journal of ethics in higher education

Biodiversity of Conscience: An Internal Framework Model for Ethical Pluralism in Higher Education

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June 2026

Keywords

Biodiversity of conscience, ethical pluralism, internal ecosystem, consilience, nocebo, ethical resilience, Internal Biodiversity Framework (IBF), higher education ethics, moral resilience.

Abstract

This article addresses a central challenge in higher education ethics: how can institutions cultivate morally resilient, ethically agile graduates and leaders in the face of growing value pluralism? Conscience is commonly conceptualised as a single-voiced, immutable inner judge — a view that insufficiently accounts for its dynamic, context-sensitive nature. Drawing on a metaphor from ecological biodiversity, this article introduces the Internal Biodiversity Framework (IBF), which reconceptualises conscience as an internal ecosystem of distinct ethical voices. Synthesising insights from psychodynamic theory, moral psychology, neurobiology, and traditions of Eastern and Western philosophy, the IBF proposes that ethical voice diversity strengthens moral resilience, enhances consilience (the creative integration of competing ethical perspectives), and acts as a natural buffer against ethical burnout and nocebo effects. The framework offers concrete, field-tested tools for higher education pedagogy, academic leadership development, and coaching, including an Ethical Voice Diary, an Ethical Ecosystem Map, and an Orchestra Conductor Protocol. Testable hypotheses are also proposed for future empirical validation through a draft Ethical Pluralism Scale. By repositioning conscience from a monolithic judge to a living ecosystem, the IBF provides higher education institutions with a principled, pluralistic approach to ethics education that resists both moral relativism and ethical monoculture.

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To quote this article: Çetin, Abdullah "Biodiversity of Conscience: An Internal Framework Model for Ethical Pluralism in Higher Education", *Journal of Ethics in Higher Education* 8.2(2026): 149-185. DOI: https://doi.org/10.26034/fr.jehe.2026.9780 © the Author. CC BY-NC-SA 4.0. Visit: https://jehe.globethics.net

1. Introduction

When we hear the word conscience, most of us imagine a single voice: an inner judge or tribunal. Yet modern philosophy from Galton onwards has recognised what Galton called the "Antechamber of Consciousness" (Galton 1883)—a sophisticated system where multiple voices, forces, and perspectives coexist and coordinate. This philosophical tradition, developed through Nietzsche, Hartmann, and Ribot, provides rich historical grounding for reconceptualising conscience as an internal ecosystem of diverse ethical voices.

This article aims to reconceptualise this polyphonic structure through the metaphor of biodiversity. Studies in botany and biodiversity have demonstrated the functional importance of diversity in nature: ecosystems with greater species richness are more resilient, adaptive, and productive than monocultures (Wilson 1998; Kimmerer 2013). Following this insight, the article proposes extending the same logic to the inner world of the human being: like a rainforest, conscience harbours different ethical voices. Compassion is one voice; justice is another; loyalty, freedom, responsibility, shame, pride, gratitude, disgust — all are native inhabitants of the ecosystem of conscience. This ecological reconceptualisation of conscience builds on the author's earlier applied work in Botanical Coaching, which first translated biodiversity metaphors into developmental and coaching practice (Çetin 2026).

This article specifically addresses how higher education can cultivate awareness of this ethical polyphony through structured pedagogical practices. The framework developed here—the Internal Biodiversity Framework (IBF)—generates concrete educational tools (Ethical Voice Diary, Ecosystem Map, Orchestra Conductor Protocol) designed to help students recognise and integrate multiple ethical perspectives in navigating complex moral situations.

Although the IBF has applications across all educational levels and professional fields, this article focuses specifically on its relevance for higher education contexts. Universities and professional schools face a distinctive

ethical challenge: they must prepare graduates not only with disciplinary knowledge but with the moral agility to navigate complex, contested value landscapes. In professional ethics courses, teacher training programmes, and academic leadership development, this framework offers a conceptual anchor and a practical toolkit. The article proceeds as follows: after establishing the conceptual and methodological foundations, it traces the empirical and philosophical support for ethical polyphony, develops the biodiversity metaphor with careful attention to its limits, examines why diversity matters functionally, and then presents concrete pedagogical and leadership applications before concluding with a future research agenda.

1.1 Ethics and Morality: A Conceptual and Lived Distinction

At a conceptual level, morality refers to the ready-made set of "right/wrong" rules that a society, culture, or religion presents to the individual. Ethics, by contrast, is the philosophical discipline that questions why those rules are right and that seeks a rational ground for decision-making when different rules come into conflict. This distinction is not merely academic: it has direct pedagogical implications for higher education. Moral instruction transmits norms; ethical education cultivates the capacity for reflective deliberation (Freire 1970; Noddings 1984).

At a lived level: is it right to tell a small lie to protect a friend? Morality simply recalls the rule "do not lie." Ethics, however, asks: "Would telling a lie in this situation lead to a greater good?" — weighing conflicting values (honesty against loyalty) and trying to reach a reasoned decision. Conscience is precisely the internalised result of this ethical deliberation. In higher education settings, students regularly encounter such dilemmas — in clinical placements, research ethics, and professional practice — where ready-made moral rules provide insufficient guidance. This article therefore treats conscience not as a memorised set of moral rules but as a dynamic ecosystem of ethical deliberation that can be cultivated through education.

1.2 Methodological Note: Conceptual-Analytic Framework and Scope

This article employs a conceptual-analytic methodology, synthesising theoretical frameworks from moral psychology, philosophy, neurobiology, and educational theory to construct a novel conceptual model. No primary empirical data are collected or analysed here; the IBF is positioned as a theoretical framework awaiting empirical validation. This approach is consistent with established practice in ethics education scholarship, where conceptual innovations frequently precede and inform empirical research (cf. Kohlberg 1981; Gilligan 1982; Haidt/Graham 2007). The limitations of this approach — in particular, the absence of quantitative or qualitative field data — are explicitly acknowledged, and a future empirical research agenda is outlined in Section 7.2.

Throughout this article, the biodiversity metaphor is used as an explanatory and heuristic tool; it does not carry any reductionist, biological determinist, or evolutionary claim. Unlike biological ecosystems, the human conscience is shaped by culture, language, education, history, and conscious choice. The article explicitly distances itself from social Darwinism and from any reading that would reduce moral agency to ecological mechanics. A threefold structure is maintained consistently: conscience begins with a neurobiological predisposition, is shaped by cultural and individual experience, and can be transformed through conscious reflective practice — a structure well-supported by developmental theory (Bronfenbrenner 1979; Piaget 1932) and consistent with the educational philosophy of conscientisation (Freire 1970).

Finally, it should be noted that the IBF shares conceptual territory with established plural-self models such as Internal Family Systems (IFS) and Dialogical Self Theory. The precise ways in which the IBF both draws on and departs from these traditions are examined in Section 2.5. The article's core originality lies not in the recognition that the self is plural — that insight has rich precedent — but in the ecological conceptualisation of that plurality and the specific educational, leadership, and coaching applications that follow from it.

2. Foundations of the Ethical Polyphony of Conscience

2.1 Psychodynamic and Developmental Contributions

Main claim: Conscience is a dynamic, layered structure in which internal tension is developmentally inevitable and functionally productive.

Sections 2.1.1–2.1.3 read Friedrich Nietzsche, Eduard von Hartmann, and Théodule Ribot directly from their own texts, since each engaged the organism and consciousness in ways that ground the IBF. That these three form a single philosophical tradition is established by Nietzsche scholars since 1980' (H.E. Lampl, *Le flair du livre*, 1988; also later I. Haaz, *Les conceptions du corps chez Ribot et Nietzsche*, 2002; J.-C. Wolf, *Eduard von Hartmann*, 2 vol. 2006) and trace the continuity between their organism-based accounts of consciousness and ethics. The reading below works from the primary sources and credits Haaz for that historical frame.

Sigmund Freud divided the human mind into id, ego, and superego (Freud 1923). The superego — the seat of moral internalisation — is itself composite: it integrates parental injunctions, cultural norms, and ideals that may conflict. Carl Jung argued that conscience is further shaped by archetypes drawing on the collective unconscious, introducing an irreducible depth to moral experience (Jung 1959). Jean Piaget identified two fundamental stages of ethical development — heteronomous and autonomous morality — demonstrating that even in childhood, moral understanding is not a static download but an evolving construction (Piaget 1932). Lawrence Kohlberg expanded this framework into six stages, each representing a qualitatively different relationship between self, others, and moral principle (Kohlberg 1981). These developmental models converge on a shared insight: conscience is a layered, increasingly polyphonic structure that evolves over time. The IBF extends this insight by treating the polyphony not as a transitional imperfection to be overcome but as the mature form of ethical functioning.

In higher education, this developmental perspective has direct pedagogical implications. Students entering university often operate at conventional moral stages, deferring to authority or peer norms. Ethics education — when designed around genuine dilemmatic enquiry rather than rule transmission — can support transition to post-conventional reasoning (Rest et al. 1999). The IBF's concept of ethical voice diversity offers educators a concrete framework for designing such experiences.

2.1.1 Friedrich Nietzsche and the Organism as Polyphony of Instincts

Nietzsche's natural-scientific reading of the human organism provides essential historical grounding for the IBF's conceptualisation of conscience as an internal ecosystem. Contrary to popular misreadings of Nietzsche as a theorist of perspectival values, Nietzsche was fundamentally concerned with the biological reality of the organism as a plurality of instincts and centres of control that must coordinate internally without reducing to a single voice. Drawing on 19th-century neurophysiology and Darwinian thought, Nietzsche reconceptualised willing itself as fundamentally plural. In Aphorism 19 of Beyond Good and Evil, Nietzsche describes the body as "a social structure composed of many 'souls'" (*Jenseits von Gut und Böse*, Aphorismus 19), in which commanding and obeying occur simultaneously (Nietzsche 1886, §19, p. 31 Kaufmann trans.).

The conscience, in Nietzsche's account, is not a judge standing above this biological complexity but a weak filtering apparatus serving an organism of extraordinary internal richness. Consciousness is the instrument through which the organism presents to itself a simplified, coherent picture of what is in fact a continuous internal coordination among competing drives. This polyphony of instincts — the irreducible plurality of forces within the body — operates through what Nietzsche calls "command and obedience": a myriad of subordinate faculties in the psyche coordinate themselves through dynamic leadership, without any one voice achieving permanent dominance. Crucially, this internal combat is not literal warfare but paradoxical coordination — the struggle itself is the mechanism by which diverse organic elements of different ranks subordinate themselves to multiple dynamic command centres whose authority shifts according to circumstance.

For the IBF, Nietzsche's naturalistic vision replaces the theological fiction of a unified conscience with a biological reality: the mature ethical self is one in which multiple instinctual voices achieve dynamic coordination rather than suppression. The apparent unity of conscience masks a fundamental plurality of drives and centres of control. Ethical development, in this Nietzschean framework, is not the elimination of competing voices but their maturation into genuine coordination.

2.1.2 Eduard von Hartmann on Multiple Consciousnesses and Subordinate Vitality

The German philosopher Eduard von Hartmann (1869) developed a sophisticated account of the plurality of consciousnesses within the organism in his *Philosophie des Unbewussten*. Hartmann argued that the organism does not function as a unified consciousness but rather as "a collection of partial organisms — a higher-order individual containing within its depths and subordinating to itself a multitude of other individuals, each possessing its own life" (Hartmann 1869, *Philosophie des Unbewussten*). Each partial consciousness possesses its own vitality and tendency—a position fundamentally distinct from Enlightenment rationalism's assumption of unified consciousness. This Counter-Enlightenment view received a scholarly analysis (J.-Cl. Wolf, 2006) which demonstrated the foundational importance of Hartmann's account to understanding conscience as composed of multiple, coordinated centres of decision-making and ethical accountability.

Hartmann's cardinal insight is that consciousness and will at the highest levels function not as commanding authorities but as filtering and coordinating apparatuses, is building on Schopenhauerian voluntarism, Hegelian and Schelling's categories. The organism, in this conception, requires central regulation not through suppression of subordinate vitalities but through orchestrated coordination that respects the integrity of each subordinate system. These partial consciousnesses are not defects or developmental stages to be overcome; they are constitutive features of biological organisation itself—what Hartmann (1869) termed the fundamental structure of all living complexity.

For the IBF, Hartmann's framework establishes the biological reality of ethical polyphony without resorting to either mechanical models or mystical unity. The conscience that appears as singular to the individual is actually a dynamic coordination of multiple consciousnesses, each contributing its own perspective and tendency. The mature ethical self is not one that has eliminated internal plurality but one that has achieved genuine coordination among multiple centres of responsibility and decision-making. This coordination is neither hierarchy (where lower voices are suppressed) nor chaos (where voices contradict without integrating), but dynamic orchestration wherein different vocal ranges contribute their full capacity to the whole.

2.1.3 Théodule Ribot and the Coordination of Psychological Functions

Ribot, founder of the *Revue philosophique* (1876) and pioneer of modern psychology, provided crucial theoretical scaffolding for understanding the functional organisation of internal ethical plurality. Ribot's cardinal contribution was the distinction between evolution and dissolution — between the coordination of psychological functions in health and their *désagrégation* in pathology. Ribot demonstrated that will, memory, and personality are not singular entities but complexes of coordinated functions; their strength depends not on the dominance of a single voice but on the degree of coordination among their component parts. In health, coordination and stability constitute the fundamental condition; in pathology, incoordination and instability are the markers of functional dissolution.

Ribot's concept of coordination is not the triumph of a single voice over competitors, but the dynamic integration of multiple impulses under shifting leadership. Weakness of will, for Ribot, is not the failure of a strong voice to dominate; rather, it is the disconnection and oscillation among multiple impulses lacking a coordinating centre. In Ribot's formulation, strength of will derives from the coordination of impulses under a single predominant impulse; weakness results from their disintegration and oscillation without systematic organisation (Ribot 1883, *Les maladies de la volonté*, Ch. I). The multiplicity of impulses is not itself pathological; rather, pathology emerges precisely when these multiple impulses lack effective coordination.

For the IBF, Ribot's framework establishes that ethical functioning depends on genuine coordination rather than hierarchy or suppression. An ethical voice that is silenced rather than coordinated does not disappear; it operates as a disrupting force beneath consciousness, generating the internal discord that Ribot identified as characteristic of dissolution. The mature ethical self is one in which all voices remain active, but organised under dynamic coordination that permits both integrity and responsiveness. This is what Ribot meant by "health" — not the triumph of one function but the coordinated plurality of all functions working toward common ends.

2.1.4 Integration: The Organism, Polyphony, and Coordination as Historical Synthesis

The three thinkers examined in Sections 2.1.1–2.1.3 — Nietzsche, Hartmann, and Ribot — constitute a unified 19th-century philosophical and scientific tradition concerning the organism and its internal complexity. Nietzsche reconceptualised conscience from a judge into a weak filtering apparatus serving a biological multiplicity. Hartmann established that multiple consciousnesses coexist within the organism, each with its own vitality, coordinated but not unified under a single supreme authority. Ribot provided the functional vocabulary for understanding this coordination: the distinction between health (genuine coordination of multiple functions) and pathology (*désagrégation* and incoordination). Together, these three thinkers grounded ethical polyphony not in philosophical abstraction but in naturalistic observation of the organism's irreducible complexity.

This historical synthesis is not merely scholarly antiquarianism. The IBF's central metaphor — conscience as an internal ecosystem — is rooted in this precise biological vision: the organism is not a monolith but a collection of partial organisms, each with its own tendency, coordinated through dynamic leadership that respects the integrity of each voice rather than suppressing alternatives. The ethical maturity that the IBF seeks to cultivate in students is precisely this: the capacity to maintain multiple ethical voices in active coordination, neither reducing them to a single dominant register nor allowing them to fragment into unintegrated discord. The functional ecology of conscience, in this light, is not a novel invention but a translation of 19th-

century natural philosophy into contemporary educational and psychological practice.

The historical continuity of Nietzsche, Hartmann, and Ribot as a unified tradition of organism-based psychology and natural philosophy is established through foundational comparative scholarship found in the Nietzsche Research/Studies, which systematically demonstrated the philosophical and conceptual links among these thinkers, establishing them as a coherent tradition in European natural philosophy and psychology. The IBF's reconceptualisation of this tradition through ecological metaphor builds directly on the historical synthesis that this scholarship first established, extending it into contemporary educational and psychological practice.

2.2 Care Ethics and Social Interest

Main claim: Ethics is not built solely on justice and rights; care, responsibility, and relationality are equally fundamental ethical voices, and their inclusion is especially consequential in higher education.

Having established the historical and biological foundations of ethical polyphony in the 19th-century organism tradition (Sections 2.1.1–2.1.4), we now turn to the contemporary empirical and philosophical support for this pluralistic vision. The framework below shows how the IBF draws on multiple modern research traditions — developmental psychology, care ethics, neurobiology, and moral psychology — to substantiate the claim that ethical diversity is not a deficiency but a constitutive feature of mature moral functioning. Each section establishes one dimension of this plurality and its functional significance for ethical resilience and educational practice.

Carol Gilligan's foundational critique of Kohlberg argued that his justice-centred framework systematically undervalued a "different voice" oriented towards care, relationship, and contextual sensitivity (Gilligan 1982). Nel Noddings systematised this approach into a relational ethics of care that has since profoundly influenced educational philosophy (Noddings 1984). Alfred Adler, working from a different tradition, defined Gemeinschaftsgefühl (social interest) — the sense of belonging to and responsibility for a human community — as a central criterion of psychological health (Adler 1929). In

higher education specifically, care ethics has informed debates about student wellbeing, inclusive pedagogy, and the ethics of mentorship (Noddings 1984). The biodiversity of conscience thus encompasses not only the voice of justice but also the voices of care and social interest — both of which must be cultivated in graduates entering professions with significant relational responsibilities.

2.3 Neurobiological Foundations

Main claim: Ethical reasoning is distributed across multiple neural systems, providing a neurobiological basis for the plurality of ethical voices posited by the IBF.

Koenigs et al. (2007) demonstrated that individuals with damage to the ventromedial prefrontal cortex make systematically different utilitarian judgements, suggesting that affective processing is not an obstacle to moral reasoning but a constitutive component of it. These findings align with Antonio Damasio's somatic marker hypothesis: emotion and reason are not opponents but collaborators in moral judgement (Damasio 1994). The representation of different ethical voices in distinct but interacting neural systems provides a neurobiological foundation for the IBF's central claim that ethical plurality is not a defect of cognition but an architectural feature of the moral mind.

2.3.1 The Neural Network of the Heart and Ethical Intuition

Main claim: The heart's intrinsic nervous system processes information independently of the brain, and heart–brain coherence is associated with enhanced ethical intuition and emotional regulation — a finding with implications for somatic ethics education.

Ancient traditions across cultures — the Huangdi Neijing (Veith 2002), Al-Ghazali (1058–1111), and Anatolian Sufi philosophy — regarded the heart as the centre of ethical intuition. Modern neuroscience has documented that the heart possesses an intrinsic nervous system of approximately 40,000 neurons capable of independent processing (Armour 1991), providing one neurobiological basis for the phenomenological association between somatic states and ethical sensitivity. The claim that heart–brain coherence produces

enhanced ethical decision-making remains speculative and requires further empirical validation (McCraty 2015 reports correlations that have not been independently replicated in mainstream neuroscience). What the IBF draws on instead is better established: somatic awareness and interoceptive sensitivity are recognised in psychology and neuroscience as foundational to emotion regulation and ethical judgment (Garfinkel/Critchley 2013). This suggests that body-aware practices such as reflective mindfulness may cultivate ethical sensitivity alongside formal philosophical reasoning. The use here is heuristic; the physiology of cardiac function lies outside the scope of this article. The ecosystem of conscience encompasses both innate competencies (echoing Leibniz's critique of Locke's pure empiricism) and environmental influences—neither nature nor nurture alone, but their dynamic interaction.

2.4 Moral Foundations Theory

Main claim: Human ethics is composed of at least six fundamental dimensions; individual differences in weighting these dimensions constitute a form of ethical diversity rather than a hierarchy of deficiency.

Jonathan Haidt's Moral Foundations Theory (MFT) identifies six dimensions along which moral intuitions vary across individuals and cultures: care/harm, fairness/cheating, loyalty/betrayal, authority/subversion, sanctity/degradation, and liberty/oppression (Haidt/Graham 2007). MFT research consistently shows that individuals and groups differ substantially in how they weight these dimensions, and that this variation is psychologically real and cross-culturally robust (Bago et al. 2022). For the IBF, the key implication is that such differences represent a form of moral diversity — analogous to species diversity in an ecosystem — rather than a hierarchy of moral competence.

Important caveat: Haidt's model has attracted significant methodological and theoretical criticism, including charges of political bias in item construction and insufficient cross-cultural validation (Suhler/Churchland 2011). The IBF draws on MFT's six dimensions solely as an illustrative taxonomy of ethical voices. It does not endorse MFT's broader evolutionary or political claims,

and it remains open to alternative taxonomies as the empirical literature develops.

2.5 Dialogue with Existing Plural-Self Models

The IBF does not emerge in a theoretical vacuum. Two established frameworks — Internal Family Systems (IFS) (Schwartz 1995) and Dialogical Self Theory (DST) (Hermans/Kempen 1993) — already posit that the self is constituted by multiple internal voices or parts.

Richard Schwartz's IFS model treats internal "parts" as wounded figures that require therapeutic healing; the goal is integration under a healthy "Self." Hubert Hermans' DST conceptualises the self as a dynamic multiplicity of "I-positions" in dialogical exchange, drawing on Bakhtin's literary theory of the polyphonic novel. Both frameworks acknowledge internal plurality and have generated rich empirical research programmes.

The IBF's distinctive contribution is threefold. First, where IFS positions internal parts as clinical objects requiring repair, the IBF treats ethical voices as ecologically functional — each occupying a niche and contributing to system resilience. The orientation shifts from therapy to cultivation. Second, where DST's I-positions encompass the full range of self-representation (including cultural, social, and narrative identities), the IBF restricts its focus to ethical voices specifically, enabling targeted educational application. Third, the IBF introduces ecological concepts — niche, symbiosis, endemism, succession, resilience — that generate specific, testable hypotheses about the functional consequences of ethical voice diversity (see Section 7.2). This conceptual precision distinguishes the IBF as a contribution to ethics education rather than to psychotherapy.

2.6 Contributions of Eastern and Ancient Traditions

While the Western academic tradition tends to treat conscience as an individual and rational structure, Eastern and ancient traditions approach it within a collective, relational, and holistic framework. The IBF explicitly integrates these perspectives, treating them not as exotic supplements but as substantive theoretical resources.

Ibn Miskawayh's Tahdhib al-Akhlaq (10th century CE): The great Islamic philosopher of character ethics presents the inner balance of virtues as a practical capacity that can be developed through sustained educational practice — directly anticipating the IBF concepts of "succession" (the maturation of the ethical ecosystem over time) and "conscious cultivation" (Ibn Miskawayh 2002). His insistence that character is the product of habit and education, not innate endowment, resonates with contemporary educational philosophy.

Confucius' concept of ren (仁): Translated as "humanity" or "benevolence," ren functions not merely as an individual virtue but as a relational capacity that acquires its meaning in the quality of one's relationships and social roles (Chan 1955). In the IBF's terms, ren can be understood as the voice of relational ethics — a voice that is systematically suppressed in institutional contexts dominated by procedural justice and rule-compliance.

2.7 Botanical Metaphor: Justification and Limitations

The choice of botanical/biodiversity language requires explicit justification. Three points clarify this methodological selection and address the shift from organism metaphor (Sections 2.1) to ecosystem metaphor (Section 2.7 onwards):

1) Pedagogical Accessibility: Unlike abstract models of the Unconscious, botanical framing generates direct classroom application. Students can map their ethical ecosystem concretely (deep-rooted values, rapid-growth impulses, dormant perspectives), enabling embodied learning. The 19th-century tradition (Nietzsche, Hartmann, Ribot) emphasised internal coordination and multiplicity of forces; the ecosystem metaphor extends this by providing a language of coexistence, niche differentiation, and symbiosis that better serves educational purposes. Both organism and ecosystem models recognise internal plurality and coordination; the ecosystem framework offers particular advantages for ethics education because it avoids the implication of developmental stages (which might suggest transcendence of earlier moral capacities) and instead emphasises the simultaneous presence and coordinated activity of multiple ethical voices. The shift to ecosystem

language enables the IBF's core pedagogical claim: ethical maturity consists not in graduating beyond earlier moral capacities but in coordinating all voices—new and established—toward integrated response.

2) Preservation of Difference: The model does not collapse category boundaries between plant, animal, and human consciousness. Rather, it identifies shared structural principles of dynamic coordination across living systems—what Roux identified as interaction of diverse forces requiring coordination. The organism metaphor emphasises internal struggle; the ecosystem metaphor emphasises coexistence. Both are valid; the IBF privileges the latter for educational purposes because it better captures the goal of ethical development without elimination.

3) Acknowledged Limitations: The botanical metaphor does not explain logic, reasoning, or cognition—these remain irreducible to ecological processes. The framework illuminates only emotional-ethical polyphony and mechanisms of value coexistence within personality. Nor should the ecosystem metaphor be read as collapsing the distinction between biological and ethical/psychological processes — it is a heuristic tool, not a reduction.

2.7.1 Wilhelm Roux and the Organism as Internal Combat: Development Without Competitive Elimination

Wilhelm Roux, one of the founders of modern experimental embryology, built his account of the organism around the "combat of parts" (*Der Kampf der Teile im Organismus*). For Roux, both development and mature function depend on internal struggle: organic elements compete for resources and functional dominance, and for survival within the living whole. In his theory, competitive elimination is not a by-product but a mechanism of development. Parts that lose this internal competition atrophy and become rudimentary, while the parts that win persist and grow. His principle of "functional adaptation" follows directly: tissues develop in response to functional demands, and unused capacities degenerate through disuse and competitive loss.

Roux's framework shares with Nietzsche and Hartmann an essential insight: the organism is NOT monolithic but constitutively plural and internally

dynamic. However, Roux's model makes competitive elimination STRUCTURAL — a necessary feature, not an incidental outcome. Mature organismic form is precisely the result of some parts winning and others atrophying. This differs fundamentally from the IBF's ecological framework.

The IBF draws on Roux's core insight (internal plurality + dynamic coordination) whilst explicitly rejecting his conclusion that maturation requires elimination. In ecological terms: an ecosystem's maturity does not depend on species extinction; rather, mature ecosystems maintain maximum diversity precisely because all species continue to occupy their ecological niches. Applied to conscience, this means that ethical maturation does NOT proceed through the competitive elimination of earlier moral voices (as Roux's model might suggest). Instead, a mature ethical consciousness is one in which all voices remain active, contextually activated according to situational demands, and dynamically coordinated without requiring any voice to atrophy or be rendered obsolete.

In the internal ecosystem of conscience, earlier ethical voices (shame, loyalty, basic care responses) may be less frequently activated in abstract deliberation but remain present and available for full recruitment under conditions where they are contextually appropriate. A student may develop more sophisticated ethical frameworks without losing access to simpler, more emotionally immediate ethical responses; the goal is integration through orchestration, not maturation through elimination.

In pedagogical terms, this distinction is decisive. A Roux-inspired approach would structure ethics education as a developmental sequence in which earlier, simpler moral frameworks progressively give way to later, more complex ones through competitive replacement — the stronger ethical voice gradually displacing and eliminating the weaker. Classical stage-based moral development (Piaget, Kohlberg) reflects this assumption: progress means advancing beyond conventional morality toward post-conventional reasoning; the old stages are transcended and left behind. By contrast, the IBF's biodiversity approach treats the mature ethical self as a system where all voices remain present and active simultaneously, coordinated but not ranked hierarchically or eliminated through development. A student may

mature in ethical sophistication without losing access to earlier voices; rather, they develop the capacity to coordinate all voices more effectively. For this reason, the biodiversity metaphor better captures the IBF's core claim that ethical maturity consists not in graduating to a "higher" moral stage (and thereby rendering earlier stages obsolete) but in cultivating the capacity to hold multiple voices in dynamic coordination, allowing each its full voice whilst orchestrating them toward integrated ethical response.

3. Borrowing the Language of Biodiversity: Ethical Metaphors and Their Limits

3.1 Glossary of Core Metaphors

Reading guide: The following table summarises the principal biodiversity concepts employed in this article and their counterparts in the internal ecosystem of conscience. Each metaphor functions as an explanatory and heuristic tool. None implies evolutionary necessity, biological determinism, or normative equivalence of all ethical voices. The table is followed by fuller elaboration of each concept.

Ecological concept	Counterpart in conscience	Higher education example
Species diversity	Different ethical voices coexisting	A medical ethics seminar surfaces voices of care, justice, autonomy, and professional loyalty simultaneously.
Habitat	The context that activates a particular voice	Justice-voice dominates in academic integrity proceedings; care-voice in student pastoral support.
Ecological niche	The functional role of a voice in ethical reasoning	The loyalty-voice preserves institutional trust; the freedom-voice protects academic enquiry.
Symbiosis	Productive cooperation between voices	Compassion + justice → restorative academic misconduct processes.

Ecological concept	Counterpart in conscience	Higher education example
Endemism	Person-specific ethical sensitivities	A first-generation student's acute awareness of social inequality constitutes an endemic ethical voice.
Succession	Maturation of the ethical ecosystem over time	Graduate students transition from rule-following (heteronomous) to principled judgement (autonomous) ethics.
Ethical resilience	Capacity to recover integrity after moral stress	A lecturer recovers from institutional pressure to inflate grades by drawing on multiple ethical voices.
Consilience	Creative integration of conflicting voices	A research ethics committee that balances scientific freedom, participant safety, and public benefit.

3.2 Species Diversity, Habitat, and Ecological Niche

The internal ecosystem of conscience contains different ethical voices: compassion, justice, loyalty, freedom, responsibility, shame, pride, gratitude, and disgust, among others. Each voice represents a distinct ethical orientation (Haidt/Graham 2007) and becomes more active in its appropriate habitat — the contextual situation that calls it forth. In higher education, this contextual activation is especially visible: the voice of academic freedom is most alive in debates over curriculum or research priorities; the voice of care is most prominent in student welfare decisions; the voice of justice is most salient in assessment and appeals processes. Each voice occupies an ecological niche — a specific functional role within the ecosystem that would be impoverished by its absence. An institution that silences the voice of care in favour of procedural justice alone will produce graduates with formidable analytical skills but impoverished relational ethics.

3.3 Symbiosis, Endemism, and Succession

In nature, symbiosis describes a mutually beneficial coexistence of different species, each providing conditions for the other's flourishing. The voices within conscience can enter into similar relationships. While compassion and

justice may initially appear to conflict — mercy versus accountability — their creative interaction generates more sophisticated ethical responses, such as restorative justice practices that are becoming increasingly influential in higher education discipline systems (Karp 2019). Compassionate justice is not a compromise that dilutes both; it is a symbiotic hybrid that exceeds either alone.

Endemism — the presence of species found nowhere else — points to the irreplaceable individuality of each ethical ecosystem. Every person possesses ethical sensitivities shaped by their unique history: a first-generation university student's acute awareness of structural inequality, a refugee scholar's heightened sense of precarity and solidarity, a mature student's professionally-formed sense of duty — these are the endemic ethical voices of their ecosystems, valuable precisely because they cannot be standardised away. Diversity-aware ethics pedagogy in higher education can actively cultivate these endemic voices rather than suppressing them in favour of a uniform "professional" ethical register.

Succession — the maturation of an ecosystem through predictable developmental stages — maps naturally onto the developmental theories of Piaget and Kohlberg. Conscience does not spring fully formed; it matures through stages of increasing complexity and integration. The IBF adds to this classical picture by suggesting that the goal of succession is not a single dominant voice but a rich, integrated ecosystem of voices — a pluralism that is structured rather than anarchic, diverse rather than relativistic.

3.4 Limits of the Biodiversity Metaphor

A rigorous conceptual framework must be transparent about where its metaphors break down. Three principal disjunctions between biological and ethical ecosystems require explicit acknowledgement:

Evolution versus agency: Biological species evolve through natural selection operating on random variation over geological timescales; the internal ecosystem of a human being can be transformed through conscious choice, deliberate practice, and education within a single lifetime. This is a crucial

disanalogy: the IBF's educational programme is premised on the agency of students and practitioners, not on passive ecological drift.

Value neutrality versus ethical hierarchy: In ecology, all species have equal biological standing. In conscience, some ethical voices carry greater weight than others. Respect for human dignity, non-maleficence, and the prohibition on treating persons merely as means are not mere preferences to be balanced against competing voices; they are what Rawls (1993) calls overlapping consensus principles that anchor every legitimate ethical framework. The IBF is not ethically relativist: diversity of ethical voices is valued instrumentally, for the resilience and wisdom it generates, not intrinsically, as though all ethical positions were equally valid.

External versus internal collapse: A biological ecosystem collapses primarily under external pressure (habitat destruction, climate change, invasive species). The internal ecosystem of conscience can be eroded by internal dynamics — repression, dissociation, trauma, and the defence mechanisms that silence uncomfortable voices. This internal dimension requires therapeutic as well as educational intervention.

4. Why Ethical Diversity Matters: Functional Benefits of a Polyphonic Conscience

4.1 Ethical Resilience and Burnout Prevention

Main claim: Ethical resilience is not passive endurance but the active capacity to maintain moral integrity, recover from moral distress, and learn from ethical challenge — a capacity that may be enhanced by internal ethical diversity.

Cynda Rushton's landmark work on moral resilience in healthcare documented that practitioners with a richer repertoire of ethical frameworks experience significantly less moral distress and burnout than those operating from a single ethical voice (Rushton 2018). Moral distress — the suffering that results from being unable to act in accordance with one's ethical convictions — is endemic in professions shaped by institutional constraints,

time pressure, and conflicting obligations. Higher education staff and students are not immune: academic integrity dilemmas, research ethics conflicts, and the pressure to conform to institutional cultures can all generate moral distress. The IBF proposes that a more diversified internal ethical ecosystem may buffer this distress: when one ethical voice is blocked or overwhelmed, others can keep moral functioning going. The parallel is ecological redundancy, where several species perform overlapping roles and the system stays stable even when one is under stress. This is a hypothesis, and testing it empirically is a priority for future work.

For higher education, ethics education that cultivates a range of ethical voices — rather than training students in a single theoretical framework — may be better positioned to produce graduates who can sustain ethical practice under real-world pressure. Professional ethics curricula in medicine, law, and business have begun to move in this direction; the IBF offers a conceptual rationale for extending this approach across higher education more broadly, pending empirical validation of its core functional claims.

4.2 Creativity and Consilience

E. O. Wilson (1998) defined consilience as the linking together of different branches of knowledge into a unified explanatory framework. In ethical life, the analogue is the creative integration of competing ethical voices into a response that neither silences any voice nor is paralysed by their conflict. Consider a university research ethics committee weighing the scientific value of a dual-use study against participant risk, institutional reputation, and public benefit: the committee that can genuinely hear all these voices — scientific freedom, care, justice, and social responsibility — is more likely to reach a decision that is both practically wise and morally defensible than one in which a single voice (say, procedural risk-minimisation) dominates. Ethical consilience is not relativist compromise; it is the disciplined integration of legitimate ethical claims. This capacity can be developed at three levels: individual (personal reflection and dilemmatic enquiry), relational (team-based ethical deliberation), and institutional (governance structures that formally represent multiple ethical perspectives).

4.3 The Nocebo Effect and Ethical Self-Efficacy

Main claim: Negative ethical expectations — the belief that one cannot act morally — become self-fulfilling prophecies through mechanisms homologous to the nocebo effect; ethical voice diversity breaks this cycle.

The nocebo effect — the harmful consequences of negative expectations — has well-established neurobiological foundations: negative expectations activate the hypothalamic-pituitary-adrenal axis and suppress immune function through pathways distinct from those involved in the placebo effect (Benedetti 2013; Colloca/Benedetti 2005). The IBF proposes an ethical analogue: a conscience locked into a single, often negative or paralysing voice ("I cannot do the right thing in this institutional context") generates an ethical nocebo effect in which moral inaction becomes a self-fulfilling prophecy. The phenomenon is well-documented in educational research as a component of ethical disengagement (Bandura 1999): students who believe that "the system" makes ethical action impossible stop attempting to act ethically, and their disengagement confirms their belief. A polyphonic conscience, by contrast, provides multiple points of ethical agency: even when one voice is blocked, others can identify available pathways to moral action, sustaining ethical self-efficacy.

4.4 Ethical Pluralism and the Charge of Relativism

The IBF's defence against ethical relativism rests on three arguments. First, the ecological metaphor itself distinguishes between species diversity (valued) and the absence of keystone species (harmful). In every healthy ecosystem, some species are foundational: their removal triggers collapse. Similarly, the IBF posits keystone ethical voices — respect for human dignity, the prohibition on treating persons merely as means, non-indifference to suffering. These voices are keystone not because of intuitive appeal but because they are recognised across independent ethical traditions (deontological, consequentialist, virtue-ethical, care-ethical, and others) as prerequisite to any coherent moral system. Following Immanuel Kant and contemporary accounts of human rights, respect for dignity and the prohibition on treating persons merely as means function as constraints that

any legitimate ethical framework must respect (Kant 1785; Rawls 1971). Their suppression is not a form of ethical diversity but a violation of the normative foundations on which pluralism itself rests.

Second, John Rawls' concept of "overlapping consensus" provides a procedural resolution: different ethical traditions converge on a common core of basic principles even while diverging on their theoretical foundations and their specification of these principles in particular contexts (Rawls 1993). The IBF does not require that all ethical voices be treated as equally valid; it requires that they be genuinely heard before being weighed and, where appropriate, overridden by these foundational constraints.

Third, diversity and universality are not opposites. As Wilson observed in a different context, biological diversity is sustained by universal ecological laws; ethical diversity is sustained by universal principles of human dignity that make pluralism possible in the first place. The IBF's aspiration is a structured pluralism: a community of ethical voices that is diverse but not anarchic, inclusive but not indiscriminate.

5. Imbalances and Threats: The Loss of Ethical Biodiversity

5.1 Ethical Monoculture and Institutional Pressure

A conscience dominated by a single ethical voice — ethical monoculture — is less resilient, less creative, and more vulnerable to catastrophic failure than a diverse ethical ecosystem. In higher education, institutional cultures can inadvertently cultivate ethical monocultures: overemphasis on metrics and audit cultures may systematically privilege the voice of procedural compliance at the expense of care, professional solidarity, and academic freedom (Shore/Wright 2000). The result is not ethical clarity but ethical fragility: when the dominant voice is disrupted — by a genuine dilemma, an institutional crisis, or personal moral distress — the institution or individual has no alternative ethical resources to draw on.

Travis Hirschi's Social Bond Theory provides a complementary perspective: when individuals' bonds to community, commitment to shared goals, and belief in legitimate norms are weakened, they become more susceptible to "invasive" ethical voices from external sources — ideological, commercial, or institutional pressures that colonise the ethical vacuum (Hirschi 1969). Totalitarian ideologies and destructive group dynamics exploit precisely this mechanism, suppressing internal ethical diversity to make compliant actors. Higher education institutions that actively cultivate ethical voice diversity in their students and staff are not merely enriching individual moral lives; they are building institutional resistance to ethical capture.

5.2 Trauma, Epigenetics, and the Suppression of Ethical Voices

Significant life trauma can silence ethical voices through neurobiological and psychological mechanisms. Teicher and Samson (2016) documented the enduring neurobiological effects of childhood adversity on prefrontal cortical development — precisely the neural systems most associated with complex moral reasoning. Recent epigenetic research demonstrates that early-life stress is associated with altered DNA methylation patterns that affect emotional regulation and cognitive flexibility across the lifespan (Sumner et al. 2022). For higher education institutions, which serve increasingly diverse student populations including those with histories of adversity, this research underlines the importance of psychologically safe learning environments as prerequisites for ethical development.

Aldo Leopold's concept of an ecological conscience — the extension of ethical concern to the land community — offers a further dimension (Leopold 1949). The IBF suggests that individuals who are disconnected from natural environments, or who are overwhelmed by ecological anxiety, may experience a corresponding impoverishment of their inner ethical ecosystem: the voice of ecological responsibility is suppressed by helplessness, and the resulting moral disengagement compounds the crisis. Reconnecting students to natural environments — through environmental ethics curricula, field-based learning, and campus sustainability practices — may therefore have effects on ethical development that extend well beyond environmental concern.

6. Fields of Application in Higher Education, Psychology, and Leadership

6.1 Higher Education Pedagogy

Urie Bronfenbrenner's ecological systems theory (Bronfenbrenner 1979) and Paulo Freire's pedagogy of conscientisation (Freire 1970) provide the dual educational foundation for the IBF's pedagogical applications. Bronfenbrenner reminds us that ethical development occurs within nested ecological contexts — classroom, institution, community, culture — none of which can be treated in isolation. Freire reminds us that genuine ethical education requires the problematisation of received norms, not their passive transmission. Together, they support a pedagogy that is contextually sensitive and critically reflexive. The following tools have been developed from the IBF to operationalise these principles:

Ethical Voice Diary: A structured daily reflection tool in which students record, at the end of each day, which ethical voice was most active, which was most suppressed, and what decision they faced. Over a semester, these diaries generate rich personal data about habitual voice patterns and contextual triggers. Educators can use anonymised diary themes as the basis for seminar discussion, connecting individual experience to theoretical frameworks.

Ethical Ecosystem Map: A visual mapping exercise in which students represent their internal ethical ecosystem as a metaphorical landscape — a "inner rainforest." Strong voices appear as large trees; weak or suppressed voices as seedlings or shadows. The exercise surfaces implicit ethical priorities that formal debate often conceals, and creates a basis for structured reflection on voice imbalance. In diverse cohorts, sharing maps generates productive recognition of ethical endemism — the unique voices that different students bring.

Dilemma Studio: A structured deliberative format in which each participant is assigned a different ethical voice (care, justice, loyalty, freedom, sanctity)

and must argue from that voice's perspective on a real institutional dilemma. The studio format — modelled on design studio critique — creates conditions for genuine consilience: participants must listen to voices they do not habitually occupy, and the group must produce an integrated response that takes all voices seriously.

Ethics Biography: Students construct a narrative account of their ethical development — identifying formative experiences, voice acquisitions, and voice suppressions — informed by the succession metaphor. This biographical approach, consistent with narrative ethics pedagogy (Nelson 2001), connects theoretical frameworks to lived experience and supports identity formation as an ethical practitioner.

These tools are designed to be modular: they can be integrated into existing ethics courses, professional placement programmes, or leadership development seminars without requiring a complete curriculum redesign. Facilitator guidance for each tool is under development and will be shared in subsequent publications.

6.2 Psychology and Coaching

The IBF's ecological orientation translates naturally into coaching and psychological practice. The following protocols have been developed for use with individual clients and coaching groups:

Internal Ecosystem Assessment Interview: A semi-structured interview protocol that maps dominant, recessive, and suppressed ethical voices. The practitioner asks: "Which of your ethical voices have you heard most often in the last six months? Which has spoken hardly at all? What might the suppressed voice want to say?" This interview generates a personal ethical ecosystem profile that can guide subsequent coaching work.

Dominant Species Test: An ethical voice profile instrument, currently under development (see Section 7.2), that assesses the relative weight of ethical voices across the six MFT dimensions and beyond. The profile allows clients to see their own ethical "species distribution" and to identify potential sources of resilience and vulnerability.

Body–Conscience Integration: A practice sequence that develops somatic ethical awareness through interoceptive exercises. Drawing on Garfinkel and Critchley's (2013) evidence that interoceptive accuracy is foundational to emotion regulation and self-awareness, these exercises help clients recognise the bodily correlates of different ethical voices — enabling more rapid and reliable access to ethical intuition under pressure.

6.3 Academic Leadership and Consilience Governance

Academic leaders — heads of department, deans, senior managers — operate in environments of sustained ethical complexity: resource allocation, personnel decisions, curriculum policy, and public accountability all generate simultaneous ethical demands. The IBF offers two leadership-specific protocols:

Ethical Diversity Audit: A structured organisational assessment that examines which ethical voices have been systematically represented — or excluded — in an institution's decision-making processes over a defined period. The audit generates an institutional "ecosystem map" analogous to the individual map described in Section 6.1, identifying monoculture risks and potential endemism resources.

Orchestra Conductor Protocol: A decision-making discipline in which the leader systematically asks, before every significant decision, five structured questions corresponding to five ethical voices: (1) Who might be harmed and how? (Care) (2) Who bears the costs and who the benefits, and is this fair? (Justice) (3) What does this decision signal about our institutional commitments? (Loyalty) (4) Does this protect or constrain the freedom of individuals? (Liberty) (5) Does this accord with our deepest values as an academic community? (Sanctity/Integrity) This protocol structurally prevents single-voice decision-making and leaves a documented record of multi-voice deliberation.

6.4 An Eight-Week IBF Implementation Programme: Draft Outline

The following table outlines a provisional eight-week programme for applying the IBF in higher education ethics courses, leadership development

seminars, or coaching cohorts. Each week focuses on one core component of the framework. The programme is designed to be iterative: later weeks build on the insight and materials generated in earlier ones.

Week	Focus	Core concept	Sample activity
1	Mapping the ecosystem	Species diversity	Complete an Ethical Ecosystem Map. Identify three dominant and one suppressed voice.
2	Context and activation	Habitat sensitivity	Ethical Voice Diary. Track which voice dominates at work, in personal life, and under stress.
3	Productive conflict	Symbiosis	Dilemma Studio with a real institutional case. Identify one compassion–justice symbiosis.
4	Unique sensitivities	Endemism	Ethics Biography extract. Identify one ethical voice that is personally endemic.
5	Change over time	Succession	Reflective essay: "How has my ethical ecosystem changed in the last five years, and why?"
6	Recovery capacity	Ethical resilience	Design a personal "moral recovery protocol" for use in ethical distress situations.
7	Integrating conflict	Consilience	Real-life dilemma: formulate a response that takes two competing voices equally seriously.
8	Leadership application	Consilience governance	Apply the Orchestra Conductor Protocol to a departmental or institutional decision.

This programme outline is a starting point; detailed session protocols, facilitator guides, and assessment rubrics are under development and will be presented in subsequent publications. The programme has been piloted informally in coaching contexts; formal educational evaluation is planned as part of the future research agenda described in Section 7.2.

7. Conclusion: The Internal Biodiversity Framework

7.1 Summary and Conceptual Model

This article has reconceptualised the polyphonic structure of conscience through the metaphor of ecological biodiversity, introducing the Internal Biodiversity Framework (IBF) as a novel theoretical contribution to ethics education in higher education. The IBF proposes that conscience functions as an internal ecosystem in which different ethical voices coexist, compete, and cooperate. Eight core concepts structure the framework:

Species diversity – the plurality of ethical voices (compassion, justice, loyalty, freedom, responsibility, and others) as the basic resource of moral life.

Habitat – the contextual situations that activate particular voices.

Ecological niche – the functional role that each voice performs within the ecosystem.

Symbiosis – the productive relationships between voices that generate more sophisticated ethical responses.

Endemism – the person-specific ethical sensitivities that constitute irreplaceable moral resources.

Succession – the developmental maturation of the ethical ecosystem over time.

Ethical resilience – the active capacity to maintain integrity, recover from moral distress, and learn from ethical challenge.

Consilience – the creative integration of conflicting voices into responses that are wiser than any single voice could produce.

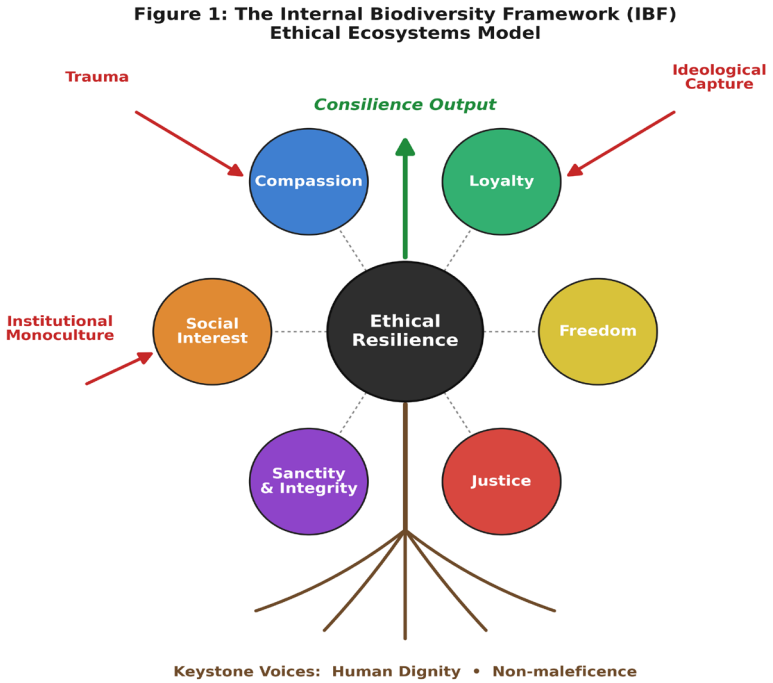


Figure 1: The Internal Biodiversity Framework (IBF) – Ethical Ecosystems Model.

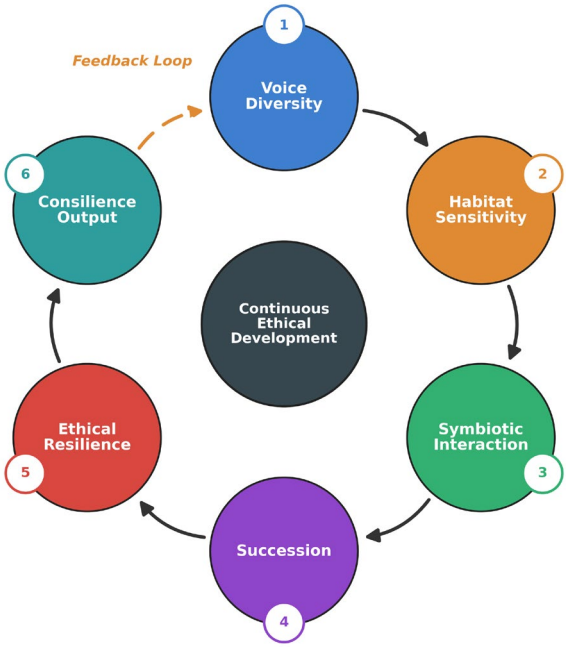


Figure 2: IBF Component Flow – From Diversity to Consilience.

Theoretical positioning: The IBF differs from Kohlberg's unilinear stage model by treating ethical plurality as the mature condition rather than a transitional imperfection. It differs from Rawls' rational universalism by grounding ethical reasoning in a richer, more contextually sensitive set of voices. It differs from Freud's conflictual superego model by treating internal ethical tension as functional rather than pathological. It distinguishes itself from IFS by emphasising ecological cultivation over therapeutic repair, and from Dialogical Self Theory by focusing specifically on ethical voices and generating targeted educational applications. These distinctions position the IBF as an original contribution to the fields of moral psychology, ethics education, and academic leadership development.

7.2 Future Research Agenda

The IBF is presented here at the conceptual-theoretical level. Its translation into empirical research requires, first, the development of valid and reliable

measurement instruments, and second, the design and execution of studies that test its core claims. Two primary hypotheses are proposed for initial empirical investigation:

H1: Individuals who score higher on ethical voice diversity (as measured by a future IBF-based Ethical Pluralism Scale) will report significantly lower levels of moral distress and ethical burnout on validated instruments (e.g., Corley et al.'s Moral Distress Scale, Rushton's Moral Resilience Scale).

H2: Individuals with documented histories of significant adversity will show more restricted ethical voice profiles (monoculture patterns) compared to control groups, with effect sizes moderated by the presence of therapeutic or educational interventions.

A draft Ethical Pluralism Scale (EPS) is under development. Items are designed to assess both the breadth of ethical voice repertoire and the flexibility of contextual activation. Indicative items (five-point Likert format) include:

— "When facing a difficult decision, I can easily consider multiple ethical perspectives (e.g., compassion, justice, loyalty)."

— "I am aware that different situations (work, family, solitude) activate different ethical values in me."

— "I actively try to integrate competing ethical values (such as justice and compassion) rather than choosing one."

— "My conscience has changed significantly over the course of my adult life."

— "I feel that suppressing an ethical voice (e.g., compassion for the sake of rules) reduces my overall moral confidence."

A pilot validation study combining the EPS with an established ethical dilemma battery (target n = 60–100) is planned. The full instrument, together with detailed facilitator guides for the educational tools described in Section 6, will be presented in subsequent publications. Researchers interested in collaboration on instrument development or programme evaluation are invited to contact the author.

As John Ruskin once observed: "There are many religions, but there is only one morality" (Ruskin 1853). This article has attempted to show that the unity Ruskin sought need not require uniformity. Conscience at its most developed is not a silent, singular, immutable judge sitting above the noise of ethical life: it is a living, breathing, growing ecosystem — diverse in its voices, resilient in its structure, and capable of integration that wisdom traditions across the world have always known by other names. For higher education, which bears a distinctive responsibility for the moral formation of the next generation of professionals and leaders, this ecological vision of conscience offers both a compelling ideal and a practical programme of action.

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9. Short biography

Abdullah Çetin is an Antalya-based educator (Turkey), biologist and project coordinator. He works in sustainability, science education and NGOs, and

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