



MEASURING STUDENT SUCCESS SKILLS: A REVIEW OF THE LITERATURE ON ETHICAL THINKING

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INTRODUCTION

As a desired outcome of education, *ethical thinking* has roots in philosophy, developmental psychology, and political movements that advocate for the development of knowledge, capabilities, and dispositions beyond those associated with traditional school subjects. Economists, business leaders, and educators have long advocated for preparing students for an increasingly global, interconnected, and technologically complex world. This is reflected in a proliferation of conceptual and empirical work on skills variously termed *soft*, *critical*, *social-emotional*, *transferable*, *student success*, and *21st century*.¹

Full civic participation in the modern world often requires that citizens consider complex issues with far-reaching consequences. Lay persons and specialists alike, the advocates argue, will be asked to weigh in on the ethical aspects of climate change, sustainable economic development, artificial intelligence, data privacy, genetic engineering, food production, and inequality.

Ethical thinking, and related skills and dispositions, are essential for promoting social justice and inclusivity and, further, for combating various forms of bias and discrimination. In pluralistic societies, understanding and navigating ethical dilemmas can contribute to respectful dialogue, shared problem-solving, and peaceful coexistence. More broadly, the ability to reason ethically has long been valued alongside other cognitive abilities across societies. Most formal education programs, including the secular, have aimed to develop the moral character of students as a core goal in educating the whole person, and ethical thinking is an integral part of that endeavor.

This paper begins by defining ethical thinking and describing the associated criteria and process this task entailed. Developmental theories of moral reasoning—a concept closely aligned with ethical thinking as defined—are then considered, as are the malleability and cultural variability of moral reasoning. This is followed by discussion of various instructional approaches to developing ethical thinking and moral reasoning. Finally, the assessment of these constructs is discussed.

¹ Throughout this document, the term 21st century skills refers to these generically.

DEFINITIONS

In defining ethical thinking for this paper, we synthesized existing descriptions of terms related to ethical thinking. This synthesis began with a review of the major 21st century skills frameworks, applying the criteria below.

Criteria for formulating a definition of ethical thinking

The following criteria informed the resulting definition of ethical thinking.

1. Ethical thinking is (a) a cognitive process that (b) can be shaped by intuitions, social needs, and moral foundations.
2. Individuals vary in how well they can engage in ethical thinking.
3. A person's ability to engage in ethical thinking can be improved with instruction.
4. Ethical thinking can be elicited and, therefore, assessed.

Criterion 1(a) reflects the context for this paper: to inform instruction that aims to develop and assess ethical thinking, and that explicitly situates ethical thinking as a cognitive skill. This criterion therefore is consistent with a 21st century skills conception of ethical thinking-related skills. Criterion 1(a) is not met by formulations of ethical thinking (and related concepts) that foreground character traits associated with acting ethically. However, this criterion does not preclude that thinking ethically, having ethics, and behaving ethically are related. The distinction between (a) ethical thinking as a deliberative, cognitive process and (b) acting ethically or being ethical in one's character will highlight tensions in the relevant literature but also provide clarity with respect to the resulting definition.

Criterion 1(b) is based on 30 years of research on moral psychology highlighting the role of emotional processes, the fulfillment of social needs, and the moral foundations of how people respond to, and reason through, ethical situations. Criterion 1(b) situates ethical thinking as a desirable cognitive skill against the backdrop of a descriptive account of moral reasoning. That is, any contemporary conception of ethical thinking must acknowledge the emotional, social, and cultural influences on that thinking. This criterion also invites one to think broadly about what counts as an ethical consideration in ethical thinking. For example, although in-group loyalty and respect for authority are not core ethical considerations in Western frameworks for ethical thinking, they are more salient in non-Western cultures. This, in turn, expands the cross-cultural applicability of the resulting definition.

Criteria 2 and 3 once again acknowledge the educational context of this paper: Efforts to develop ethical thinking through instruction and experience presume it is malleable, and individuals consequently will vary in the degree to which they are skilled in ethical thinking. These two criteria are consistent with a large body of literature confirming that moral reasoning can be developed.

Criterion 4 ensures that the definition of ethical thinking relates to a shared characteristic among 21st century skills: they are amenable to observation and assessment. This criterion does not imply strong measurement claims—only that, for monitoring growth and evaluating program effectiveness, ethical thinking can be elicited and assessed and that quantitative summaries can be compared.

Taken together, these four criteria are consistent with existing descriptions of terms related to ethical thinking and, further, guide the definition of ethical thinking in five important ways. First, they de-emphasize the emotional, dispositional, and social aspects of moral decision-making, but without discounting them.

Second, unlike *ethics* and *integrity* as used by employers, a definition aligned with these criteria makes no assertions about the person's moral character. Third, these criteria do not address ethical decision-making (an action), which is beyond the scope of thinking about ethical issues and situations (a cognitive process). Fourth, the criteria ensure relevance to educational settings where developing ethical thinking is an objective. Finally, they ensure that empirical claims can be made about the degree to which students develop ethical thinking in specific learning environments.

Ethical Thinking: A Definition

The following definition of ethical thinking is proposed:

Ethical thinking is the process of identifying and describing ethical issues in a variety of contexts, articulating the ethical considerations involved in different responses to those issues, and providing a rationale for a position that addresses those considerations.

Ethical issues are dilemmas that cannot be resolved without entertaining ethical considerations. Such considerations include:

- Notions of right and wrong, and good and bad
- The dignity and rights of persons, communities, and non-human animals
- Values, principles, and core beliefs
- Consequences of ethical decisions
- Motives and intentions
- Moral character, integrity, and virtue
- Responsibilities, duties, and obligations
- Justice, fairness, and equity

Ethical thinking is the process of identifying and describing ethical issues in a variety of contexts, articulating the ethical considerations involved in different responses to those issues, and providing a rationale for a position that addresses those considerations.

Process for Formulating the Definition of Ethical Thinking

Ethical thinking was defined by applying the four criteria to existing definitions of ethical thinking and related terms, drawn primarily from 21st century skills frameworks in education. We refined our definition by considering relevant elements from the larger body of literature in philosophy, religion, psychology, moral and character education, and the professions.

21st Century Skills Frameworks Relevant to Ethical Thinking

Internet searches of "ethical thinking" with various combinations of "education," "education skills," "(K-12) framework(s)," and "rubric(s)" do not identify any 21st century skills frameworks that specified ethical thinking as an educational goal. However, the related terms "ethical reasoning," "moral reasoning," and "ethics" emerged in these searches. When subsequent searches replaced "ethical thinking" with these related terms, four 21st century skills frameworks-based sources surfaced that could inform a definition of ethical thinking.

Table 1 presents the four sources identified, the terms they use, and the terms' definitions. Appendix A contains expanded versions of these definitions. This includes text defining the target skill, information relevant to the framework for the skill (e.g., the skill's position in a particular skills framework), any decomposition of the skill into elements or dimensions, any conceptual or empirical relationship with other skills, and any additional information relevant to an analysis of that skill or to the larger project of developing a definition for ethical thinking.

Table 1.
21st Century Skills Frameworks Relevant To Ethical Thinking

SOURCE	TERMS	DEFINITION/DESCRIPTION
American Association of Colleges and Universities (AACU)	Ethical reasoning	“Ethical Reasoning is reasoning about right and wrong human conduct. It requires students to be able to assess their own ethical values and the social context of problems, recognize ethical issues in a variety of settings, think about how different ethical perspectives might be applied to ethical dilemmas and consider the ramifications of alternative actions. Students’ ethical self-identity evolves as they practice ethical decision-making skills and learn how to describe and analyze positions on ethical issues.” (American Association of Colleges and Universities [AACU], 2009, p.1)
Australian Curriculum, Assessment and Reporting Authority (ACARA)	Ethical understanding	“[Students] develop ethical understanding as they identify and investigate the nature of ethical concepts, values and character traits, and understand how reasoning can assist ethical judgement. Ethical understanding involves students building a strong personal and socially oriented ethical outlook that helps them to manage context, conflict and uncertainty, and to develop an awareness of the influence that their values and behaviour have on others. It does this through fostering the development of ‘personal values and attributes such as honesty, resilience, empathy and respect for others’, and the capacity to act with ethical integrity.” (Australian Curriculum, Assessment and Reporting Authority [ACARA], n.d.[b])
Greater Good in Education (GGIE), University of California, Berkeley	Ethical decision-making and social responsibility, ethical decision-making and responsibility, responsible decision-making	“[We] use the term <i>ethical decision-making and responsibility</i> for this component in order to emphasize the ethical dimensions of what it means to make decisions that are both personally and socially responsible. ... Responsible decision-making... means the ability to make caring and constructive choices about how to behave, based on consideration of ethical standards (i.e., ‘benefits and consequences for personal, social, and collective well-being’) as well as relevant social norms and safety concerns.” (University of California, Berkeley, n.d.)
Pearson’s Personal and Social Capabilities framework (PPSC)	Ethical competence [as a dimension within social responsibility]	“Social responsibility is broadly defined as taking responsibility to behave ethically and with sensitivity toward social, cultural, civic, and environmental issues.” (Yarbro & Ventura, 2019, p.4) “We define [ethical competence] as demonstrating knowledge and awareness of ethical standards and issues and applying ethical reasoning and standards to make decisions in ethically ambiguous situations.” (Yarbro & Ventura, 2019, pp 10-11)

Analysis of Definitions

The collected definitions of ethical reasoning, ethical understanding, ethical decision-making and social responsibility, and ethical competence were reviewed for salient features (e.g., knowledge of one’s own ethical values). This exercise relied on the expanded versions of the definitions in Appendix A. We compared the definitions to identify distinct features (e.g., “adopting values or building an ethical self-identity”) and then grouped these features into broader categories (e.g., “the ethical self”). Table 2 summarizes the features across the four 21st century skills sources.

Table 2.
Summary of Features of Definitions of Ethical Thinking-Related Skills Among 21st Century Skills Sources

CATEGORY / FEATURE	AACU ETHICAL REASONING	ACARA ETHICAL UNDERSTANDING	GGIE ETHICAL DECISION- MAKING AND SOCIAL RESPONSIBILITY	PPSC ETHICAL COMPETENCE
THE ETHICAL SELF				
Knowledge of one’s own values/ ethical self-identity	✓	✓		
Adopting values or building an ethical self-identity	✓	✓	✓	
Developing a capacity to act ethically		✓		
ETHICAL CONCEPTS, STANDARDS, PERSPECTIVES, AND ISSUES				
Knowledge of ethical concepts		✓		
Knowledge of different ethical standards or perspectives	✓	✓	✓	✓
Recognizing ethical issues in situations	✓	✓		✓
ETHICAL THINKING				
Reasoning about ethical situations; analyzing such reasoning		✓	✓	
Applying ethical perspectives to different situations; evaluating such applications or perspectives	✓	✓		✓
Considering consequences	✓	✓	✓	
ETHICAL DECISION-MAKING				
Making ethical decisions			✓	✓

As Table 2 shows, definitions of terms related to ethical thinking vary in their emphasis on different ethics-related educational aims. For example, GGIE’s “ethical decision-making and social responsibility” includes features from all four categories; the relevant skills from the other three sources contain features from three categories. In two cases (AACU and ACARA), the excluded category is “ethical decision-making”; PPSC’s “ethical competence” excludes features from the category “the ethical self.” All four sources have one or more features in the categories “ethical concepts, standards, perspectives, and issues” and “ethical thinking.” All four sources share the common feature “knowledge of different ethical standards or perspectives.”

Application of The Criteria for a Definition of Ethical Thinking

Next, the criteria for a definition of ethical thinking were applied across the four sources.

Criterion 1(a)—that a definition should specify ethical thinking as a cognitive process—suggests the centrality of the category labeled *ethical thinking* in Table 2. All four sources include one or more of the three “ethical thinking” features.

What counts as “cognitive” is not limited to that category; features from other categories involve cognition as well. For example, having “knowledge of different ethical standards or perspectives” is a feature shared by all four sources, and it implies learning about those standards and perspectives and then connecting them meaningfully to one’s own experience—a cognitive process. In turn, this ethical perspective-taking is critical to the most common ethical-thinking feature across the four sources: “applying ethical perspectives to different situations; evaluating such applications or perspectives.” Indeed, the AACU’s definition of ethical reasoning calls on students to “describe and analyze positions on ethical issues” (AACU, 2009, p.1).

Thus, while Criterion 1(a) draws attention to the characteristics of the ethical thinking category, it does not exclude characteristics outside that category. What does it exclude from among the features in Table 2, if anything? Criterion 1(a) requires that a definition of ethical thinking exclude three specific features: “adopting values or building an ethical self-identity,” “developing a capacity to act ethically,” and “making ethical decisions.” This is because these features concern adopting values and taking actions in the ethical realm, as distinct from *thinking* about those values and actions. As discussed below, there is a positive relationship between (a) the development of ethical thinking as a skill and (b) adopting positive values and making ethically good decisions. In addition, learning about ethical concepts, standards, and perspectives entails a deep appreciation of positive values and good decisions. The distinction drawn here serves primarily to focus ethical thinking on a particular kind of cognitive process.

Among the 21st century skills frameworks reviewed, AACU’s comes closest to acknowledging the research informing Criterion 1(b)—that ethical thinking is influenced by factors outside one’s immediate cognition. The glossary for AACU’s ethical reasoning rubric contains this definition:

“[Core beliefs are] those fundamental principles that consciously or unconsciously influence one’s ethical conduct and ethical thinking. Even when unacknowledged, core beliefs shape one’s responses. Core beliefs can reflect one’s environment, religion, culture or training. A person may or may not choose to act on their core beliefs.” (AACU, 2009, p.1)

All subsequent references to core beliefs in the scoring rubric are in descriptions of student work along the dimension, “ethical self-awareness.” These descriptions concern awareness, discussion, and analysis of such beliefs.

Because the research underlying Criterion 1(b) falls outside education and therefore has uncertain implications for the development of ethical thinking, it is not surprising that the relevant 21st century skills frameworks do not address this criterion.

Criteria 2 and 3—a definition should acknowledge that individuals vary in ethical thinking and that it can be improved with instruction—also are not explicitly addressed in the frameworks reviewed, but for the opposite reason: These two criteria are so intrinsic to education that they are taken as a given. All four sources assume that ethical thinking-related skills can be improved. The AACU scoring rubric, discussed later in this paper, uses the labels *Benchmark*, *Milestones*, and *Capstone* to communicate the progressive nature of the target skills described. The ACARA rubric, also discussed later, goes further by describing in a learning progression how each of various elements of the target skill should develop across 10 years of schooling.

Among the sources, the AACU rubric for “ethical reasoning” and the ACARA learning progression for “ethical understanding” most exemplify Criterion 4: A definition should establish that ethical thinking can be assessed. Both AACU and ACARA stop short of identifying instruments for measuring their target skills. The PPSC source includes descriptions of “example behaviors” of the “ethical competence” target skill, which implies that it can be observed (a prerequisite for assessment). That source also lists four “representative measures” of “ethical competence.” To clarify, none of these measures derive from the PPSC definition/description of ethical competence. In fact, one of them is the AACU rubric for “ethical reasoning.”

Insights From Philosophy and Religious Traditions

Here, we discuss the implications of philosophy and religious traditions for this paper’s definition of ethical thinking.

Ethics

Ethics is an academic branch of philosophy concerned with concepts and principles regarding what kind of person one ought to strive to be, how people should relate to each other and to their social and natural environments, and, more generally, what constitutes right and wrong behavior (Wikipedia Contributors, 2023). Aristotle’s concept of practical wisdom (*phronêsis*) in his *Ethics* (Kraut, 2022), a foundational source for the study of ethics, is closely linked to ethical thinking as a 21st century skill. Other critical sources are Immanuel Kant’s deontology (duties, moral principles, and rights; see Alexander & Moore, 2021) and John Rawls’ justice-oriented framework for how society should be structured (Rawls, 1971).

In contemporary philosophical discourse, there are several areas of ethics that have special relevance for ethical thinking conceived as a skill. Among these in the Western philosophical tradition are metaethics, normative ethics, and applied ethics. Metaethics (Sayre-McCord, 2023) concerns the truth value of moral propositions. Ethical thinking can display metaethical features—for example, when it inquires whether a seemingly ethical situation is indeed a moral one, or more a matter of personal taste or cultural norms.

Normative ethics attempts to answer questions about what makes actions right or wrong and proposes several frequently cited frameworks for doing so, such as virtue (Hursthouse & Pettigrove, 2023), deontology (duties, moral principles, rights), and consequences (Sinnott-Armstrong, 2023). Ethical thinking can involve appeals to the foundational values of these and other similar frameworks. More strongly, Velasquez et al. (2015) argue that, in fact, resolving an ethical issue requires such an appeal; they cite five approaches to considering values (utilitarian, rights, fairness or justice, common-good, and virtue) and advocate a consideration of all of them in actual ethical problem solving.

Applied ethics concerns ethical issues in specific areas of life and professional settings, such as business, medicine, and law. But it also encompasses areas of concern to all, such as environmental ethics and ethical

considerations in women’s health, minority rights, civics, social networking, and animal welfare. Ethical thinking in these areas introduces domain-specific information drawn from history, law, and the natural and social sciences. Because of their global relevance to ethical decision-making in contemporary adult life, these forms of applied ethics are of special relevance to ethical thinking in general education settings.

Implications for Definition. The philosophical literature refines our definition in at least two ways. First, this literature clarifies what ethical thinking is about, what sets it apart from other kinds of thinking. It is a critical source of the “ethical considerations” part of the definition: Simply put, ethical thinking requires ethical considerations. Second, this literature situates ethical thinking primarily in the realm of normative ethics (although this does not mean it excludes metaethics or applied ethics, as the examples above show).

Religious Traditions and Moral Schools of Thought

Religious traditions and moral schools of thought are worldviews about how one ought to live and relate to others, to the world around them, and (in many cases) to a spiritual world. Such worldviews may provide rationales for their moral prescriptions, often in the form of stories; they do not share the extensive and often highly technical justifications of academic ethics. Because they invariably communicate what it means to be a virtuous, ethical, upright, and good person—and certainly how to become one—religious traditions and moral schools of thought intersect with ethical thinking. As with ethics in the philosophical tradition, these worldviews have influenced ideas about what it means to “think ethically,” in the sense of holding particular values.

When Christian, Confucian, Daoist, and Buddhist writers address the development of the capacity to think or deliberate about ethical situations, that development is intimately connected to the process of becoming a certain kind of person (Arthur, 2014; Cen & Yu, 2014). Although the importance of reason in moral deliberation is elevated in some religious/traditional sources, such as in the Aristotle-inspired writings of Aquinas (Arthur, 2014), that importance is premised on the primacy of those traditions’ worldviews.

Some secular approaches to moral education in the United States (e.g., character education; see Noddings, 1995, pp. 13, 150) and similar approaches elsewhere (e.g., moral and character education in Korea; see Lee, 2015), which aim to mold the ethical self in a particular direction, have kinship in this respect with religious traditions.

Implications for Definition. Religious traditions and moral schools of thought provide another basis for ethical considerations. These sources primarily are focused on developing a certain kind of ethical self-identity. Although most education programs, whether religious or secular, agree that a positive ethical self-identity is a desired goal, ethical self-identity is not central to our definition of ethical thinking.

General and Discipline-Specific Aspects of Ethical Thinking

Ethical thinking has both general and discipline-specific aspects. As defined above, ethical thinking involves the cognitive processes of identifying, analyzing, and resolving ethical issues; it is applicable across all contexts. Although ethical thinking is always contextualized, some contexts are more specialized than others, due to ethical principles specific to the discipline or profession. In the legal profession, for example, the principle of attorney-client privilege encapsulates a lawyer’s obligations when representing their client. The principle of informed consent in human-subjects research assumes similar importance. For yet another example, consider journalism and its ethical principles of accuracy, objectivity, and protecting sources.

The ACARA framework for ethical understanding illustrates both general and discipline-specific aspects of ethical thinking. This framework describes ethical understanding regardless of context, but it also shows how this “general capability” of ethical understanding is applied to each area of the curriculum.

Ethical Thinking and Other 21st Century Skills

21st century skills frameworks that include ethical thinking (or a related skill) highlight connections between ethical thinking and other skills. For example, the Greater Good in Education (GGIE) framework for ethical decision-making and responsibility describes how this skill is closely tied to components of social-emotional learning: self-awareness, self-management, and relationship skills (University of California, Berkeley; n.d.). Both AACU and ACARA reference cognitive processes that easily could be critical or analytical thinking. Ethical thinking is related to ethical decision-making (e.g., see Reeves, 2022) and to the more dispositional/attitudinal “skills” associated with having ethics, both common in the workplace skills literature. For example, the World Economic Forum (n.d.) situates civic responsibility and environmental stewardship within an “ethics” cluster in its global skills taxonomy).

DEVELOPMENT

Theories About the Development of Ethical Thinking

The development of moral reasoning has enjoyed extensive study in psychology for at least a century, with the foundational theories positing a progression of stages. This foundational work, based on male subjects, was rightly criticized in the 1980s because of its unknown applicability to women. Critics also questioned whether these foundational theories adequately accounted for moral reasoning

development outside the theories’ Kantian orientation, which emphasized autonomous moral agents acting in accordance with universal moral principles. Other lines of research at the time questioned the stage-based conceptualization altogether, while also asserting the influence of instruction on the developmental trajectory of moral reasoning and the importance of the broader educational context. Accordingly, current explorations of the development of moral reasoning emphasize its multifaceted and contextualized nature.

Jean Piaget was one of the first psychologists to explore the domain of moral reasoning. He proposed that children progress through two main stages of moral reasoning: from a “heteronomous” morality where rules are seen as fixed and coming from external authorities, to an “autonomous” morality where individuals recognize the flexibility and mutual creation of rules (Piaget, 1932). Lawrence Kohlberg expanded on this with a six-stage theory comprising three levels: pre-conventional, conventional, and post-conventional. Each level represents a fundamental shift in the person’s moral perspective, from an egocentric view in the pre-conventional stage to a principled understanding of universal ethical principles in the post-conventional stage (Kohlberg, 1973).

Responding to reported gender differences in moral development under a Kohlbergian model, Carol Gilligan argued that Kohlberg’s theory emphasized principles of justice and did not adequately account for the ethics of care and interpersonal relationships. She believed the latter were central to moral reasoning and, further, that their absence in the reported research arguably explained the resulting gender differences favoring males (Gilligan, 1982). Subsequent research on gender differences in moral reasoning has found that although females tend to use more care-related moral justifications than males do (Garmon et al., 1996; Jaffe & Hyde, 2000), scoring on Kohlbergian instruments does not exhibit a bias against females (Brabeck & Shore, 2002; Thoma, 1986; Walker, 1984).

Gilligan’s critique nonetheless led to a broader understanding of the development of moral reasoning to value both justice and care perspectives. Despite Kohlberg’s contention that the latter was reducible to the

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former, later work showed that, as Snarey and Samuelson (2014, p. 68) put it, “the ethic of care is a separate ethical voice that cannot be simply reduced to an ethic of justice.”

Elliot Turiel’s domain theory has strongly influenced current thinking about moral development, including the development of ethical thinking. Turiel (1983) posited that qualitatively different aspects of social and psychological experience give rise to different domains of social knowledge. Morality is one such domain, and it stands distinct from convention and personal preferences. There is strong empirical support from cross-cultural studies that young children and adults alike maintain distinctions between moral and societal conventions (Nucci & Powers, 2014). In the moral development literature drawing on domain theory, this finding has been interpreted to mean that moral reasoning does not develop from the acceptance of societal conventions or norms on to higher stages, but that moral reasoning has its own developmental trajectory.

Moral development research aligned with domain theory has found that when children up to roughly age seven reason about moral situations, they are concerned with avoiding harm and maintaining their own and others’ well-being, and that their reasoning is limited to actions in the child’s control (Davidson et al., 1983). Young children are challenged by moral situations where the needs of more than one person are involved, but their notions of benevolence, equality, and reciprocity emerge with maturity (Damon, 1977, 1980; Irwin & Moore, 1971). As Nucci and Powers (2014, p. 125) note,

the pattern of development reflects an increased ability of children to coordinate elements of moral situations within their justice reasoning. In the case of distributive justice, this increased capacity to handle complexity leads to a linear growth pattern of steady incremental changes in moral thinking.

A linear developmental trajectory does not appear to hold for all ethical thinking, however. Concepts of moral culpability and obligation follow a U-shaped pattern (Nucci & Powers, 2014), especially for non-prototypical moral situations where children’s increased understanding of the social world and their less developed notions of moral obligations causes moral judgments to vary. Table 3 presents a summary of the developmental trajectory of the moral domain derived from domain theory.

Table 3.
Moral Development According To Domain Theory

GRADE/AGE	FEATURES OF MORAL DEVELOPMENT
Kindergarten-Grade 2 5-7 years	<ul style="list-style-type: none"> • Recognize basic obligations for helping, sharing, avoiding harm • Difficulty coordinating needs of more than one person simultaneously • Moral decisions based on salience of moral elements
Grades 3-4 8-9 years	<ul style="list-style-type: none"> • Direct reciprocity • Tit-for-tat mentality • Indirect harm same as direct harm • Equal distribution is fair
Grades 5-6 10-11 years	<ul style="list-style-type: none"> • Concerns for equity, others’ special needs taken into account • Beginnings of attention to non-moral factors adding complexity to moral situations
Grades 7-9 12-14 years	<ul style="list-style-type: none"> • Consolidate relations between equity and equality in concepts of fairness • Attention to factors of ambiguity and complexity in moral situations • Conflation of personal choice with “rights” • Increased non-moral action choices in ambiguous contexts
Grades 10-12 15-17 years	<ul style="list-style-type: none"> • Increased ability to coordinate multiple factors in moral situations • Clear differentiation between personal choice and moral rights

Note: Adapted from Table 8.1 in Nucci & Powers (2014, pp.132-133); entries are verbatim from source.

Malleability of Ethical Thinking

As discussed above, research in moral psychology suggests that ethical thinking is a dynamic construct that can evolve with education. There also is strong biographical evidence that ethical perspectives, which shape ethical thinking, can change with experience. In a recent blog post, Joshua May, professor of philosophy and psychology at the University of Alabama at Birmingham, recounts how unusual experiences have altered individuals' perspectives on moral issues. A 1972 assassination attempt precipitated Alabama governor George Wallace's shift away from segregationist views; a pilgrimage encouraged Malcolm X to abandon violence as a means for social change; befriending a chicken farmer led Leah Garcés, an animal rights advocate, to develop empathy for those whose livelihoods depend on the bird; as a result of traveling abroad, Jonathan Haidt learned to step outside his "home morality" and "see beauty in a moral code that emphasizes duty, respect for one's elders, service to the group, and negation of the self's desires" (May, 2023, October 5; quote from Haidt, 2012).

Haidt also shows that societal influences play a crucial role in the development and malleability of ethical thinking (Haidt, 2001). As individuals interact with various cultural norms and social expectations, their ethical viewpoints can shift to either accommodate or resist these influences. This is evident in how societal changes often lead to shifts in collective moral perspectives, such as attitudes towards civil rights and environmental responsibility.

Finally, ethics education programs, which often incorporate case studies, role-playing, and debate, can enhance moral reasoning skills (Rest & Narvaez, 1994) and thus alter ethical thinking. Such programs do not merely impart knowledge; they actively engage professionals in the process of ethical decision-making, encouraging them to consider multiple viewpoints and the consequences of their actions.

Cultural Variability in Ethical Thinking

Ethical thinking is not a monolithic construct; rather, it is deeply influenced by cultural factors such as religious traditions, moral schools of thought, and culture-specific values.

The definitions section discussed religious traditions as a source for ethical thinking as a 21st century skill. Because different cultures often have different religious traditions, with their varying core ethical commitments and perspectives, ethical thinking can look different across cultures. Those differences reflect different emphases on the foundational values that form the ethical-considerations aspect of ethical thinking.

There are two main ways that cultural variability is apparent in ethical thinking. The first concerns the relative emphasis on the individual versus the community. The predominantly Western and European roots of moral psychology regard the individual as an autonomous moral agent and, consequently, the individual as the subject doing the ethical thinking. In contrast, many cultures in Africa, Asia, and the (non-U.S.) Americas emphasize the collective (e.g., Triandis, 1995). Any moral development framework that does not adequately address the role of the community in moral reasoning and decision-making is arguably incomplete (Siddle-Walker & Snarey, 2004; Snarey & Keljo, 1991).

The second way that moral reasoning exhibits cross-cultural variability, and which has implications for the development of ethical thinking, concerns moral foundations. Haidt (2012) identifies six moral foundations: care/harm, fairness/cheating, loyalty/betrayal, authority/subversion, sanctity/degradation, and liberty/oppression. The last four foundations, while not salient in the ethical thinking/related frameworks with

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Western origins, reflect significant aspects of moral reasoning in many other cultures. In-group loyalty, respect for authority, and sanctity are deeply ingrained in the ethical thinking of many societies, where such respect is seen as vital to social cohesion and the maintenance of social order (Haidt, 2012). This cross-cultural perspective presents a challenge for current thinking concerning moral development: acknowledging the importance of these foundations and their role in authentic ethical thinking, but without diminishing the centrality of harm and fairness, which are more widely recognized as core considerations for ethical thinking.

INSTRUCTION

Approaches to Teaching Ethical Thinking

Moral and character education programs are the primary means for providing students direct instruction in ethical thinking. Pedagogies for developing ethical thinking include approaches aligned with Kohlbergian stage-based theories, domain theory (Turiel, 1983), constructivism, and social-emotional learning. These methods acknowledge the critical role of schooling structures (such as relative student autonomy, student- versus teacher-centeredness of classrooms, and disciplinary policies and practices), and establishing the right atmosphere for moral development—and, by extension, the development of ethical thinking.

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Moral Dilemma Discussions

Although the totality of Kohlbergian approaches to moral education cannot be reduced to moral dilemma discussions—Kohlberg also advocated teaching students about exemplars and restructuring schools along progressive communitarian lines (Snarey & Samuelson, 2014)—such discussions are the hallmark of his contributions to ethical thinking instruction. Moral dilemma discussions are structured around hypothetical or real-life scenarios that present a moral conflict, requiring students to navigate complex ethical considerations. The format of these discussions typically involves the presentation of a dilemma, followed by guided exploration of the various moral perspectives involved. This exploration is enriched by incorporating elements of values clarification, interactive peer exchanges, and Socratic questioning. The point is to present students with morally ambiguous situations characterized by competing values, where what is morally right is not readily apparent. This allows students to achieve a morally “unbalanced” state that “evokes [their] awareness of the necessity of seeking out a resolution, motivates them to figure out the resolution, and promotes their efforts to restore equilibrium” (Araki, 2014, p.314).

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Cognitive Domain Theory-Based Approaches

Domain-theory approaches to developing ethical thinking emphasize the importance of providing a classroom climate of safety, care, and mutual respect (see Arsenio & Lover, 1995; Noddings, 2002); responding appropriately to student misbehavior; and allowing for students to explore moral issues that arise in the formal curriculum, especially in the teaching of literature and history (Nucci & Powers, 2014). Since domain theory posits that the social, moral, and personal are separate domains, each with its own developmental trajectory, this theory argues for addressing moral issues at all ages in a developmentally appropriate way. These issues arise in the curriculum whenever the actions of real or fictional characters highlight issues of fairness, justice, and well-being—that is, the core ethical considerations in ethical thinking.

Constructivist Approaches

Constructivist approaches to developing ethical thinking stand in contrast to traditional moral and character education, particularly at the earliest ages. The traditional approach favors the use of stories with clear moral lessons, whereas constructivists advocate developing children's understanding of core ethical considerations. The constructivist approach, especially in very young children, is through behavior: It involves minimizing external authority so that children develop a necessity to behave in socially appropriate ways. The constructivist moral educator looks for opportunities where children can learn, on their own, about the (ethically relevant) consequences of their actions. Encouraging children to consider the perspectives of others, find ways to work and play with their peers, and develop friendships engenders an intuitive understanding of well-being and other core ethical considerations, which children can later draw on when ethical thinking is called for (Hildebrandt & Zan, 2014).

Social-Emotional Learning Approaches

Social-emotional learning (SEL) frameworks typically focus on five core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020). These competencies lay the groundwork for thinking ethically, understanding and managing emotions, empathizing with others, establishing positive relationships, and making thoughtful ethical decisions.

Role playing and group discussions encourage students to consider the ethical implications of actions from multiple perspectives (e.g., Bell & Coleman, 2010). Furthermore, SEL programs often include conflict resolution and problem-solving, which are essential for addressing ethical dilemmas in a socially aware and responsible manner (Jones & Bouffard, 2012). These activities teach students not only to identify ethical issues but also to approach them considerately (Elias et al., 2008).

SEL emphasizes the importance of emotional regulation, which is particularly vital when ethical thinking is about situations involving complex emotional responses. Similarly, mindfulness training (a form of SEL) enhances students' ability to be present and aware, contributing to their capacity for ethical reflection and decision-making (Roeser et al., 2014).

Effects of Instruction on the Development of Ethical Thinking

Empirical research supports the effectiveness of the instructional approaches above in improving the development of ethical thinking.

Moral Dilemma Discussions

Snarey and Samuelson (2014) cite an early meta-analysis (Schlaefli et al., 1985) showing that dilemma discussions produce moderate and statistically significant improvements on Kohlbergian measures of moral reasoning. Subsequent studies confirmed the effectiveness of moral dilemma discussions in improving ethical thinking in various contexts. For example, Walker (2002) found that high school students who regularly engaged in these discussions demonstrated greater ability to reason about complex ethical issues compared with their nonparticipating peers. Similarly, Narvaez and Bock (2002) found that college students who participated in structured moral discussions showed significant improvement in ethical reasoning, particularly in their ability to consider multiple perspectives and to reason beyond personal biases and immediate consequences. Araki (2014) evaluated the dilemma discussion research conducted between 1985 and 1991 in elementary through junior high classrooms in Japan, concluding that that "Kohlberg's method produced a greater effect on the students' moral development than the traditional methods, and that its effect was considerable especially on the development of students' role-taking ability." (p. 317)

Dilemma discussions produce moderate and statistically significant improvements on Kohlbergian measures of moral reasoning.

Cognitive Domain Theory-Based Approaches

Cognitive domain theory distinguishes between moral, social-conventional, and personal reasoning. Nucci and Turiel (2009) found that instruction emphasizing this differentiation leads to a more nuanced understanding of moral issues, particularly in distinguishing these issues from social conventions. This approach helps students develop a clearer sense of ethical principles as distinct from societal norms, which improves the sophistication of their ethical thinking.

Constructivist Approaches

Empirical studies support constructivist instructional approaches to ethical thinking, which focus on students actively building their moral understandings. For example, collaborative learning and discussion can promote moral reasoning and ethical understanding (Berkowitz & Grych, 1998). Children in kindergarten classrooms organized around constructivist principles resolved significantly more of their own conflicts than children in rules-based setting. Important, resolving conflicts is characteristic of the autonomy of sophisticated ethical thinking (DeVries & Göncü, 1987; DeVries et al., 1991).

Social-Emotional Learning-Based Approaches

As mentioned above, the SEL competencies of self-awareness, self-management, social awareness, relationship skills, and responsible decision-making lay the groundwork for ethical thinking. There is ample evidence that SEL programs can develop these skills. Greenberg (2023) analyzed results from nine meta-analyses, ranging from 33 to 213 studies each, covering Pre-K through secondary levels, and all measuring outcomes on SEL competencies. He reported that SEL programs impact the development of these competencies, corresponding to effect sizes between .13 and .58 standard deviations.

MEASUREMENT/ASSESSMENT

Measuring Ethical Thinking

From their review of the 1900-2017 psychometric literature, Martí-Vilar et al. (2023) classified moral reasoning instruments into three groups: those based on Kohlberg's and Rest's theories, those based on a prosocial approach to moral reasoning, and batteries of dilemmas. Beyond these measures, some educational authorities provide rubrics with descriptions of varying degrees of sophistication of ethical thinking/related concepts. Here, we address the two groups of measures most connected to the assessment of ethical thinking.

Measures Based on the Model of Kohlberg and Rest

The Defining Issues Test (DIT; Rest et al., 1974) comprises either six (DIT-1) or five (DIT-2) dilemmas. Test-takers are prompted to express what they would do in each situation, and then rank the importance of several statements related to the respective dilemma. Statements are mapped onto moral schemas associated with different Kohlbergian stages, where a high ranking of a statement indicates the test-taker operates within the underlying moral schema/stage. The DIT is then scored based on the test-taker's highest-ranking statements. There are several indices for scoring: four development indices, three development profile and phase indices, and six experimental indices. Cronbach's alpha coefficients range from .70 to .81, depending on the test version and scoring index (Martí-Vilar et al., 2023, pp. 1286, 1291).

Martí-Vilar et al. (2023) list several other measures that are roughly based on the DIT, including some customized for ethical reasoning in specific professions. Two of these incorporate Carol Gilligan's insights on care and justice perspectives in moral reasoning. One of these, the Moral Reasoning of Service-Learning e-Tutors scale (Chih-Feng, Ching-Jung, Brent, & Ching-Yieh, 2016) is a 32-item test that measures five factors of college students' moral reasoning competencies: moral character, caring, social interaction, problem solving and empathy. Chih-Feng et al. (2016) report a Cronbach alpha reliability of 0.97. The other measure,

the Moral Justification Scale (MJS, Gump, Baker, & Roll, 2000) consists of six dilemmas, two oriented toward justice, two toward care, and two mixed. Gump et al. (2000) report a Cronbach's alpha of .75 and .64 for care and justice subscales of the MJS, respectively.

Rubrics for Ethical Thinking/Related Concepts

The ACARA and AACU ethical thinking frameworks, discussed above, both include rubrics.

The ACARA learning continuum for ethical understanding (ACARA, n.d.[c]) describes a learning progression of how a target skill should develop across six levels spanning 10 years of schooling. This rubric comprises three "elements" having 2-3 "sub-elements" each. For example, the element "understanding ethical concepts and issues" is composed of two sub-elements, one of which is "recognise ethical concepts." The corresponding objective for Level 4 (schooling Year 6) is that the student should be able to "examine and explain ethical concepts such as truth and justice that contribute to the achievement of a particular outcome."

In contrast, the AACU rubric (AACU, 2009) does not have a hierarchical organization of the elements of its target construct—ethical reasoning—nor does it provide anchors by level of schooling. Instead, this rubric comprises five parallel elements (e.g., "ethical self-awareness," "ethical issue recognition") and, for each, describes student work across four numbered levels of increasing quality: *Benchmark* (1), *Milestones* (2, 3), and *Capstone* (4). For example, the entry for ethical self-awareness at the capstone level is "Student discusses in detail/analyzes both core beliefs and the origins of the core beliefs and discussion has greater depth and clarity."

Issues With Assessing Ethical Thinking

Assessing ethical thinking involves practical, technical, and (fittingly) ethical issues. Here, we address three issues that ethical thinking assessment shares with the assessment of many other 21st century skills: The heightened relevance of context and purpose for assessment, sensitivity to construct definitions, and the relationship between the skill and related dispositional characteristics (capacity for ethical thinking is different from habitually engaging in ethical thinking, and both are distinct from consistently acting ethically). A fourth issue is particular to the assessment of ethical thinking: the interplay between ethical thinking and a person's core values.

Assessing ethical thinking involves practical, technical, and (fittingly) ethical issues.

Context and Purpose for Assessment

It is a truism that "form follows function"—that the right form of assessment follows from the purpose for assessing. For typical educational achievement outcomes, such as reading comprehension or proficiency with grade-appropriate mathematics, the question of purpose is more straightforward than for 21st century skills—ethical thinking included. The cross-curricular nature of these skills often renders them secondary to core academic outcomes of schools, even though there is considerable room for integration. The more distal nature of 21st century skills, as well as their slower development relative to target content, does not lend these skills to frequent assessment. Like critical thinking, creative thinking, and collaborative problem solving, ethical thinking is an aspect of the learner that is closer to who they are as a person. This suggests a need to carefully consider why one is assessing ethical thinking in the first place, how one will do so, and what student feedback will be provided. Where one's goal is to understand the effect of an instructional program on ethical thinking development, the assessment of ethical thinking is far less fraught than when assessment entails student feedback that draws on a continuum of ethical thinking skills.

Definitional Challenges

Like all 21st century skills, ethical thinking is a construct with blurred edges and disputed boundaries. Although greater clarity is possible on what is, and is not, ethical thinking (this paper is one such attempt),

such exercises do not guarantee alignment with notions of ethical thinking among consumers and users of assessment information. For example, there is a considerable gap between ethical thinking as a 21st century skill and notions of having ethics/integrity that employers seek among hires. It is easy to confuse ethical thinking with these positive personal characteristics that all education programs aspire to.

Relationship to Dispositions and Behavior

The AACU rubric cautions that,

although the goal of a liberal education should be to help students turn what they've learned in the classroom into action, pragmatically it would be difficult, if not impossible, to judge whether students would act ethically when faced with real ethical situations. What can be evaluated using a rubric is whether students have the intellectual tools to make ethical choices." (AACU, 2009, p.1)

The positive relationship between ethical thinking and ethical behavior notwithstanding, the former does not ensure the latter. The assessment of ethical thinking shares this caveat with other 21st century skills, which are primarily capacities for participating successfully in different school, social, or work settings, not the successful participation itself. Long-term follow-up studies would likely confirm a positive association between developing these capacities for participation (on the one hand) and successful participation (on the other).

Relationship to Values

Ethical decisions are often deeply rooted in personal values and beliefs, which vary widely among individuals. Understanding core values is a key component of several frameworks for ethical thinking/related concepts. For example, the AACU rubric for ethical reasoning calls for students to analyze their own core values, which AACU (2009, p.1) defines as "those fundamental principles that consciously or unconsciously influence one's ethical conduct and ethical thinking." Furthermore, "even when unacknowledged, core beliefs shape one's responses. Core beliefs can reflect one's environment, religion, culture or training." Cross-cultural variability in moral foundations has been documented by Haidt (2012). The variability of core values among individuals, as well as along political and cultural lines, can make the assessment of ethical thinking challenging. A critical component of such assessment, therefore, must be the degree to which those assessed can assume perspectives other than their own, which means considering other moral foundations—or, adopting the definition of ethical thinking proposed in this paper, using several moral considerations.

CONCLUSION

The paper delineated the conceptualization and development of ethical thinking in educational contexts. We began by formulating a definition of ethical thinking, integrating cognitive aspects with the influences of intuition, social needs, and moral foundations. The proposed definition acknowledges individual and cultural variability in ethical thinking and its potential enhancement through structured instruction. We then analyzed developmental theories of moral reasoning, noting its presence as a distinct domain in very young children as well as its cultural dimensions. Instructional strategies for fostering ethical thinking were then explored, reflecting a range of pedagogical approaches. We noted the strong research supporting the effectiveness of ethical dilemma discussions in developing ethical thinking. Finally, the paper summarized tools for assessing skills adjacent to ethical thinking (such as moral reasoning) and concluded with the importance of context and purpose in the assessment of ethical thinking.

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APPENDIX A

Summary of 21st Century Skills Frameworks for Ethical Thinking-Related Skills

Source	[AACU] American Association of Colleges and Universities VALUE Initiative – Valid Assessment of Learning in Undergraduate Education. [website] [American Association of Colleges and Universities (AACU), n.d.]
Term(s)	Ethical reasoning
Definition or description	“Ethical Reasoning is reasoning about right and wrong human conduct. It requires students to be able to assess their own ethical values and the social context of problems, recognize ethical issues in a variety of settings, think about how different ethical perspectives might be applied to ethical dilemmas and consider the ramifications of alternative actions. Students’ ethical self-identity evolves as they practice ethical decision-making skills and learn how to describe and analyze positions on ethical issues.” (AACU, 2009, p.1)
Framing	“From 2007 to 2009, teams of faculty experts representing colleges and universities across the United States worked together to develop 16 VALUE rubrics. The rubrics articulate fundamental criteria for the related learning outcomes and include performance descriptors demonstrating progressively more sophisticated levels of attainment. Utilized by more than 5,600 discrete organizations across 142 countries, the VALUE rubrics have made an essential contribution to the dialogue on the assessment of college learning.” (AACU, n.d.)
Components	“The rubric focuses on five elements: Ethical Self Awareness, Ethical Issue Recognition, Understanding Different Ethical Perspectives/Concepts, Application of Ethical Principles, and Evaluation of Different Ethical Perspectives/Concepts. Students’ Ethical Self Identity evolves as they practice ethical decision-making skills and learn how to describe and analyze positions on ethical issues.” (AACU, 2009, p.1)
Relations	The 16 rubrics developed under the VALUE initiative are: Civic engagement – local and global, creative thinking, critical thinking, ethical reasoning, foundations and skills for lifelong learning, global learning, information literacy, inquiry and analysis, integrative learning, intercultural knowledge and competence, oral communications, problem solving, quantitative literacy, reading, teamwork, and written communication.
Other	<p>The ethical reasoning VALUE rubric contains the following note about its uses and limitations. Note the distinction between ethical reasoning and acting ethically:</p> <p>“This rubric is intended to help faculty evaluate work samples and collections of work that demonstrate student learning about ethics. Although the goal of a liberal education should be to help students turn what they’ve learned in the classroom into action, pragmatically it would be difficult, if not impossible, to judge whether or not students would act ethically when faced with real ethical situations. What can be evaluated using a rubric is whether students have the intellectual tools to make ethical choices.” (AACU, 2009, p.1)</p> <p>The ethical reasoning rubric describes student capabilities along four numbered levels for each of the ethical reasoning component elements (ethical self-awareness, ethical issue recognition, etc.). The highest level (4) is labeled “Capstone”, the lowest (1) is labeled “Benchmark,” and the middle two (3, 2) are labeled “Milestones.” The rubric is intended to be applied by faculty to student work samples or collections of work.</p> <p>The rubric contains a glossary that provides further insight into how ethical reasoning should be understood:</p> <p>“Core beliefs: Those fundamental principles that consciously or unconsciously influence one’s ethical conduct and ethical thinking. Even when unacknowledged, core beliefs shape one’s responses. Core beliefs can reflect one’s environment, religion, culture or training. A person may or may not choose to act on their core beliefs.</p> <p>Ethical perspectives/concepts: The different theoretical means through which ethical issues are analyzed, such as ethical theories (e.g., utilitarian, natural law, virtue) or ethical concepts (e.g., rights, justice, duty).</p> <p>Complex, multi-layered (gray) context: The sub-parts or situational conditions of a scenario that bring two or more ethical dilemmas (issues) into the mix/problem/context/for student’s identification.</p> <p>Cross-relationships among the issues: Obvious or subtle connections between/among the sub-parts or situational conditions of the issues present in a scenario (e.g., relationship of production of corn as part of climate change issue).” (AACU, 2009, p.1)</p> <p>This rubric is the source of several higher education rubrics on ethical thinking/reasoning.</p>

APPENDIX A (CONTINUED)

Source	[ACARA] Ethical Understanding (Version 8.4). [website] [Australian Curriculum, Assessment and Reporting Authority (ACARA), n.d.(b)]
Term(s)	Ethical understanding
Definition or description	"[S]tudents develop ethical understanding as they identify and investigate the nature of ethical concepts, values and character traits, and understand how reasoning can assist ethical judgement. Ethical understanding involves students building a strong personal and socially oriented ethical outlook that helps them to manage context, conflict and uncertainty, and to develop an awareness of the influence that their values and behaviour have on others. It does this through fostering the development of 'personal values and attributes such as honesty, resilience, empathy and respect for others', and the capacity to act with ethical integrity, as outlined in the Melbourne Declaration on Educational Goals for Young Australians." [ACARA, n.d.(b)]
Framing	<p>"The general capabilities play a significant role in the Australian Curriculum in equipping young Australians to live and work successfully in the twenty-first century.</p> <p>In the Australian Curriculum, capability encompasses knowledge, skills, behaviours and dispositions. Students develop capability when they apply knowledge and skills confidently, effectively and appropriately in complex and changing circumstances, in their learning at school and in their lives outside school." [ACARA, n.d.(a)]</p> <p>The Australian Curriculum list seven general capabilities: Literacy, numeracy, information and communication, critical and creative thinking, personal and social capability, ethical understanding, and intercultural understanding.</p>
Components	<p>"The key ideas for Ethical Understanding are organised into three interrelated elements in the learning continuum." [ACARA, n.d.(b)]</p> <p>These elements are: Understanding ethical concepts and issues; reasoning in decision making and actions; and exploring values, rights and responsibilities. The Australian Curriculum describes these as follows:</p> <p>Understanding ethical concepts and issues. "Students learn to recognise ethical concepts and explore ethical issues in context. They identify, examine and give examples of ethical concepts. They discuss, analyse and explore dimensions of ethical concepts in context. In developing and acting with ethical understanding, students: [R]ecognise ethical concepts, [and] explore ethical concepts in context." [ACARA, n.d.(b)]</p> <p>Reasoning in decision making and actions. "Students consider the consequences of and reflect on ethical action. They analyse the reasoning behind stances when making ethical decisions and evaluate the intended and unintended consequences of actions in an increasing range of scenarios. Students articulate understandings of a range of ethical responses in social contexts. In developing and acting with ethical understanding, students: [R]eason and make ethical decisions, consider consequences, [and] reflect on ethical action." [ACARA, n.d.(b)]</p> <p>Exploring values, rights and responsibilities. "Students use instances of expressed values to explain social interactions and to determine rights and responsibilities in social and legal domains. They recognise and interpret points of view in ethical contexts. In developing and acting with ethical understanding, students: [E]xamine values, explore rights and responsibilities, [and] consider points of view." [ACARA, n.d.(b)]</p> <p>The Australian Curriculum publishes a learning continuum for ethical understanding. [See ACARA, n.d.(c)] It describes, for each of six levels anchored to expectations at the end of distinct years of schooling, what students should be able to do, for each sub-element within each of the above elements of ethical understanding.</p>
Relations	The Australian Curriculum describes how the general capability of ethical understanding can and should be developed in each learning area of the curriculum. These areas, listed in the order in which they feature content tagged to ethical understanding, are: Humanities and social sciences, history, geography, civics and citizenship, economics and business, technologies, health and physical education, the arts, languages, science, English, mathematics, and work studies.
Other	n/a

APPENDIX A (CONTINUED)

Source	[GGIE] Greater Good In Education. [website] (University of California, Berkeley, n.d.)
Term(s)	Ethical decision-making and social responsibility, ethical decision-making and responsibility, responsible decision-making
Definition or description	"[We] use the term ethical decision-making and responsibility for this component in order to emphasize the ethical dimensions of what it means to make decisions that are both personally and socially responsible."
Framing	"Responsible decision-making is one of the five components that make up CASEL's model of SEL. It means the ability to make caring and constructive choices about how to behave, based on consideration of ethical standards (i.e., "benefits and consequences for personal, social, and collective well-being") as well as relevant social norms and safety concerns."
Components	<p>"Skills involved in ethical decision-making and responsibility include:</p> <ul style="list-style-type: none"> • Demonstrating curiosity and open-mindedness • Learning how to make a reasoned judgment after analyzing information, data, and facts • Making ethical decisions based upon mutual respect and appropriate culturally-relevant social norms • Recognizing one's responsibility to behave ethically • Identifying solutions for personal and social problems • Anticipating and evaluating the consequences of one's actions • Recognizing how critical thinking skills are used both inside and outside of school • Reflecting on one's role to promote personal, family, and community well-being • Evaluating personal, interpersonal, community, and institutional impacts"
Relations	"The concept of ethical decision-making and responsibility is closely tied to the other components of SEL. For example, to do the right thing by standing up to friends who are mistreating others, a student needs to be in touch with their own values (self-awareness) and be able to regulate conflicting emotions (self-management); they also need to be able to empathize with those affected (social awareness) and resist peer pressure to join in (relationship skills)."
Other	n/a

APPENDIX A (CONTINUED)

Source	[PPSC – Pearson’s Personal and Social Competencies] Skills for Today: What We Know about Teaching and Assessing Social Responsibility. London: Pearson. [report] (Yarbro, J., & Ventura, M., 2019)
Term(s)	Ethical competence (dimension of social responsibility)
Definition or description	<p>“Social responsibility is broadly defined as taking responsibility to behave ethically and with sensitivity toward social, cultural, civic, and environmental issues.” (p.4)</p> <p>“[W]e have identified four key components of social responsibility, which we have termed ‘dimensions of competence.’” (p.9)</p> <p>“Several definitions of social responsibility highlight the need to act in an ethical or moral way. We define this dimension of competence as demonstrating knowledge and awareness of ethical standards and issues and applying ethical reasoning and standards to make decisions in ethically ambiguous situations.” (pp 10-11)</p> <p>“Definition”: “• Demonstrates knowledge and awareness of ethical standards and issues • Applies ethical reasoning and standards to make decisions in ethically ambiguous situations” (p.9)</p> <p>“Example Behaviors”: “• Is knowledgeable about relevant ethical standards within one’s field (i.e. responsible research conduct) • Can recognize ethical aspects of a situation • Applies ethical standards and reasoning to determine the most ethical course of action in a given situation” (p.9)</p>
Framing	The framework for social responsibility is part of series of summaries of Pearson’s Personal and Social Capabilities, described as “the competencies outside of academic knowledge that contribute to student success in school, work, and life.” (p.4)
Components	n/a
Relations	<p>Theoretical. The authors identify four dimensions of social responsibility, ethical competence being one of them. The other are multicultural competence (“• Is knowledgeable about different cultural identities and sensitive toward cultural differences,” p.9), civic competence (“• Is an informed and active citizen at the local, national, and global level • Understands and acts on issues of local, national, and global significance,” p.9), and environmental competence (“• Is knowledgeable about current issues of environmental significance • Is concerned about the well-being of the planet and engages in sustainable behaviors,” p.10). This suggests a theoretical relationship among these four dimensions.</p> <p>Empirical. The authors cite several studies examining the relationship between interventions that include the development of ethical competence and several outcomes. Among school age populations, they point to evidence linking such interventions with fewer incidences of negative social behavior, less substance abuse, a stronger sense of social responsibility, and higher scores on measures of ethical competence (including sensitivity to ethical issues and willingness to accept ethical responsibility). The authors cite a 2017 meta-analysis by Watts et al., of ethics training programs in the sciences (targeted to undergraduate students, graduate/medical students, and professionals/residents), showing positive effects on measures of ethical knowledge, perceptions of self, ethical decision-making, and metacognitive strategies. Effects of these programs were weak on general DIT measures, but stronger when DITs were adapted to the relevant field. In the field of business, ethics instruction had a moderate to large effect on participants’ (undergraduates’, MBA students’, working adults’) responses to measures of ethical decision-making and ethical behavior. (Medeiros et al., 2017)</p> <p>Watts, L. L., Medeiros, K. E., Mulhearn, T. J., Steele, L. M., Connelly, S., & Mumford, M. D. (2017). Are ethics training programs improving? A meta-analytic review of past and present ethics instruction in the sciences. <i>Ethics & Behavior</i>, 27(5), 351–384</p> <p>Medeiros, K. E., Watts, L. L., Mulhearn, T. J., Steele, L. M., Mumford, M. D., & Connelly, S. (2017). What is working, what is not, and what we need to know: A meta-analytic review of business ethics instruction. <i>Journal of Academic Ethics</i>, 15(3), 245–275.</p>

APPENDIX A (CONTINUED)

Other	<p>The source acknowledges the interchangeability of “ethical” and “moral” in the relevant research. (p.10)</p> <p>This document includes a summary of topics in the literature on ethical competence. (1) “ethical codes or standards that are specific to a given field” (p.11), (2) “ethical reasoning or how individuals make and justify their decisions in ethically ambiguous situations” (p.11), (3) “other conceptualizations of ethical competence suggest that individuals are ethical in the sense that they demonstrate certain universal virtues” (p.11). Under topic area 2, the authors cite and describe Kohlberg’s work. Under topic area 3, the authors cite and describe Peterson and Seligman’s (2004) evidence for six core virtues considered “good” across cultures. [Peterson, C., & Seligman, M. E. (2004). <i>Character strengths and virtues: A handbook and classification</i> (vol. I). Oxford: Oxford University Press.]</p> <p>The document cites these “representative measures” of ethical competence:</p> <ul style="list-style-type: none"> • Defining Issues Test (DIT-2; Rest, Narvaez, Thoma, & Bebeau, 1999) • Engineering and Science Issues Test (ESIT; Borenstein, Drake, Kirkman, & Swann, 2010) • Ethical Reasoning VALUE rubric [AACU, 2009(b)] • Values in Action Survey of Character Strengths (Peterson & Park, 2009) <p>Rest, J. R., Narvaez, D., Thoma, S. J., & Bebeau, M. J. (1999). DIT2: Devising and testing a revised instrument of moral judgment. <i>Journal of Educational Psychology</i>, 91(4), 644–659.</p> <p>Borenstein, J., Drake, M. J., Kirkman, R., & Swann, J. L. (2010). The Engineering and Science Issues Test (ESIT): A discipline-specific approach to assessing moral judgment. <i>Science and Engineering Ethics</i>, 16(2), 387–407.</p> <p>Association of American Colleges and Universities. (2009b). Ethical reasoning VALUE rubric. Retrieved from https:// www.aacu.org/ethical-reasoning-value-rubric</p> <p>Peterson, C., & Park, N. (2009). Classifying and measuring strengths of character. In S. J. Lopez & C. R. Snyder (Eds.), <i>Oxford handbook of positive psychology</i> (2nd ed., pp. 25–33). Oxford: Oxford University Press.</p>
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APPENDIX B

Analysis of 21st Century Skills Frameworks for Ethical Thinking-Related Skills

CATEGORY / FEATURE	AACU ETHICAL REASONING	ACARA ETHICAL UNDERSTANDING	GGIE ETHICAL DECISION- MAKING AND SOCIAL RESPONSIBILITY	PPSC ETHICAL COMPETENCE
THE ETHICAL SELF				
Knowledge of one's own values / ethical self-identity	+ "assess" those values	+ "develop an awareness of the influence that their values and behaviour have on others"		
Adopting values or building an ethical self-identity		"socially oriented ethical outlook" "development of [...] honesty, resilience, empathy, and respect for others"	demonstrating curiosity and open-mindedness" "recognizing one's responsibility to behave ethically"	
Developing a capacity to act ethically		+ "to manage context, conflict and uncertainty"		
ETHICAL CONCEPTS, STANDARDS, PERSPECTIVES, AND ISSUES				
Knowledge of ethical concepts		+ "investigate the nature of ethical concepts"		
Knowledge of different ethical standards or perspectives		"recognise and interpret points of view"		
Recognize ethical issues in situations				
ETHICAL THINKING				
Reasoning about ethical situations; analyze such reasoning		"analyze the reasoning behind stances" + "reflect on ethical action"	"learning how to make a reasoned judgment"	
Applying ethical perspectives to different situations; evaluating such applications or perspectives	+ "describe and analyze positions on ethical issues"	"articulate understandings of a range of ethical responses"		"applying ethical reasoning and standards"
Considering consequences	"ramifications of alternative actions"	"evaluate the intended and unintended consequences of actions"		

APPENDIX B (CONTINUED)

CATEGORY / FEATURE	AACU ETHICAL REASONING	ACARA ETHICAL UNDERSTANDING	GGIE ETHICAL DECISION- MAKING AND SOCIAL RESPONSIBILITY	PPSC ETHICAL COMPETENCE
ETHICAL DECISION-MAKING				
Making ethical decisions			<p>“ability to make caring and constructive choices about how to behave”</p> <p>“making ethical decisions based on mutual respect and appropriate culturally-relevant social norms”</p>	<p>“[...] to make decisions in ethically ambiguous situations”</p> <p>“to determine the most ethical course of action in a given situation”</p>



MEASURING STUDENT SUCCESS SKILLS: A REVIEW OF THE LITERATURE ON ETHICAL THINKING



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