



# Opportunities and conditions to learn (OCL): A conceptual framework

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**Abstract** “Opportunity to learn” has evolved into an umbrella phrase for describing a large range of settings, resources, structures, and processes. The aim of this study is to develop a conceptual framework that can accommodate a wide range of opportunities to learn, not just those provided by teachers in classrooms. An inclusive framework can bring together diverse studies about opportunity to learn, increasing synergies and uncovering interconnections, and making more visible marginalized forms of learning. It can also be used as a framework for holding governments, education authorities, and policy makers accountable for providing equitable opportunities and conditions to learn. This article presents a three-dimensional conceptual framework of opportunities and conditions to learn

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(OCL) that captures (a) notions of what opportunities exist and where those opportunities exist and opportunities offered by whom, as well as (b) a spate of conditions that can shape those opportunities.

**Keywords** Learning · Opportunity to learn · Achievement · Inequality

Mathematics education researchers first evoked “opportunity to learn” in the 1960s, describing their notion as a construct for quantifying the amount of time spent teaching specific curricular concepts (Carroll, 1963; Husén, 1967). In the five decades since, opportunity to learn has evolved into an umbrella phrase that researchers and practitioners use to describe a wide range of resources, structures, and processes across various subfields of education. As the concept has expanded in scope, it has become increasingly difficult to define, conceptualize, and operationalize. Missing is an inclusive conceptual framework that can accommodate various forms of opportunities to learn as they occur in various settings and contexts.

Relatedly, the concept includes so many processes and structures at so many levels, it becomes difficult to see how the necessary components congeal into a cohesive concept that can be actionable for practitioners or interpretable for researchers. In other words, missing from the field is a big picture framework for conceptualizing the universe of opportunities to learn and the conditions that shape them. Such a framework can provide a common language for bringing researchers together, reducing fragmentation across fields, and increasing synergies across diverse areas of research.

The lack of an inclusive conceptual framework for opportunity to learn is surprising, given the importance with which many renowned scholars have imbued it. As we will show, narrower opportunity-to-learn definitions—specifically, those that explore opportunities teachers provide in classrooms—are well-conceptualized (e.g., Schmidt et al., 2015). Educators, researchers, and policy makers, however, need a framework that can accommodate wider opportunity to learn conceptualizations, which include but are not limited to formal curricula, classrooms, and teachers. Absent an inclusive conceptual framework, the field will remain mired in fragmentation and a diminished capacity for connecting myriad inputs, processes, settings, actors, and outcomes. Such fragmentation reduces possibilities for cross-fertilization and hinders analyses of causal complexity. Incomplete frameworks can marginalize many important opportunities that surpass those that are commonly conceived. Finally, incomplete frameworks can obscure the roles of important supports and providers, such as families, communities, and education authorities. Comprehensively including supports and providers acknowledges, for example, the strengths rather than deficits of families and communities as opportunity-to-learn providers, while also holding education authorities accountable for the opportunities they provide (or not).

Our aim for this paper is to present a novel framework that can be used to conceptualize narrow and broad opportunity-to-learn understandings, applicable to any opportunity, regardless of substance, setting, or provider. Thus, we have examined three salient dimensions: *what* is provided (e.g., formal and informal curricula), *where* it is provided (e.g., classrooms and homes), and *who* is providing it (e.g., teachers and other caring adults). These three dimensions allow us to animate our thinking about opportunity to learn, expanding horizons and enabling interconnections within well-defined structures (i.e., frameworks from Bray & Thomas, 1995; Bronfenbrenner, 1994, which facilitate

incorporation of multiple perspectives). Another part of our novel contribution is including *conditions* that facilitate learning indirectly. Although not opportunities per se, conditions influence the nature and extent to which opportunities can be afforded and accessed. For example, regular reading with a parent at home is an opportunity to learn; parental time and capacity are conditions that can support the occurrence or lack of such an opportunity. Thus, we have put forth an expanded view of a traditional concept, morphing opportunity to learn into opportunities and conditions to learn (OCL).

Our article is structured as follows. First, we ground our framework in a historical and conceptual overview of opportunity to learn, based on a systematized literature review (Grant & Booth, 2009), which we describe in the following section. We then delineate our framework's dimensions and underlying principles.

## **Opportunity to learn: A background**

Our review of the literature examined how opportunity to learn has been conceptualized and developed for the purpose of informing our conceptual framework. As our review could potentially have included a very large number of studies, we limited our search to English-language studies that relate to learning and teaching in compulsory education. We conducted our search via ERIC, Scopus, and ProQuest, using the following terms: OTL, opportunity to learn, opportunity-to-learn, opportunities to learn, and opportunities-to-learn. We selected articles that included any of these terms in the title, abstract, or key words. Balancing tensions between facilitating a manageable review and the twin goal of breadth and depth, we focused on study quality rather than quantity. Therefore, we included all relevant studies, without restricting by date published, provided they were published in peer-reviewed educational research journals in the top 50% of Scimago Institute's scientific journal rankings (SJR), which index more than 1,000 education journals. These selection criteria led to a sample of 149 articles, which we examined to determine the construct's definition, conceptualization, and operationalization.

Our review consisted of three strands of analysis: the importance scholars have placed upon opportunity to learn, the degree to which opportunity to learn has been defined and for which subject domains and settings, and the range of definitions and conceptualizations. For the third strand, we added to our sample of 149 articles the seminal studies cited in them. (We chose SJR over its main alternative, Web of Science Journal Citation Reports [JCR], for four reasons. First, SJR is more inclusive, indexing about five times as many journals as JCR; SJR includes all journals indexed in Scopus, which has wider and more transparent selection criteria. Second, SJR is geographically broader due to a larger proportion of journals published outside the United States. Third, SJR accounts for different citation practices across the various subfields of educational research, unlike JCR's raw impact factor. Fourth, SJR is publicly available, whereas JCR is subscription dependent, making it less accessible.)

## **The centrality of opportunity to learn**

Many scholars have identified opportunity to learn as a crucial concept for explaining educational outcomes for both individuals and groups of students. Sorensen and Hallinan (1977) posited that student learning is a function of three components: ability, effort,

and opportunities to learn. As described by the U.S. National Research Council (2001), “Opportunity to learn [OTL] is widely considered the single most important predictor of student achievement. OTL can be influenced by students, their teachers, their schools or school districts, or even the country’s educational system” (p. 334). Understanding opportunity-to-learn differences between groups of students is necessary for explaining unequal educational outcomes (Ladson-Billings, 2006), especially when one aims to take an asset-focused rather than deficit-focused perspective on opportunities and conditions. As argued by Milner (2012), addressing inequality requires a refocus from achievement gaps to opportunity gaps. Identified as conceptually critical to both problems and solutions of inequality in education access and outcomes, opportunity to learn has an established legacy in U.S. education reform (McDonnell, 1995).

### Key literature review findings

One striking finding of our review is the prolific use of opportunity to learn without any thorough definition. Among 149 articles in our sample, 35 (24%) used one of our search terms in their abstracts, without ever defining that term in their paper, indicating casual employment or superficial reference to the concept. Furthermore, we found opportunity to learn defined explicitly in only 40% of our sample (60 of 149). Therefore, among the 114 studies that used opportunity to learn conceptually (i.e., not just casually mentioning it in an abstract), 53% defined the term (60 of 114). Such definitions were as brief as a single sentence or presented as rough outlines that might offer historical overviews. Our findings were not surprising, given the absence of a cohesive model or framework that could be used to guide conceptualization and operationalization of opportunity to learn, compelling us to create a conceptual tool for any research—empirical or theoretical—about opportunity to learn. Having observed such casual usage in extant literature, we expect our OCL framework to be fruitful for generating and testing hypotheses, examining interconnections between OCL variables (i.e., moderations and mediations), and expanding the boundaries of what is typically examined under the guise of opportunity to learn.

Second, we examined how researchers have used opportunity to learn along two dimensions: the object of what is being learned and the setting/site of learning. We have labelled these two dimensions as opportunity to learn *what* and opportunity to learn *where*. In Table 1, we show the categorization of our sample of 149 articles along these dimensions, providing raw counts and two frequency measures per dimension: proportions of articles from the total ( $n=149$ ) and among those that specify the relevant dimension. For example, 28% of studies in our sample concerned mathematics, but among studies that specified any subject domain ( $n=82$ ), 52% were about mathematics. Opportunity to learn seems to have been used with an array of subject domains, but most commonly in mathematics. Relatedly, opportunity to learn has been used for a range of learning sites, with schools or classrooms forming a majority. This finding is shaped by our selection criteria (see above).

### Conceptualizations of opportunity to learn

The origins of opportunity to learn date to the 1960s, with credit for coinage going to Carroll (1963) or Husén (1967) and colleagues at the International Association for the Evaluation of Educational Achievement (IEA) in their First International Mathematics Study

**Table 1** How published scholars have used opportunity to learn

Opportunity to learn what?	<i>n</i>	% of total ( <i>n</i> = 149)	% of specified ( <i>n</i> = 81)
Mathematics	42	28%	52%
Science	15	10%	19%
Reading/language arts	10	7%	5%
Foreign language	2	1%	3%
Physical education	2	1%	3%
Other	9	6%	11%
Not specified	68	46%	–
Opportunity to learn where?	<i>n</i>	( <i>n</i> = 149)	( <i>n</i> = 140)
School/classroom	127	86%	91%
Home	1	1%	1%
School/classroom and at home	5	3%	4%
Informal	3	2%	2%
School extra-curricular	1	1%	1%
School project, workshop, etc.	3	2%	2%
Not specified	9	6%	–

(FIMS) in 1964. At its inception, the IEA conceptualized opportunity to learn as the amount of time a teacher devoted to an aspect of intended curriculum. This conceptualization included three elements: (a) explicit teaching about curricular content that is (b) done by teachers and (c) occurs in classrooms. About 50 years later, Albano and Rodriguez (2013) operationalized opportunity to learn “as the amount of class time allowed for learning” (p. 839). An explicit focus on assessed content remains linked to conceptualizations of opportunity to learn that emphasize time spent on task.

Definitional expansion beyond assessed curricular content has included *skills and experiences* provided through *a range of instructional approaches*. These definitions emphasize students as active participants who engage and do, not just passively receive. Smithson et al. (1995) conceptualized opportunity to learn as content and skills, frequency of experience with a range of classroom activities and instructional practices, and class time spent on the given curricular area or science courses taken. To Byrnes and Miller (2007), opportunity to learn comprises “culturally defined contexts in which an individual is presented with content to learn (e.g., by a teacher or parent, an author, a narrator of an educational TV program) or given opportunities to practice skills” (p. 601). No longer limited to teacher-directed or teacher-transmitted learning, these definitions included, for example, collaborations between students (e.g., Yackel et al., 1991). Similarly, Brown et al. (2009) used the term *OTL codes* to “characterize particular types of engagement, rather than mathematical content” (p. 377). Kurz et al. (2014) noted that

Teachers distribute OTL of what we want students to know and be able to do by allocating instructional time and content coverage to intended objectives using a variety of pedagogical approaches.... emphasizing higher-order cognitive processes, evidence-based instructional practices, and alternative grouping formats. (pp. 25, 27)

As these varied definitions indicate, opportunity to learn has grown conceptually, now including provision of various experiences meant for students' skill development and not restricted to assessment of specific curricular content.

Another expansion of opportunity to learn has focused on notions of curricular and instructional *quality* and *effectiveness*, not just time spent on task. According to Byrnes and Miller (2007), opportunity to learn raises three essential questions: Has the content required on achievement tests been presented in these contexts? Has this content been presented accurately? Has the content been presented effectively? Kurz et al. (2014) also featured quality in their definition: "three key dimensions of the enacted curriculum—time, content, and quality—all of which occur during instruction" (p. 25). Furthermore, Jensen et al. (2016) included two separate dimensions of quality (adding instructional time as a third element): generic quality (how well learning opportunities have been provided) and local quality (cultural relevance of learning opportunities). Importantly, definitions of opportunity to learn that account for local quality and cultural relevance encourage criticality and essential questions regarding opportunities to learn *what*.

Opportunity to learn has expanded further from its narrow definitional roots, with an acknowledgment that learning occurs not only in classrooms but in schools and non-school settings even more broadly. For example, Herman et al. (2000) explored "opportunities which schools provide students to learn what is expected of them" (p. 16). Relatedly, scholars have contrasted informal opportunity to learn, which could happen anywhere, with teacher-provided, within-classroom opportunity to learn (Alexander et al., 2012; Jensen et al., 2016). Liu and Whitford (2011) argued strongly for a view of opportunity to learn that extends beyond schools and classrooms, observing "no clear separation between learning at school and learning outside school. Identifying OTL outside school, e.g. at home, is also necessary" (p. 376).

Opportunity to learn definitions have also superseded mere conceptualizations of curriculum and instruction and have addressed resources. Landmark education laws in the United States have enshrined such definitions. For instance, the No Child Left Behind (NCLB) Act of 2001 (2002) defined opportunity to learn standards as

the criteria for, and the basis of, assessing the sufficiency or quality of the resources, practices, and conditions necessary at each level of the education system (schools, local educational agencies, and states) to provide all students with an opportunity to learn the material in voluntary national content standards or state content standards. (Pub. L. No. 103-227, Sect. 3)

Montt (2011) elaborated that such resources related to opportunity to learn include teacher quality, school resource quality, curriculum organization, and class size. More generally, Johnson (2012) defined opportunity to learn in terms of "proximity to educational resources" (p. 150). Cawthorn et al. (2012) highlighted "student's level of access to educational resources" (p. 3).

While some narrow definitions relate to aspects of curriculum, as enacted in classrooms along dimensions such as time on task, content, and quality, definitions of opportunity to learn can vary substantially. Still, various studies have used a narrow conceptualization, understanding opportunity to learn primarily as an operationalized measurement instrument consisting of numerous indicators of scholastic learning within classrooms (e.g., Reeves, 2012; Santibañez & Fagioli, 2016; Schmidt et al., 2015). At the other end of the spectrum, broader notions of opportunity to learn are rarely operationalized or used as specific analytical components, though some studies have employed opportunity to learn in this wider sense (e.g., Alexander et al., 2012; Johnson, 2012; Liu & Whitford, 2011).

As befits its wider use, such studies often understand opportunity to learn within a range of settings, beyond the four walls of classrooms or even schools. As Jensen et al. (2016) noted, it is difficult to identify the diversity of opportunities to learn, especially once the concept moves beyond content and instruction, as enacted in classrooms. Among studies that examined opportunity to learn more broadly, it is plausible that researchers would value a conceptualization that extends beyond classroom curriculum and instructional enactments but have been unable to locate one. This gap led us to propose the framework in our current paper.

We conclude this section by discussing opportunity to learn in terms of educational equity. Unequal access to resources and other educational opportunities drove the so-called Coleman Report (1966), as noted in many papers we reviewed (e.g., Cawthorn et al., 2012). Some groups of students having fewer opportunities than peers raises a crucial concern. On one hand, Montt (2011) emphasized, “greater standardization in opportunities to learn in the school system [to] provide more homogeneous school experiences for students and reduce the total inequality in achievement within a school system” (p. 51). On the other hand, some researchers noted instances in which equity of opportunity to learn requires that some students receive more opportunities, or even different opportunities, than do peers. Regarding students with special needs, Kurz et al. (2014) argued that opportunity to learn “should not be equal across all students but equitable according to each student’s intended curriculum” (p. 24). Thus, a baseline of equality becomes necessary but not sufficient for educational equity. We agree with Lafontaine et al. (2015) that inequalities in opportunity to learn should not be associated with students’ socioeconomic or cultural backgrounds:

Despite different views, most of the theoreticians of justice, from supporters of meritocracy to egalitarianism, would agree on one point: it hurts the idea of educational justice if OTL distribution depends on the students’ socioeconomic and cultural status and if less beneficial OTL is offered to less privileged students, while more privileged students are exposed to more challenging content or goals. (p. 2)

This point bears mention, as many studies noted that unequal and/or inequitable distribution of opportunity to learn in educational settings often correlates with social inequalities (e.g., Bachman et al., 2015; Schmidt & Maier, 2009).

## **OCL: A conceptual framework**

In this section, we present our conceptual framework, which elaborates opportunity to learn along three dimensions that surfaced in our literature review: what, where, and by whom. These dimensions highlight the range of content (*what*) of opportunity to learn, *where* it can occur, and *by whom* it is provided. Particularly, studies discussed in the previous section inspired us through their emphasis, which untethered opportunity to learn from the limitations of academic subject curricula taught in classrooms by teachers only. Calls for a fuller conceptualization of opportunity to learn might not be contentious, but we also noted the absence of an explicit framework to conceptualize opportunity to learn inclusively. Thus, our aim became the development of a conceptual framework that includes an array of opportunities to learn, in an array of settings, from an array of providers. We advocate the premise that learning occurs within classrooms and schools, but also outside them. Education authorities formally organize learning, as do non-education professionals in informal ways. The settings and providers of learning range from the micro/individual to

the macro/societal, capturing both direct and indirect notions that surround opportunity to learn, a point we elaborate upon later in this section.

Two previous models inspired our creation of an inclusive conceptual framework that comprises the what, where, and by whom of opportunity to learn. First, we drew on Brofenbrenner (1994), who theorized the occurrence of educational phenomena within an ecology of micro, meso, and macro levels. Two of his key ideas relate to our framework. First, a range of proximal and distal actors, processes, and structures all affect individuals and groups. Second, micro, meso, and macro (i.e., proximal and distal) levels interconnect such that phenomena primarily situated at one level might impact other levels to varying degrees. Our framework captures the notion that opportunities to learn are interrelated in complex ways, both shaping and being shaped by an entire ecosystem. Mapping this complexity into a cohesive framework can illuminate how components relate, while acknowledging the larger context(s) that surround them.

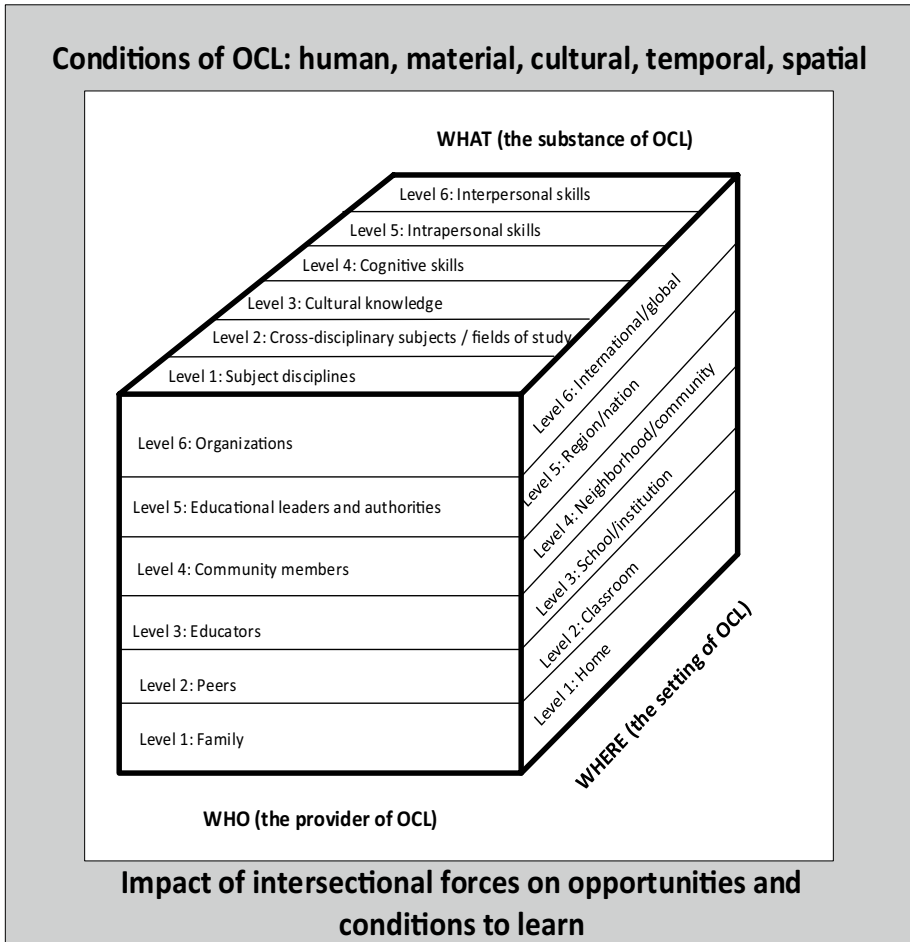
Second, Bray and Thomas (1995) also informed our framework. Meant to guide analyses of comparative education, their model captured the notion that educational phenomena comprise multiple dimensions (what, where, and by whom), while accounting for levels/settings similar to those of Brofenbrenner (1994). Embracing multidimensionality has allowed us to conceptualize a broad range of opportunity to learn beyond traditional limits of formal curricula, classrooms, and teachers, enabling our creation of a framework that is simultaneously parsimonious and inclusive. Like the work of Bray and Thomas (1995), our conceptual framework consists of a three-dimensional cube, each dimension comprising six levels. To balance the need for depth and detail on the one hand, and parsimony on the other, we settled on six levels per dimension. We endeavored to create levels that are distinct, but we acknowledge that, as with any model, overlap is possible and perhaps inevitable. We present the framework in Figure 1 and elaborate its dimensions in the following sections.

## Opportunity to learn “what”

Our first dimension comprises the notion of *what*, capturing the substance of the opportunity to learn. The six levels of this dimension reflect content that is commonly included in learning frameworks, national curricula, and discussions of 21st-century learning. We are not limited by these professional discourses about education, however, and we also include ways of knowing and worldviews that the dominant society and its discourses of schooling often marginalize. Our aim is to include all types of learning that are provided in schools and educational settings, as well as other settings of human learning. In elaborating the what, we have sought inclusivity among objects of learning that education policy makers, authorities, practitioners, and researchers have discussed, both historically and recently, as important educational outcomes and aims. Still, we have also sought parsimony, so the examples we have provided for each level are intended to be indicative, not exhaustive or authoritative. The levels are numbered to facilitate categorization and analysis but do not correspond to any sense of priority or relevance.

Level 1 comprises disciplinary knowledge related to official curricular subjects typically (but not exclusively) taught in schools or educational institutions, such as history, fine arts, mathematics, music, and chemistry. Such subjects have traditionally been taught compulsorily in schools worldwide. Many countries position such disciplinary knowledge amid basic requirements to attain graduation certificates.





**Figure 1** Opportunities and conditions to learn (OCL) framework

Level 2 also comprises content knowledge but in a cross-disciplinary fashion that includes, for example, vocational education and life or occupational skills, such as auto mechanics, cooking, and keyboarding/typing. Such learning is often considered optional, to be studied by some students and/or in some schools. In this level, we have also included all forms of sports, physical education, and outdoor activities, with the rationale that these content areas are typically not seen as formal curricular subjects but are distinct from the worldviews and skills found in levels 3 through 6. We acknowledge that the “subject knowledge” foci of levels 1 and 2 overlap to an extent, but we believe it is useful to distinguish them enough to ensure the visibility of cross-disciplinary subjects. Without its own level, this substance of learning would be marginalized. For example, vocational subjects often suffer less prestige than their more “academic” cousins (Teese & Polesel, 2003), which is unfortunate and unfair, given the importance of these subjects for individuals and society.

Level 3 comprises cultural knowledge, worldviews, and ways of being. It can relate to cultural knowledge based on ethnicity, place/geography, faith, or other demographic traits. We have made this learning distinct because it can be formalized in curricula but does not have to be and often is not. Relatedly, the cultural knowledge of a society's dominant group might be taught in schools, whereas the cultural knowledge of peripheral or marginalized groups is often overlooked. Yet, these forms of knowledge are important for groups and communities, regardless of their position in society. Indeed, for some groups, this form of knowledge might be more important than the curricular subjects taught in schools.

The remaining three levels of the what dimension include capabilities and skills that are not specific to disciplines or bodies of knowledge but are routinely considered to be key competencies. For these three levels, we draw on the U.S. National Research Council's Deeper Learning and 21st Century Skills Framework (2012), which comprised competencies from cognitive, intrapersonal, and interpersonal domains. That framework's authors described a

cognitive domain [that] involves reasoning and memory; the intrapersonal domain involves the capacity to manage one's behavior and emotions to achieve one's goals (including learning goals); and the interpersonal domain involves expressing ideas and interpreting and responding to messages from others. (p. 3)

Borrowing from their framework, as well as Lamb et al.'s (2017) review of 21st-century learning skills, we assigned each domain a separate level. Level 4 (cognitive) includes thinking skills, such as analysis, creativity, critical thinking, information literacy, information and communications technology literacy, oral and written communication, and problem-solving. Level 5 (intrapersonal) includes individual, psychological competencies, such as adaptability, conscientiousness, metacognition, motivation, perseverance, self-direction, self-efficacy, and self-regulation. Level 6 (interpersonal) includes competencies for which interaction with others is requisite, such as collaboration, communication, conflict resolution, empathy, teamwork, and tolerance. In essence, these latter three levels comprise commonly described 21st-century skills, which Lamb et al. (2017) listed as critical thinking, creativity, metacognition, problem-solving, collaboration, motivation, self-efficacy, conscientiousness, and grit or perseverance.

Some learning constructs might not fit neatly into any of our six dimensions of what, instead spanning levels. For example, global citizenship is a construct that draws on a range of interpersonal dispositions and disciplinary/experiential knowledge, as well as skills and behaviors (Ledger et al., 2019). Thus, we designed our framework to be flexible enough to allow researchers to locate their given opportunity-to-learn foci within any given level or across multiple levels, as they see fit.

## Opportunity to learn “where”

For the *where* dimension, we drew upon Bronfenbrenner's (1994) model of proximal and distal factors, naming it *setting*, with six levels that predominantly move from most to least proximal from the perspective of many individual learners: family/home, classroom, school/institution, neighborhood/community, regional/national, and international/global. However, we understand that some learners might consider, for example, a neighborhood/community to be more proximal than their classrooms or schools. Correspondingly, we recognize that our six levels do not necessarily nest in perfectly concentric rings, as Bronfenbrenner's five levels depict, and as hierarchical linear models of educational

contexts might prefer to avoid cross-classification and achieve neat simplicity. Therefore, we argue that our conceptualization provides greater verisimilitude to complicated, real settings than many neatly constructed models might.

Furthermore, we only provide limited detail in this section, as all six levels have been studied extensively. Nevertheless, we make a few clarifications. By *classrooms*, we mean a sub-unit of a larger educational institution. For example, we would characterize the following as classrooms: a university's lecture theater or seminar room; a kindergarten's playroom; and a primary or secondary school's space, with desks or tables arranged in clusters or rows. School/institution includes all levels of formal education, from prekindergarten to primary to secondary to any kind of tertiary institution. This setting of opportunity to learn also encapsulates the non-classroom spaces of each institution, such as playgrounds, hallways, gymnasias, student councils and clubs, and the courts or fields where sports teams play. Neighborhood/community includes settings that exist outside formal educational institutions. This broad level includes settings as varied as community centers, streets, places of worship, and local businesses.

The remaining two settings occur at the macro level, making them more abstract than the concrete settings described in the preceding paragraph. The regional/national level includes educational jurisdictions, political administrative zones (e.g., states, regions, or metropolitan areas) or entire nation-states. The international/global level captures opportunities to learn that occur in settings beyond one's national border and/or that transcend national borders. It could include, for example, learning that comes when studying or living abroad. As well, both the regional/national and international/global levels capture opportunities to learn that are provided indirectly through actors' decisions and actions at these levels. These indirect pathways embrace the insight that regions and nation-states might offer different opportunities to learn, for a range of intersecting historical, cultural, social, political, and economic reasons. For example, opportunity to learn knowledge about religion(s) might be available in some countries—and even mandated by a national curriculum authority—or might be forbidden if such learning represented a heterodoxy. As another example, the opportunity to learn “global competence” might become more prevalent as supranational actors, such as the Organisation for Economic Cooperation and Development, advance measures of that construct in their large-scale assessments of student performance (Ledger et al., 2019).

## Opportunity to learn “by whom”

We refer in the third dimension to “providers”, capturing the individuals, groups, and organizations that provide, directly or indirectly, opportunity to learn. This dimension's six levels are family, peers, teachers and instructors, community members, educational leaders and authorities, and organizations. These six levels might seem self-evident, but we have offered a few clarifications. First, family includes not just parents or guardians but also siblings and other members of an extended family. Second, peers are individuals of similar age who might be class or school mates, neighbors, or fellow members of clubs or sporting associations. Third, teachers and instructors are often tasked explicitly with providing the given opportunity to learn, but this group might include not only qualified classroom teachers but also coaches and extramural tutors. Fourth, community members can include faith leaders, community organizers, and elders, to name a few.

As in the previous section, the final two provider levels—educational leaders and authorities, and organizations—contribute to opportunity to learn indirectly via macro-level

actions and decisions. Educational leaders and authorities include, for example, school leaders, district administrators, curriculum authorities, and policy makers within and beyond education. School leaders might indirectly provide opportunities to learn via the curricular offerings they decide to provide (or not) (Perry & Lubienski, 2020). Similarly, curriculum authorities indirectly provide opportunities to learn via the curricula standards they mandate. Organizations are bodies that influence opportunities to learn but are not specifically or solely tasked with educational provision and services. Such organizations can include, for example, government agencies or branches, nonprofit organizations, business councils, academic societies, and private foundations. The influence of these macro-level actors is nevertheless powerful. In turn, this inclusive view promotes holistic, rich, and possibly novel conceptualizations of opportunity to learn, with benefits for empirical research and theoretical understanding. Including indirect providers also provides an avenue to ensure they are held accountable for their role in the provision of opportunity to learn. It is important to acknowledge that indirect influences are not always strong. For example, just because education authorities create and mandate curriculum standards does not mean they are actually taught in classrooms or to all students (Pak et al., 2020).

### Conditions that moderate or mediate opportunity to learn

Our conceptual framework also extends previous definitions by differentiating opportunities from conditions. Though conditions are not directly opportunities themselves, we have defined them as resources, supports, and forces that might facilitate (or detract from) opportunities. They include, for example, learning materials, facilities, teacher effectiveness, school climate, and family income or other resources. We have incorporated conditions into our framework because they underpin equitable access to opportunity to learn. Inspired by Darling-Hammond et al. (2016), who argued that the “resources and conditions that support students’ opportunities to learn must also be included” (p. 2) in accountability frameworks, our conceptualization makes conditions visible, not assumed.

Although conditions typically promote opportunities to learn, we do not propose that any given condition must be supportive always, in all settings, or for all students. Rather, we encourage a more critical and nuanced view that acknowledges conditions can moderate or mediate opportunities to learn, positively or negatively. Conditions can positively or negatively influence intersections between one or more of the levels in our three-dimensional framework. Ultimately, we advocate the thorough examination of conditions that could be risk or protective factors under varying circumstances. Finally, relations between a condition and opportunity to learn are not necessarily linear. To illustrate, theory and empirical research consistently has shown positive associations between socioeconomic status (SES) and learning. One reason might be that families with higher incomes (one SES indicator) tend to be more likely to read to their children (Coley, 2002). As income increases, however, this relation might flatline or even reverse because high-income parents are too busy working long hours to spend time reading to their children (Porfeli et al., 2009). Thus, family income might associate positively with opportunity to learn by influencing the behaviors of some but not all parents.

Moreover, opportunities and conditions sometimes overlap. Put another way, a particular practice or skill or resource can be an opportunity in some instances, while being a condition in others. For example, in a predominantly English-speaking country, speaking a language other than English at home is an opportunity to learn an additional language that might not be available through formal learning in school. Meanwhile,

speaking that language at home might alter the conditions with which students and their families interact with opportunity providers at school. Further exploring this potential interaction of condition and opportunity, fluency gained from speaking a different language at home might diminish learning at school if one has not mastered the dominant language of instruction. By contrast, fluency in a language spoken at home might facilitate learning an additional language at school, while developing neural pathways, cognitive flexibility, and/or surety in one's cultural self—all of which might have a positive impact on learning other subjects and developing other competencies. Another nuance is the effect of intersectional relations regarding students' home language and their school opportunities and experiences. For example, in Germany and many other countries, a language hierarchy is often manifested in school systems, whereby some languages, especially those spoken by students from Roma, Turkish, or Arabic backgrounds, are devalued, whereas French and English are highly valued (Rühlmann & McMonagle, 2019). Of course, speaking a different language at home might have no net effect on learning that happens at school. Likewise, when schools counteract traditional deficit narratives about marginalized communities by treating students' funds of knowledge (i.e., using their own cultural, familial, geographical, and other personal types of knowledge to enhance in-school learning) as assets, they create conditions that can enact opportunity to learn (Llopart & Esteban-Guitart, 2018).

Finally, underpinning both opportunity and conditions to learn is the concept of intersectionality (Crenshaw, 2017). Intersectionality is an analytical framework for understanding how social and cultural identities, such as social class, gender, ethnicity, race, sexual orientation, disability status, and immigrant status, intersect to create discrimination and privilege. In our framework, we conceptualize intersectionality as a social force that mediates opportunities and conditions to learn. The opportunities and conditions individual learners enjoy are often unequal and patterned by social positions. Including intersectionality as an underpinning dynamic makes visible that opportunities and conditions to learn are often allocated inequitably in society.

## Summary

We have summarized key features and principles of our OCL framework in Table 2.

## Discussion

We aimed to capture within an inclusive framework the rich array of opportunities to learn that is opportunities to learn and the conditions that underpin them. Our systematized review demonstrated an evident need for a framework that could corral the fragmented literature base around opportunity to learn—one characterized by historically narrow foci, such as basic counts of time students spend in seats or implicit assumptions about teachers in schools as exclusive providers of learning opportunities. Our OCL framework can provide a common reference point for researchers, facilitate rich conceptualizations of the multiple settings and actors that moderate and mediate opportunity to learn, uncover connections between opportunities and the conditions that shape them, provide a basis for comparisons across place and time, and stimulate new theoretical insights and possible causal explanations. For example, when attempting to explain cross-national differences in any given learning outcome, the OCL framework can trigger researchers to consider

**Table 2** Features and principles of the OCL framework

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<i>Inclusive:</i>	Opportunity to learn comprises a wide range of content knowledge, settings, providers, worldviews, and capacities. Entire societies are involved, not just professionals working within formal educational institutions or others privileged by official discourse, state actors, or dominant societal groups.
<i>Multiplicity:</i>	The content ( <i>what</i> ) of an opportunity to learn might span levels in the OCL framework (e.g., global citizenship comprises disciplinary and cultural knowledge, interpersonal and intrapersonal skills).
<i>Proximal and distal:</i>	Opportunity to learn can be provided directly (e.g., via teachers) and/or indirectly (via education authorities that mandate curricula). Including indirect providers keeps visible their responsibilities to provide equitable access, ensuring accountability.
<i>Interaction:</i>	As with an eco-system, levels within and between dimensions can (and often do) impact each other (e.g., policy makers' indirect provision of opportunity to learn can impact teachers' direct provision of opportunity to learn).
<i>Multidirectionality:</i>	Although the levels go from proximal to distal, the direction is not always top down, or unidirectional (e.g., opportunities provided in particular districts or schools can influence policy makers' views about what they believe should be taught in other jurisdictions).
<i>Intersectionality:</i>	Opportunities and conditions to learn are mediated by intersecting social positions, such as gender, class, ethnicity, race, sexual orientation, and immigrant status. OCL does not operate in a conflict-free vacuum.

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variables additional to those that can be measured within classrooms. Thus, the OCL framework might provide a theoretical foundation for many education research subfields by making visible and explicit the multiple settings and actors that shape any opportunity to learn. In turn, this framework can support the generation and testing of hypotheses and theory development.

Perhaps studies that apply our framework might only examine one aspect or component—focusing on, for example, opportunities and conditions as they occur in communities or the opportunities and conditions that relate to reading across various settings. Nevertheless, researchers will be able to locate their given OCL interests within a larger framework, facilitating connections with other studies. In this sense, the OCL framework could enable new reviews of the literature, empirical models, or theoretical insights. By including a large range of opportunities to learn beyond the disciplines taught in schools, the OCL framework might also stimulate research about a broader range of learning outcomes than covered by the predominance of studies that feature assessments of student learning in reading and mathematics. As objects of human learning are endless, so too could be the potential uses of our OCL framework.

For policy making, the OCL framework could serve as a compass for evaluating policy aims and assumptions. By including settings that extend beyond the classroom or school, the OCL framework can be a tool to hold education systems and decision makers accountable to students and their families, communities, and society. For decades, accountability discourses in many nations have focused on teachers and school leaders as the actors who should be held accountable for student learning. But as Darling-Hammond (2007) and colleagues (Darling-Hammond et al., 2016) have argued, education authorities must also be held accountable for the opportunities to learn that are available to students, as well as the resources necessary to provide them with those opportunities. By making explicit the myriad opportunities for learning and their underlying conditions, both within and without schools, the OCL framework can be a check on policy makers and the educational authorities, decisions, policies, and structures under their control. If there will be learning standards for students, we also

need opportunity and condition standards for education authorities and the larger public policy realm they inhabit. Clarifying whether opportunities and conditions are optimal, adequate, or insufficient will increase the visibility of opportunities *and* conditions for stakeholders, helping to ensure that both aspects remain at the forefront before, during, and after policy deliberations.

## Conclusion

Opportunity to learn is one of the most important predictors of human learning (Schmidt & Maier, 2009). As such, opportunity to learn is an increasingly important variable for understanding achievement gaps between groups of students and between countries (Schmidt et al., 2015). Addressing inequalities of educational outcomes requires attention to opportunity gaps and the conditions that surround them. Our OCL framework may expand and foreground research about the opportunities to learn that are being provided to students, rather than students' so-called limitations or deficits. In so doing, the OCL framework might make more visible the multiple and overlapping inequalities many students face.

Secondly, we hope our framework will stimulate research about opportunities and conditions to learn in domains that have traditionally not been studied using an opportunity to learn perspective. These include, for example, intrapersonal and interpersonal values and dispositions; skills in music, art, and sports; and cultural and place-based funds of knowledge. Our framework may inspire studies to look beyond the school and classroom, acknowledging the rich variety of settings where learning takes place. Moreover, measurement scholars might account for the multidimensionality that our OCL framework and other scholars have highlighted regarding crucial components, such as learning environments, time, content, and quality (Elliott & Bartlett, 2016; Wang, 1998). Ultimately, the inclusivity that bulwarks our OCL framework might retrieve from the periphery a slew of marginalized forms of learning and teaching.

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