.2 Academic achievement

One of the central ways in which schools and educational systems enhance subsequent student flourishing is of course by developing their knowledge and understanding and by equipping them with cognitive capacities that enable their pursuit of future goals, including capacities for adaptive problem solving (Stevenson, 2022). This provides a foundational and central contribution to the life, development, and subsequent potential for flourishing of students. The attainment of education's cognitive and epistemic aims for students is of course a primary focus of the efforts of teachers, schools, and the educational system. It is shaped also by factors outside of schools including, for example, students' genetic predispositions for certain intellectual capacities, and the broader family, neighborhood, and social environment of students. However, the educational system itself of course exerts major influence.

There is also clear evidence that educational achievement and the acquisition of knowledge and cognitive capacities profoundly affects subsequent student flourishing across numerous domains of life including likelihood of employment, income, social connectedness, likelihood of marriage, happiness, and mental health (Psacharopoulos, 1994; Sweeney, 2002; Harmon and Oosterbeek, 2003; Carneiro et al., 2011; Oreopoulos and Salvanes, 2011; Cunado and de Gracia, 2012; Powdthavee et al., 2015; VanderWeele, 2017; Knudsen et al., 2005). Educational attainment is often evaluated both internally within school systems and externally using national and international standardized tests.

Which metrics are to be used will once again depend on the context and proposed use. The knowledge and skills will range from traditional subjects such as literacy and mathematics to complex realms including critical thinking (UNESCO, 2017) and adaptive problem solving (Stevenson, 2022). Often such assessment would of course include standardized academic achievement tests already being employed by a system or country. OECD/PISA measures of reading, mathematics, and science are arguably a useful set of foundational measures to include. Longitudinal studies conducted in a variety of OECD countries have shown that students with

better PISA scores tend to have stronger education and employment outcomes in adulthood, even after controlling for socioeconomic status (OECD, 2018). Beyond measurement of shared aims, local stakeholders can consider what academic knowledge and skills would be most beneficial and culturally relevant within each context as well. Further work on assessment strategies for critical thinking and adaptive problem solving would also be desirable (Stevenson, 2022).

With any set of academic achievement metrics, it would arguably be desirable to supplement standardized summative academic achievement assessment with formative assessment as well. Formative assessment involves ongoing assessments throughout the learning process for the purpose of guiding both learning and teaching. Achievement gains from implementing formative assessment are among the largest reported for educational interventions (OECD, 2005). In addition, as this approach enables teachers to adjust teaching to meet individual needs throughout the learning process, formative assessment can also improve equity of student experience (OECD, 2005). Moreover, formative assessment can directly support students' well-being by lessening test anxiety (OECD, 2016; OECD, 2021).

One could also envision expanding metrics and assessments yet further. For example, such knowledge assessments might eventually be extended so as to include that relevant for attaining the United Nations' Sustainable Development Goals (SDGs). Given that flourishing in its broadest sense involves individual students as well as the communities and natural environment in which those students are situated, and 193 countries have adopted these UN Sustainable Development Goals (SDGs), we could begin by considering what academic knowledge and skills the next generation will need to work toward the SDGs.

While the approach to assessing academic achievement will vary by context, in all cases, educational metrics pertaining to knowledge acquisition and cognitive development are undoubtedly important in assessing the adequacy of various approaches to education for flourishing. Knowledge, understanding, and cognitive capacities shape a student's capacity to subsequently flourish. As noted above, education can powerfully advance student flourishing by developing students' knowledge, understanding, and the cognitive skills and epistemic virtues that facilitate knowledge and understanding. All of this greatly enables students' present and future flourishing.

4.3 Social, emotional, and character-based capacities

Our third proposed individual-level pillar for assessments concerning education for flourishing pertains to social, emotional, ethical, and character-based capacities. At school, a student typically learns not only knowledge and skills concerning reasoning, but also how to interact with other students, what their own strengths and areas for growth might be, how to process positive and negative events, and approaches to relating to others and to life. Such learning might also include skills with regard to aesthetic perception and ethical reasoning (Stevenson, 2022). However, such learning is only sometimes part of the formal curriculum. Often this happens naturally in the course of interactions with other students, teachers and staff. However, sometimes such development is facilitated and more powerfully and intentionally shaped by a thoughtful teacher. The school and the classroom provide not only formal instruction but constitute also a laboratory for learning about life. Schools have the capacity to affect students' social, emotional, ethical, and character development. Schools are of course once again not the only influence, but they are an important one.

Evidence clearly indicates that social, emotional, ethical, and character-based capacities have the potential to powerfully affect subsequent well-being (Durlak et al., 2011; Belfield et al., 2015;

Lyubomirsky et al., 2005; Taylor et al., 2017; Gregory et al., 2021; OECD, 2021; UNESCO, 2020). Close social relationships are both “an end in itself” (VanderWeele, 2017, p. 8149) and a pathway to other aspects of both present and subsequent flourishing. Positive relationships with classmates (Demir, et al., 2007; Uusitalo-Malmivaara, 2014) and teachers (Suldo et al., 2006; Ferguesson et al., 2015) have been associated with student happiness and life satisfaction. Close social relationships also act as a buffer against mental and physical health issues. Substantial research has investigated the importance of social relationships in preventing a wide range of mental and physical health issues in adulthood, linking social connectedness with a lower likelihood of depression, anxiety, cardiovascular disease, hypertension, pulmonary disease, obesity, and even mortality (Elovainio, 2017; Holt-Lunstad, 2022; Inoue et al., 2013; Kress et al., 2020; Trudel-Fitzgerald, 2020; Waldinger and Schulz, 2023; Weziak-Bialowolska et al., 2022; Yang et al., 2013). For children and adolescents, social connection is associated with better immune system health, less depression, less social anxiety, higher levels of self-esteem, and a lower risk of suicide and self-harm (Maes et al., 2017; Holt-Lunstad, 2022). Research from around the world shows that positive relationships can also nurture the development of students’ character skills (Booker, 2006; Choukas-Bradley, Giletta, Cohen & Prinstein, 2015; Jessor & Turbin, 2014; Wagner et al., 2019) and contribute to a sense of purpose (Demir et al., 2006; Demir et al., 2011; Furgeson et al., 2015; Maslow, 1995, 1968).

There is also a large international literature indicating that character and character-based interventions affect a host of outcomes including happiness, sleep, and physical health (Curry et al., 2018; Davis et al., 2016; Emmons and McCullough, 2003; Gander et al., 2020; Kirby et al., 2017), depression and anxiety (Wade et al., 2014; Kirby et al., 2017; Cregg and Cheavens, 2020; Seligman et al., 2005; Weziak-Białowolska et al., 2023; Ho et al., 2024), hope (Wade et al., 2014), social relationships (Durlak, Weissberg, Dymnicki et al., 2011; Kerr et al., 2015; Layous et al., 2012; Weziak-Białowolska et al., 2021) and educational test scores (Alan et al., 2019; Durlak, Weissberg, Dymnicki et al., 2011; OECD, 2021; Sánchez and Vakis, 2020; Zins, Bloodworth, Weissberg, Walberg, 2004). Holistic approaches that integrate character skills and academic knowledge are also promising for boosting outcomes related to both (Brush, Jones, Bailey, et al., 2022; Jones, Brown and Aber, 2011; Porticus, The Lego Foundation, and Jacobs Foundation, 2023).

Another important consideration for which social, emotional, and character-based education metrics should be included in this pillar is which skills, competencies and dispositions research suggests have the greatest impact on flourishing. While much more research is needed to explore this topic across various cultures, countries, and contexts, research provides initial insights into character skills that may support well-being across countries. First, a wealth of research from various countries suggests that character skills that nurture close social relationships, such as kindness (Chancellor et al., 2013; Coffey et al., 2017; Flook et al., 2015; Kerr et al., 2015; Layous et al., 2012; Lyubomirsky, Sheldon, & Schkade, 2005; Sternberg, 2001), gratitude (Bartlett & DeSteno, 2006; Czynowska and Gurba, 2022; Davis et al., 2016; Datu and Mateo, 2015; Emmons and McCullough, 2003; Emmons and Mishra, 2011; Fritz et al., 2019; Froh et al., 2014; Froh, Sefick, & Emmons, 2008; Jackowska et al., 2016; Kerr et al., 2015; McCullough, Kimeldorf, & Cohen, 2008; Millstein et al., 2016; Regan, Walsh, & Lyubomirsky, 2022; Seligman et al., 2005; Tian et al., 2016; You et al., 2018), and interpersonal trust (OECD, 2021), support flourishing in students around the world. A recent OECD (2021) study with students across ten countries suggests that another candidate for a character skill that supports flourishing across countries is optimism. Among the thirty character skills measured, only optimism significantly predicted students’ life satisfaction and psychological well-being across all ten countries. However, the effects of optimism may not be universal. For example, associations between optimism and health appear to be weak or even

negligible in Japan (Okuzono et al., 2022). Optimism that is grounded in a person's resources or agency may be a better target than an ungrounded optimism that things will often just turn out well on their own (Wilson and VanderWeele, 2023). Further research is needed to explore candidate character skills that might have widespread importance for flourishing. More research is also needed to identify which character skills, competencies and dispositions are particularly important for flourishing in various cultures, countries, and contexts.

At an international level, again, since we have broad international consensus on working toward the SDGs, further consideration could be given to which social, emotional, and character-based education skills and qualities would support the next generation to make progress toward these SDGs. Indeed, the Inner Development Goals framework proposes a range of social, emotional, and character-based skills and qualities that might advance these goals, ranging from empathy and compassion to communication skills to courage (Jordan, 2021). Many others have proposed related competencies for tackling shared global challenges as well, such as ethical decision making (Stevenson, 2022), collaborative problem solving (OECD, 2021), emotional intelligence (Wamsler and Restoy, 2020), the ability to interact in heterogeneous social groups (Rychen and Salganik, 2003), environmental awareness (UNESCO, 2021), global competence (della Chiesa, Scott and Hinton, 2012; OECD, 2018), a cosmopolitan ethic of care (Hinton, 2012), among others.

Researchers have developed numerous validated assessments for various character skills and social-emotional skills. A couple of the most well-researched multidimensional measures include the VIA Inventory of Strengths for Youth (Park & Peterson, 2006) and Devereux Student Strengths Assessment (LeBuffe et al., 2009; LeBuffe et al., 2018; Nickerson and Fishman, 2009). Researchers are also developing measures for innovative competencies that can support students to address shared global challenges, such as the OECD/PISA measures of global competence (OECD, 2018) and collaborative problem solving (OECD, 2021). Future work could also be carried out on the development of further assessments for aesthetic perception and ethical reasoning (Stevenson, 2022). Just as which skills are most important may vary by contexts (Cheung, Leung and Zhang, 2001), so also how to measure those skills may also vary by context. We cannot assume that we can transfer measures developed in one context to another. Rather, it is important to evaluate measures across various contexts and adapt them as necessary to be culturally and contextually appropriate.

Across countries, cultures, and contexts, it is clear that the social, emotional, ethical, aesthetic, and character development of students powerfully affects their present and subsequent flourishing. Moreover, nurturing the development of these capacities better equips students to make contributions to others' flourishing, the flourishing of their communities and the wider world. This can create a virtuous cycle whereby students promote flourishing of others and their contexts, which in turn, further promote their own flourishing. Metrics concerning such social, emotional, and character development should thus be a part of assessment approaches to efforts directed at education for flourishing.

5. Three systems-level pillars

We will now turn, more briefly, to consideration of analogous systems-level "pillars" or sets of metrics that we believe are of use for developing, assessing, evaluating, and refining various approaches to education for flourishing. The three proposed systems-level pillars effectively mirror the three individual-level pillar and are: (i) present community-level flourishing; (ii) academic systems-level educational metrics; and (iii) social, emotional, and character-related programs. In each of these three categories two broad classes of assessments are possible. First

aggregation-type assessments can be carried out. These effectively look at individual level assessments, such as those described above, but then aggregate or average over all students, or alternatively a randomly, or representatively, selected sample. Such assessments provide a summary of how the students, on average, are faring. Such aggregated metrics across the three individual-level pillars would shed considerable insight on the extent to which students at a school, or within an educational system, are likely to, or have been enabled to, subsequently flourish. When these metrics are considered at the school or systems level it is also important to examine not only means, but also the distributions of these metrics. It is important to understand not only average levels but also variability, both overall, and across different demographic groups. This might be carried out by examining standard deviations, quantiles, or Gini coefficients of the individual level metrics along with comparisons of means across demographic or other categories. This can be helpful for understanding and addressing inequalities and heterogeneity in experience. Because such aggregate metrics, whether means or assessments of variability, are simply functions of the individual-level metrics, we will not devote considerable discussion below to such aggregate metrics as they have effectively been considered above. Instead, will principally focus below on a second important set of systems-level metrics pertaining to those that can only be evaluated at a school or system, rather than at an individual level. We will thus now begin our discussion of these three analogous systems-level pillars.

5.1 Present community-level flourishing

The environment in which a student learns and interacts with others inevitably affects their own present, and future, development. A healthy school that is well-run, with good leadership, good relationships, a positive school climate, cared-for teachers, and good facilities is more likely to be conducive to student learning and flourishing than one that is not. Said another way, a school's flourishing itself affects students' learning and flourishing. Part of a school's flourishing of course includes the students themselves flourishing and the aggregate individual present student flourishing metrics are relevant here. However, relevant also is the flourishing of the school's teachers, leaders, and other staff. Moreover, the flourishing of a school arguably extends beyond the flourishing of all of the individuals making up the school. It extends to include a leadership that is competent, caring, ethical and ideally visionary. It extends to include good, trusting, respectful relationships within the school. The flourishing of a school extends to having healthy practices and structures that enable the school to accomplish its educational and other goals, that sustain the school, that can address and resolve disputes and complaints. The flourishing of a school extends to having a sense of welcome and belonging and extends to a shared sense of purpose and synergy (VanderWeele, 2019). A flourishing school will likely affect both present and future student flourishing and is arguably even constitutive of such flourishing.

Metrics could thus potentially be employed to evaluate not only individual flourishing but also school flourishing as well. The literature on community well-being is much smaller than on individual well-being but existing some metrics are already available (e.g. Clifford, Menon, Condon, and Hornung, 2012; Lee and Kim, 2016; Sirgy et al., 2010; Thapa, Cohen, Higgins-D'Alessandro, 2013; VanderWeele, 2019; Padgett et al., 2024) and others, again depending on the purpose and the context, could be developed. One possible assessment of school community well-being (VanderWeele, 2019) is shaped around the following six domains: (i) flourishing individuals, (ii) good relationships, (iii) proficient leadership, (iv) healthy practices and structures, (v) satisfying community, and (vi) strong mission, with four questions in each of domains (ii)-(vi) to evaluate some of the aspects of school flourishing considered above. A shorter version with one question in each domain is also available. This particular school community

well-being assessment is given in Appendix 2 and indication is also given there of the items that constitute the short-form assessment. Once again, this is only one possible approach and other school well-being assessments could be employed instead. However, if school flourishing is both constitutive of, and contributes to, present and future student flourishing, then some assessment of school flourishing would arguably be helpful in evaluating various approaches to advance efforts at education for flourishing.

It is perhaps worth especially highlighting the importance of including measures related to teacher-student relationships, including assessments of teachers' relationship skills. Nurturing, emotionally close, responsive relationships with teachers can powerfully support students' well-being and learning (Hughes, 2011; Jones and Bouffard, 2012; Kunter et al., 2013; 2012; Zheng, 2022). Assessments of school culture could also be included.

Further, broader systems-level flourishing assessments could be employed as well. For example, national and international assessments of the well-functioning or well-being of entire educational systems could potentially be implemented. Once again, this could be carried out with respect to trusting relationships, proficient leadership, healthy practices and structures, and a clear vision. Such system-level assessments could also include measures of systems-level dynamics that enable or thwart flourishing, such as resource allocation among schools, or adherence to international agreements such as UNICEF's Convention on the Rights of the Child. Since education for flourishing involves students as well as the contexts within which students are situated, it is arguably useful to have system-levels assessments of flourishing at various levels.

5.2 Academic systems-level educational metrics

As noted above, educational attainment of students critically shapes their capacity for subsequent flourishing. With respect to schools and educational systems enabling student flourishing, it does, however, make sense to evaluate not only aggregate assessments of individual-level traditional educational achievement metrics, but also to attempt to more specifically evaluate the contributions and role of the schools and teachers themselves to student learning and cognitive development. A variety of metrics might be included in such assessments including teacher quality; assessments of the curriculum; assessments of pedagogical approaches; and possibly value-added assessments related to changes in students' knowledge and abilities.

While the measures included in this pillar will vary across contexts, in all formal schooling contexts, it is arguably important to include some measures of teacher quality. Studies across countries have shown that the quality of teachers is the single most important school factor impacting academic achievement (Chetty, Friedman and Rockoff, 2014; OECD, 2005). Teachers vary markedly in their effectiveness (OECD, 2005), and yet they greatly influence students' learning and well-being (Suldo et al., 2006; Ferguesson et al., 2015; OECD, 2005; OECD, 2021). Moreover, relationships with teachers can be especially important for students who are at risk of academic failure (Hamre and Pianta, 2005). The appropriate measures of teacher quality will depend on the context and uses, but might include, for example, teacher subject matter expertise, teacher professional knowledge of research on learning and teaching, or teacher social-emotional capabilities. Metrics that measure school factors that contribute to the quality of teachers could also be considered, such as, for example, practices for recruiting and selecting teachers, or the availability of quality professional development for teachers. Likewise, relevant national policies could be evaluated as well, such as policies for initial teacher training and teacher certification. As knowledge expands as to what types of curricula, and what types of pedagogical approaches,

are most effective in enhancing students learning and student well-being, assessments related to pedagogical approach, and the content of the curriculum, could also be included.

Broader systems-level metrics, such as national or international education metrics, are relevant as well. National education policies significantly impact student achievement (Kyriakides et al., 2018). Systems-level metrics could therefore include assessments of the existence and quality of policies that have been shown to boost academic achievement. For example, at a country level, assessments could be made of the availability of free, high-quality preschool (Schweinhart et al., 2005; Shonkoff and Phillips, 2000).

A variety of other metrics can be included as well, once again depending on the context and intended use. Various systems-level educational metrics are likely to be important in a variety of ways in the assessment of different approaches concerning education for flourishing and in evaluating the role that different schools and educational systems play in enabling subsequent student flourishing.

5.3 Social, emotional, and character-related programs and practices

As discussed in the previous section on individual-level metrics, a student's social, emotional, and character development can powerfully shape his or her capacity to flourish subsequently (Durlak et al., 2011; Belfield et al., 2015; Lyubomirsky et al., 2005; Taylor et al., 2017; Gregory et al., 2021; OECD, 2021). As such, aggregate individual-level social, emotional, and character-based assessments may shed considerable light on the potential for a particular student body to flourish. However, such social, emotional, and character-based capacities are not fixed or static, nor are they subject only to accidental happenings and interactions. Social, emotional, and character development can be intentionally shaped. Education programs and practices can and have been implemented and studied to assist with the social, emotional and character formation of students, or to enhance various aspects of their well-being (Bird and Markle, 2012; Jubilee Centre, 2021). The presence of such programs and interventional efforts will inevitably affect individual social, emotional, and character metrics, and this may in turn also improve academic performance (Morinaj and Hascher, 2022). However, at the institutional level, assessments could also be made as to whether, and the extent to which, schools or educational systems are implementing programs and practices to assist with social, emotional, and character development. Many individual level character or well-being interventions, or broader school- or classroom level- character development and social-emotional learning programs have been evaluated in randomized trials or other intervention studies with accompanying supporting evidence for efficacy (Durlak et al., 2011; Belfield et al., 2015; Sánchez Puerta, Valerio and Gutiérrez Bernal, 2016; Taylor et al., 2017). National programs to promote students' social, emotional, and character development have been studied with promising results as well (Datnow, Park, Peurach, and Spillane, 2022; Smart and Sinclair, 2022). Metrics for education for flourishing could also assess students' access to mental health services. In recent years, symptoms of anxiety and depression have risen dramatically among youth internationally so access to mental health services is more important than ever (Children's Commissioner, 2021; Delmastro and Zamariola, 2020; OECD, 2021).

Numerous individual level character-based interventions have been put forward with supporting evidence from randomized trials. These include interventions to promote gratitude (Davis et al., 2016; Cregg and Cheavens, 2020), kindness (Hinton et al., forthcoming; Kerr, O'Donovan and Pepping, 2015; Lyubomirsky, Sheldon, & Schkade, 2005), forgiveness (Wade et al., 2014; Ho et al., 2024), compassion (Kirby et al., 2017), patience (Alan & Ertac, 2018), and perseverance/grit (Alan et al., 2019). Individual randomized trials, or in several cases, meta-

analyses of randomized trials, have indicated evidence for effects of these character interventions on happiness, sleep, and physical health (Coffey et al., 2017; Davis et al., 2016; Emmons and McCullough, 2003; Kirby et al., 2017), depression and anxiety (Wade et al., 2014; Ho et al., 2024; Kirby et al., 2017; Cregg and Cheavens, 2020), hope (Wade et al., 2014), and education test scores (Alan et al., 2019).

Likewise, numerous well-being interventions and activities have been developed and successfully evaluated. These include gratitude exercises that enhance happiness, relieve depressive symptoms, and improve quality of sleep and self-reported health symptoms (Seligman et al., 2005; Emmons and McCullough, 2003; Davis et al., 2016); acts of kindness exercises which improve happiness and engagement (Lyubomirsky et al., 2005; Curry et al., 2018); imagining one's best possible self activities which improve happiness, life satisfaction and optimism (King, 2001; Malouff and Schutte, 2017); and use of character strengths which can boost happiness and life satisfaction and decrease the likelihood of depression (Seligman et al., 2005; Schutte and Malouff, 2019). Other work has provided an evidence-based guide to some of these well-being activities elsewhere (VanderWeele, 2020) and discussion of implementing such activities in a school context (Hampson, Hinton, Yemiscigil et al., 2022; McConville, Hinton, and Lee, 2021). Many of these exercises are very easy to disseminate and could therefore be employed broadly. Homeroom periods or tutorials may, for example, be one potential avenue for such dissemination.

Various work has been done on the implementation of evidence-based interventions and initiatives to promote student flourishing in schools (Hinton, Hill, and Yemiscigil, forthcoming). These research-based education practices include: initiatives that nurture close social relationships, including supporting teacher-student relationships, nurturing friendships, and fostering a positive school culture; character skill interventions and programs, including acts of kindness, gratitude practices and others; physical activity, including physical education, sports and active learning pedagogies; learning activities that cultivate meaning and purpose; music and the arts; service learning; playfulness and humor; and connecting with nature. Education for flourishing metrics could include assessments of the extent to which schools are implementing these evidence-based education practices and initiatives. It would be important for these assessments to be flexible enough to capture various manifestations of these practices across different cultures and contexts.

Metrics could also assess a variety of other relevant school policies and practices. Metrics could, for example, assess the availability of quality professional development for teachers in social-emotional learning, character development, and holistic approaches for teaching character and academic skills together. Assessments could also be made of the resulting capabilities of teachers in helping to shape social, emotional, and character-based capacities of students.

Programs, and assessments of the availability of such programs, aimed at staff well-being are also important. Many of the various character and well-being interventions described above have been developed for adult populations could thus likewise be employed for teachers, administration, and school leadership as well. Assessments could be made about the availability and dissemination of such well-being programs and interventions for all of the school staff, possibility along with assessment of whether there are days set aside for staff for professional development, social-emotional learning and character development, and well-being enhancement more generally.

There are of course a multitude of other metrics that could be included in this pillar as well, and we would suggest selecting some subset of metrics. The possibilities for individual-, classroom-, school-level, or even national well-being enhancement or social-emotional-character

development programs is nearly endless. However, the time available to implement such interventions is not. Difficult decisions will often have to be made as to what to prioritize and implement. Too many assessments might also result in excessive bureaucratization of educational activity. While we believe it is reasonable to assess whether schools are providing *some* such supplementary programs related to well-being or to social-emotion-character development, we think it would be unreasonable, and potentially problematic, to use as metrics whether schools are using each possible evidence-based intervention or program. The relative proportion of time schools ought to devote to activities to promote flourishing and development in ways that extend beyond education's cognitive and epistemic aims is a difficult question and there is arguably room for reasonable disagreement concerning the relative emphasis of these various aspects of education and the formation of students. However, it is clearly crucial to support the inextricably linked aims of both the development of cognitive capacities and epistemic knowledge and social-emotion-character development (Porticus, The Lego Foundation, and Jacobs Foundation, 2023). Nevertheless, insisting that every possible evidence-based avenue for well-being enhancement or social-emotion-character development be pursued could considerably detract from education's cognitive and epistemic aims and might well therefore impede subsequent student flourishing. How metrics for social, emotional, and character-related programs are handled at the institutional level is thus a somewhat complex matter. We believe there is an important role for the assessment of social, emotional, and character-related programs, but like all measures, such assessments must be appropriately, and contextually, interpreted.

Because time for teaching and program implementation is limited, but the possibilities are potentially limitless, it would be especially important to attempt to focus principally on *evidence-based programs* and interventions, and perhaps to likewise focus metrics on assessments of at least *some* programs or interventions that are evidence-based. The intent with this recommendation is not to stifle creativity or freedom in the development of social, emotional, and character related programs. Indeed further improvements and new developments are only possible if new work and approaches are constructed. Rather, our recommendation here is intended to focus efforts concerning wide *dissemination* to those interventions and programs that are evidence-based and have been more rigorously evaluated. We believe that metrics focused principally on evidence-based interventions may help ensure that those social, emotional, and character related programs and interventions that are widely used are in fact effective. And of course there is nothing to prevent a school from employing some evidence-based programs and interventions, and other programs and interventions that are more specifically adapted to context, or to the specific goals of the institution, or that are more experimental, even if these have not yet been well-studied. Again, our proposal here is not that the systems-level metrics concerning social, emotional, and character-related programs in any way evaluate the use of each possible approaches; nor that schools or systems be punished for implementing programs that have not been rigorously studied; rather, our proposal is that the systems-level social-emotional-character metrics focus on whether a school or system is employing at least *some* programs that *are* evidence-based. Similar considerations pertain to assessment of social-emotional-character programs and enrichment practices focused on the well-being of teachers, administration, and leadership as well. Of course, as knowledge expands and as more and more programs and interventions are evaluated in a variety of diverse contexts, the metrics themselves will need to change, and to be adapted, as well.

6. Uses, implications, and conclusions

In this final concluding section, we will briefly comment on some of the strengths and potential uses of the proposed framework for metrics, as well as some of the implications and limitations of the use of the framework.

We believe our framework for the development, selection, and use of metrics concerning education for flourishing has a number of specific strengths. First, it includes both individual and systems-level categories of metrics. Second, it is oriented both towards present and future student flourishing. Third, it is focused on potential targets that are causally efficacious for subsequent student flourishing and are within the purview of the educational system to change. Fourth, by providing a framework, rather than specific metrics, it is flexible and adaptable to a wide range of settings, allowing more specific metrics to be selected based on context, culture, resources, and intended use. Finally, as noted in greater detail in the conclusion of the last section, the framework is sufficiently flexible that it can incorporate subsequent advances in knowledge. In what follows we will consider a variety of potential uses of the metrics that we have discussed.

The potential use of the various sets of metrics considered in this paper are diverse. Not every category of the metrics we considered above will be relevant for every possible use. In some cases, some subset of the proposed metrics would suffice; though in other cases, additional metrics, extending beyond what was considered above would be needed. One clear use of the individual-level metrics would be to identify those students or groups of students that are struggling, and in what ways, so that efforts can be made to offer additional assistance. Such uses pertain to present student flourishing outcomes including those related to happiness, health, meaning, character, social relationships and financial and material stability; to traditional educational achievement assessments; and to social, emotional, and character-based capacities. By identifying which students and groups are most in need, and in what ways, the metrics can guide further support and intervention efforts.

These individual-level metrics might thus also be used in this manner to assess disparities across minority groups or groups based on relative disadvantage; once again this could be done with regard to well-being, cognitive, and social, emotional, and character-related outcomes. More detailed inquiries and interviews could then also help better understand the experiences of such students and to develop strategies to help better support them. It should be noted that while such assessments can be useful for identifying individual students and groups that need help, additional considerations come into play when such an approach is being used for predictive purposes. If the purpose of the assessments is the predictive identification of students who are at high risk for not flourishing subsequently (rather than simply identifying deficits at present), then an even broader range of data and assessments (e.g. parental economic and educational status, family structure, neighborhood, etc.) that extend beyond the proposed education for flourishing targets would likely come into play.

While the individual-level metrics might be used in this way to identify particular students or groups of students who need assistance, similar uses are conceivable at the school or systems level. Specific schools, or geographic regions, in which either the individual level metrics, or the systems-level metrics, are potentially at problematically low levels could be identified and once again further efforts, or assistance, or resources could be made available and could be targeted towards the particular challenges or deficits that seem indicated by the metrics. As noted above, in our discussion of methodological considerations, it is important in the case of self-report assessments that these metrics are *not* used in high stakes settings. If schools are rewarded based upon higher levels of self-report assessments, there will almost inevitably be strong incentive to misreport and over-report these, effectively eliminating any reliability and also the utility of these

metrics. The same is potentially true when assessing deficits as well. The metrics may sometimes be suitable for use in determining where additional assistance or intervention is needed, but are not suitable for use as high-stakes assessments.

This point also gives rise to a closely related one on the proposed scope for efforts concerning education for flourishing. We proposed above that the proper scope of education for flourishing concerned the developing of students' knowledge, understanding, and the cognitive skills and epistemic virtues that facilitate knowledge and understanding along with the promotion of those aspects of student flourishing around which broad consensus can be attained, and concerning which teachers and educational leaders are prepared to address. We noted that this specification of the scope of education for flourishing was, in some sense, aspirational insofar as the extent to which teachers and educational leaders are prepared to address student flourishing is not itself static; it can be altered and enhanced. However, a corollary of this is that some schools and some educational systems will be better prepared to promote student flourishing than will others. This has important implications for thinking about inequalities in education. Often, it will be those schools with the greatest resources, both in terms of teacher ability and financial resources, that have the capacity to address the broadest range of aspects of well-being. This has the potential to then further exacerbate existing inequalities, as it may give rise to greater differences not only in educational achievement outcomes but in other aspects of flourishing as well. To attempt to mitigate such exacerbated inequalities, it would be important that additional resources be devoted to supporting programs that enhance student wellbeing precisely in those settings in which existing resources and teachers are most constrained. Programs specifically focused on social-emotional and character development and on well-being enhancement could potentially be implemented in more impoverished schools by providing additional, and possibly external resources, human and otherwise, so that such programs are not adding additional burden to what might be already overtaxed teachers. In any case, if efforts at education for flourishing are not to exacerbate existing inequalities, additional support and resources will be required for those schools most in need, not only in the pursuit of their cognitive and epistemic aims, but also in the promotion of those aspects of flourishing that extend beyond those aims. Once again, the metrics we have proposed might be helpful in identifying those schools.

The sets of metrics we have proposed are arguably also potentially useful in evaluating the effectiveness of, and refining, various programs and interventions intended to improve student flourishing outcomes. As noted above, numerous well-being, character formation, and social-emotional learning programs and interventions have been developed. A number of these have been evaluated in randomized trials. Often in these randomized trials, a relatively narrow set of outcomes are examined. The full range of individual-level metrics we have suggested above including numerous aspects of present student flourishing, traditional educational academic achievement, and social-emotional and character development metrics could all, in principle, be included in such evaluations going forward. As discussed in the previous section, it would seem highly desirable that interventions and programs that are to be widely disseminated be rigorously evaluated beforehand. Such evaluation could once again be extended to the whole range of metrics that we have discussed in this paper. Similar principles are arguably relevant also to school-level or systems-level interventions. It would be possible to more rigorously evaluate the effects of these both on a range of aggregate individual-level outcomes, but also with regard to effects on school and teacher flourishing, on school-level or perhaps system-level educational metrics, and on the extent of adoption of well-being-, and social-emotional- and character-development programs.

With systems level changes, the possibility of randomization is often excluded, but, at the very least, a range of the metrics we have discussed here could be collected both before and after implementation of changes. This could give insight into how individual and school environments and flourishing have changed and provide some, albeit limited, evidence as to the effectiveness of the new policies and actions. Even in the absence of specific interventions or systems-level policy change, the routine collecting of such data at a school or an educational system level can give insight into how matters are changing over time, and what is, and is not, improving.

Arguably the very act of assessment, and tracking, of education for flourishing metrics in fact itself constitutes an intervention. It does so at the individual level since asking students, teachers, or educational leaders questions about their own flourishing can help them to reflect upon their own lives; to see where they would like to make improvements or changes; and possibly to reach out for help. Such assessment arguably constitutes an intervention at the systems level as well. What we measure shapes what we discuss, what we know, what we aim for, and the policies put in place to achieve those aims (Pederson, 2007; Richardson et al., 2021). Assessing education for flourishing metrics expands the scope of discussion beyond the important cognitive and epistemic aims of education to student, teacher, and school flourishing more broadly. It broadens the set of policy considerations taken into account when thinking about education.

Our proposal for the framework for metrics concerning education for flourishing has focused upon what are arguably causally efficacious targets that fall within the purview of the educational system. However, an expanded understanding of education for flourishing also opens new horizons for thinking about education in its broadest sense. While we have focused here upon school education and educational systems, there are of course numerous other factors, institutions, and communities that are involved in the formation of persons. Education in its broadest sense might be understood as any process by which persons are shaped and led towards fulfillment (Maritain, 1943). For this, as discussed above, many societal and cultural factors and influences must be considered. We noted above that forces as diverse as parental leave policies, income distributions, and opportunities for breast-feeding all shape both the cognitive development and the future flourishing of children and students. So also does the aesthetic, moral, and religious life of a place or country. All of these things are deeply relevant in the formation of persons. While much of this, as noted above, extends beyond the purview of school and university education, it is nevertheless relevant in thinking about the capacities for education, and for education for flourishing, for a country or our global community at large (UNESCO, 2021). These factors point towards the need for other communities for flourishing (VanderWeele, 2017) and for the formation of persons that extend beyond school and university education. A full set of measures for education for flourishing, with education understood in its broadest sense, would require these other societal, cultural, environmental, economic, and religious factors be taken into account. The consideration of these other aspects of flourishing also points towards the need for partnerships in the work of education for flourishing: of schools to partner with family and parents, with neighborhoods, with religious communities, and with other organizations to work towards a more holistic education for flourishing. The proposed framework for metrics concerning education for flourishing put forward in this paper is intended to assist with the evaluation and improvement of efforts made by schools to promote student flourishing as well as flourishing of the communities and contexts within which students live, but as with any set of metrics, its proper scope and limitations must be understood as well. A full framework for education for flourishing needs to take into account also the host of societal and communal factors that assist in the formation of persons and enable present and future flourishing.

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Tyler J. VanderWeele and Christina Hinton conceived of the idea for this paper; Tyler J. VanderWeele prepared a first draft of the paper; Christina Hinton provided critical revision and additions.

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Appendix 1. Flourishing measure: Adolescent version

Please respond to the following questions on a scale from 0 to 10:

1. Overall, how satisfied are you with life as a whole these days?
0 = Not Satisfied at All, 10 = Completely Satisfied _____
2. In general I consider myself a happy person.
0 = Strongly Disagree, 10 = Strongly Agree _____
3. In general, how would you rate your physical health?
0 = Poor, 10 = Excellent _____
4. How would you rate your overall mental health?
0 = Poor, 10 = Excellent _____
5. Overall, to what extent do you feel the things you do in your life are worthwhile?
0 = Not at All Worthwhile, 10 = Completely Worthwhile _____
6. I am doing things now that will help me achieve my goals in life.
0 = Strongly Disagree, 10 = Strongly Agree _____
7. I always act to promote good in all circumstances, even in difficult and challenging situations.
0 = Not True of Me, 10 = Completely True of Me _____
8. I am always able to give up some happiness now for greater happiness later.
0 = Not True of Me, 10 = Completely True of Me _____
9. I am content with my friendships and relationships.
0 = Strongly Disagree, 10 = Strongly Agree _____
10. I have people in my life I can talk to about things that really matter.
0 = Strongly Disagree, 10 = Strongly Agree _____
11. My family has enough money to live a truly decent life.
0 = Strongly Disagree, 10 = Strongly Agree _____
12. How often do you worry about safety, food, or housing?
0 = Worry All of the Time, 10 = Do Not Ever Worry _____

These 12 items have been adapted for use with adolescents (12-18 years old) to assess several important domains of flourishing including: Happiness and Life Satisfaction (Items 1-2), Mental and Physical Health (3-4), Meaning and Purpose (5-6), Character and Virtue (7-8), and Close Social Relationships (9-10). A sixth domain, Financial and Material Stability (11-12) is an important means to sustain the other domains. The background and motivation for the items and flourishing domains is given in VanderWeele (2017). Four items from the original measure were considered unsuitable for children and are replaced above with adaptations from other measures. Item 2: Lyubomirsky, S., & Lepper, H. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, 46, 137-155). Items 6 and 10: Carle, A., McIntosh, H., Moore, K. A., Lippman, L., Guzman, L., Ramos, M. F., Kuhfeld, M. Ryberg, R. & Caal, S. (2014). *Flourishing Children: Defining and Testing Indicators of Positive Development*. New York, NY: Springer. Item 11: Patrick, D. L., Edwards, T. C., & Topolski, T. D. (2002) Adolescent quality of life, part II: Initial validation of a new instrument. *Journal of Adolescence*, 287-300.

Appendix 2. School community well-being measure

The following school community well-being survey questions were taken from VanderWeele (2019). The bolded items constitute the short-form of the assessment. See Padgett et al. (2024) for psychometric properties.

Please respond to the following questions on a scale from 0=Strongly Disagree to 10=Strongly Agree.

- Flourishing Individuals:

Average of individual flourishing measures (see individual flourishing measures for students, staff, etc.)

- Good Relationships:

Everyone has close relationships within the school

Everyone is respected within the school

Everyone in the school trusts one another

Everyone contributes to the well-being of others in the school

- Proficient Leadership:

Those in leadership truly care about the well-being of everyone in the school

Those in leadership can be relied on to do what is right

Those in leadership have the skills and understanding they need to lead the school well

Those in leadership are able to inspire the school with their vision

- Healthy Practices:

There are structures and practices in the school that allow relationships to become closer

There are structures and practices in place that allow the school to deal with conflicts so that everyone is treated fairly

The school has structures and practices so as to be able to sustain itself

The school has structures and practices that allow it to accomplish its goals

- Satisfying Community:

Everyone is satisfied with the way things are in our school

Everyone thinks that this school is a good community to be a part of

Each person has a sense of belonging in the school

There is a sense of welcome in the school so that it is possible for each person to become more integrated over time

- Strong Mission:

Our school's shared purpose or mission is clear to everyone

Our school contributes to the world to make it a better place

Everyone is needed for the school to fulfil its goals and purposes

Our school is able to do more with everyone together than we could individually