

VALUE-CENTERED DEVELOPMENT: EXPLORING THE ROLE OF SOCIO-HUMANISTIC AND SCIENTIFIC VALUES IN FOSTERING A JUST AND VIRTUOUS SOCIETY

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Abstract

In an era marked by rapid technological advancement, ecological crises, and widening social inequalities, traditional development models primarily driven by economic metrics have proven inadequate for addressing the complex and multifaceted challenges of contemporary society. This study explores the imperative of integrating socio-humanistic and scientific values into a unified, interdisciplinary framework for value-centered development. Drawing on insights from sociology, ethics, psychology, sustainability science, and engineering, it highlights how human dignity, empathy, justice, and equity must intersect with empirical reasoning and technological innovation to foster inclusive and sustainable progress. Conceptual frameworks such as Service-Dominant Logic (S-D Logic) and Value-Based Engineering

(VBE) are examined as models for operationalizing ethical principles within socio-technical systems. Through global and Nigerian case studies in education, urban planning, and public policy, the research underscores the transformative potential of interdisciplinary approaches. It also critically engages with the epistemological tensions, risks of moral relativism, and institutional barriers that impede integration across disciplines. The study concludes by advocating for a renewed commitment to epistemic pluralism and collaborative governance, asserting that a just and virtuous society depends on the deliberate synthesis of socio-humanistic ideals and scientific rationality.

Introduction

In the contemporary era characterized by rapid technological innovation, environmental degradation, and socio-political turbulence, the pursuit of sustainable and equitable development has become increasingly imperative. Conventional development paradigms, which are primarily driven by quantitative economic indicators, often neglect the foundational human values that are essential for achieving holistic and meaningful progress. As emphasized by the Price (2004), the cultivation of human values is critical not only for advanced societies seeking to mitigate human suffering, environmental decline, and psychological distress but also for developing nations striving to address socioeconomic challenges and advance in science and technology.

Richards (2020) further highlight that individuals aspire to live in environments that allow them to think freely, express themselves creatively, and find meaningful experiences. This reinforces the importance of embedding human-centered values into the spaces we inhabit. Such awareness has generated a growing need to integrate socio-humanistic ideals alongside scientific imperatives within development discourses. Thibault (2019) notes that although the term “humanism” is often interpreted broadly, it holds deep significance across disciplines, including sociology. From a sociological perspective, Klimczuk et al. (2024) asserts that adopting a humanistic outlook provides deeper insight into the structural and dynamic forces that shape human behavior, thereby promoting individual freedom and self-awareness. In a related vein,

humanistic psychology emphasizes personal agency, self-actualization, and the inherent worth of every individual, advocating for development approaches grounded in human dignity and well-being (Wang, 2024).

At the same time, the transformative role of science and technology in shaping societies is undeniable. While these advancements have contributed to economic prosperity and improved living conditions, they have also introduced ethical dilemmas and deepened social inequalities. 'Dwivedi et al. (2024) argue that bridging this divide requires interdisciplinary collaboration that incorporates the humanities. The National Science Foundation's humanities-based initiatives, such as the Toolbox Project, exemplify this approach by promoting dialogue between scientists and philosophers. Through the use of philosophical frameworks, the Toolbox Project fosters ethically responsible scientific practice and enhances interdisciplinary understanding (Gamage, 2025).

The limitations of development models focused exclusively on economic growth have become increasingly evident amidst widening inequality, cultural dissonance, and environmental crises. A values-based approach to development seeks to address these shortcomings by integrating ethical, cultural, and social dimensions into development policy and practice. This perspective emphasizes justice, equity, and human dignity, advancing a more comprehensive vision of progress that harmonizes scientific innovation with socio-humanistic values.

This vision aligns with global calls for inclusive and sustainable societies as championed by the United Nations and other international organizations. UNESCO, for example, stresses the importance of embedding social and human scientific insights into policymaking to promote equitable development in areas such as climate adaptation, cultural inclusion, and resilience building (Aluko et al., 2024). Similarly, the Earth Charter Initiative advances a holistic ethical framework that views environmental protection, human rights, sustainable development, and peace as interdependent and mutually reinforcing. It calls for a shared global responsibility toward human and planetary well-being (Kamoun, 2001). Anchoring development within a value-centered framework thus ensures that progress is evaluated not only through economic metrics but also through the well-being of individuals and communities, ecological integrity, and the vitality of social and cultural systems.

Statement Of The Problem

Despite the growing recognition of the importance of integrating values into development paradigms, a critical gap remains in constructing comprehensive frameworks that effectively combine socio-humanistic and scientific perspectives. This gap hinders the creation of development strategies that are both ethically sound and empirically grounded. The primary challenge lies in reconciling the divergent perspectives and epistemologies of various disciplines to produce cohesive and actionable development models.

Research in sustainability science has highlighted the difficulties of integrating diverse value domains, social, ecological, and economic, due to methodological and epistemological tensions such as logical incompatibility and technical inconsistency (Curşeu & Schruijer, 2017). These tensions often result in fragmented strategies that weaken the coherence and effectiveness of development initiatives. Simons et al. (2022) further observe that interdisciplinary integration, especially in areas like conservation planning, is frequently impeded by cognitive and social biases, including group think and dominance effects. Although tools such as multi-criteria decision analysis offer potential for reconciling differing perspectives, they sometimes produce consensus outcomes that fail to fully capture the diversity of stakeholder views. Overcoming these challenges requires deliberate and systematic efforts to design integrative frameworks that respect the complexity and diversity of human values across disciplinary boundaries. Such frameworks are crucial for creating development strategies that are ethically and scientifically robust, socially inclusive, and practically viable. This study, therefore, aims to explore the interdisciplinary convergence of socio-humanistic and scientific values in promoting a just, inclusive, and virtuous society. By examining the intersections among ethical principles, cultural norms, and technological advancement, the study seeks to propose a comprehensive value-centered model of development. The significance of this inquiry lies in its potential to inform policymaking, curriculum reform, and community-based initiatives directed toward sustainable and holistic progress.

Conceptual Framework

Conceptual Framework: Value-Centered Development, Socio-Humanistic Values, and Scientific Rationality in Development Practice

This conceptual framework integrates value-centered development, socio-humanistic ethics, and scientific rationality into a coherent, ethically informed model for sustainable and inclusive development. It advocates a paradigm shift from predominantly economic-centric models to a multidimensional approach grounded in ethical, cultural, humanistic, and evidence-based principles.

1. Value-Centered Development

Value-centered development redefines traditional development discourses by transcending mere economic growth indicators and incorporating ethical and humanistic dimensions. Rooted in the philosophy of *humanistic economics*, this model emphasizes the primacy of human well-being, dignity, and moral responsibility over market efficiency and financial gain. Central to this perspective is Amartya Sen's seminal concept of *development as freedom*, which posits that development entails the expansion of individual capabilities and opportunities, thereby enabling people to lead lives they value (Rambaldi, 2022). The theoretical foundation of this approach is grounded in **axiological ethics**, a branch of philosophy concerned with the nature and significance of values. According to "—Groothuizen, (2025), development informed by axiological ethics upholds intrinsic human values such as dignity, justice, empathy, and equity as guiding principles in policy formulation and implementation.

2. Socio-Humanistic Values in Development

Socio-humanistic values refer to ethical and psychological principles that prioritize human dignity, empathy, equity, and social justice. Drawing from humanistic psychology, particularly the works of Abraham Maslow and Carl Rogers, this perspective highlights the innate human potential for self-actualization and the universality of basic human needs. Maslow's *hierarchy of needs* and Rogers' *person-centered approach* provide foundational models for understanding how development efforts should respond to both individual and collective aspirations.

These values can be organized into three interrelated ethical domains:

- i. **Autonomy** – emphasizing justice, individual rights, and personal freedom.
- ii. **Community** – stressing social responsibility, mutual interdependence,

and collective well-being.

iii. Divinity – reflecting respect for tradition, spirituality, and moral order.

In pluralistic and multicultural societies such as Malaysia, integrating socio-humanistic values like religious tolerance and cultural respect has been shown to strengthen social cohesion and community resilience (Kuah et al., 2020).

3. Scientific Rationality and Ethical Innovation

Scientific rationality enhances development by promoting evidence-based decision-making, logical reasoning, and empirical inquiry in addressing complex societal challenges. However, its effectiveness depends on an ethical framework that ensures scientific progress aligns with the broader public interest. Ethical grounding in science is particularly crucial in emerging fields such as artificial intelligence, biotechnology, and data science, where unchecked innovation may exacerbate social inequalities or introduce systemic biases.

Volchik et al. (2023) emphasize that embedding scientific rationality within policymaking enhances the legitimacy and effectiveness of development strategies by ensuring inclusivity, transparency, and accountability. The interaction between innovation and cultural-institutional contexts further reveals how societal values influence technological trajectories and developmental outcomes. This conceptual framework thus harmonizes ethical values, socio-humanistic principles, and scientific rationality within development discourse. By aligning normative commitments with empirical methodologies, it proposes a transformative paradigm of development, one that prioritizes human dignity, fosters inclusive growth, ensures ethical innovation, and upholds social justice across diverse societies.

4. Interdisciplinary Approaches to Value-Centered Development

The pursuit of a just and virtuous society amid technological and socio-economic change requires an integrative paradigm that bridges normative human values with scientific reasoning and systemic design. Two contemporary frameworks, Service-Dominant Logic (S-D Logic) and Value-Based Engineering (VBE) offer interdisciplinary lenses through which value-centered development can be reconceptualized.

a. Service-Dominant Logic (S-D Logic)

Developed by Vargo et al. (2008), S-D Logic redefines value creation in

economic and social exchanges by shifting from a *goods-centered* to a *service-centered* logic. This perspective views all actors, individuals, institutions, and technologies as mutual resource integrators engaged in *service-for-service* exchange. Value is no longer embedded in tangible goods but co-created contextually and determined phenomenologically by the beneficiary (Vargo et al., 2008). This approach aligns with socio-humanistic visions of development, where value is defined not by profit but by well-being, meaning, and reciprocal benefit. The axioms of S-D Logic, particularly co-creation (FP6), resource integration (FP9), and institutional coordination (FP11) support a systems-oriented view of justice in which distributed agency and ethical interdependence are central to collective advancement.

b. Value-Based Engineering (VBE)

Spiekermann (2023) introduced VBE as a methodology for embedding ethical values into the design of socio-technical systems. While S-D Logic addresses value co-creation, VBE focuses on how such values are elicited, prioritized, and operationalized in technological innovation. Drawing from *value-sensitive design* (VSD) and *participatory ethics*, VBE promotes engineering practices that advance virtues such as dignity, equity, transparency, and human flourishing. By rejecting the reduction of value to profit, VBE restores the philosophical depth of value as what is intrinsically *good, true, or beautiful*. Both S-D Logic and VBE emphasize contextual integrity and stakeholder participation, underscoring that technological systems are not neutral but socio-political constructs that shape and are shaped by societal values. Together, they offer a blueprint for ethically aware and democratically grounded development.

Literature Review

Efforts to embed values within development and governance frameworks have yielded distinct models, notably Value-Based Management (VBM) and Creating Shared Value (CSV). Both seek to align organizational strategies with societal expectations but face conceptual and practical limitations.

1. Value-Based Management (VBM)

Originating in the neoclassical economic tradition Martin and Ekram Yawar (2025), VBM has evolved through several phases. As Wobst et al. (2025) summarize in their systematic review, VBM primarily operates within a

shareholder primacy paradigm, emphasizing shareholder value maximization via residual income metrics, economic value added (EVA), and performance-linked compensation. While advocates argue that VBM aligns management decisions with long-term firm value (Firk et al. (2021)), critics highlight its instrumental rationality and neglect of broader stakeholder concerns. Even “enlightened” forms of VBM often reduce stakeholder interests to tools for maximizing shareholder returns, limiting its capacity for pluralistic governance” (Pichet, 2011).

2. Creating Shared Value (CSV)

Roszkowska-Menkes (2021) introduced CSV as a corrective to traditional Corporate Social Responsibility (CSR), proposing that businesses can simultaneously achieve economic success and social progress. CSV emphasizes three strategies:

- i. Reconceiving products and markets;
- ii. Redefining productivity in the value chain; and
- iii. Enabling local cluster development.

They argue that societal needs should be viewed as business opportunities, making capitalism a vehicle for collective welfare. However, Painter-Morland (2013) and others contend that CSV suffers from operational ambiguity and may serve as a rhetorical justification for business-as-usual strategies. Critics also highlight CSV's reliance on economic rationality and its failure to address power asymmetries among stakeholders, resulting in uneven implementation (Beschoner & Hajduk, 2017). Measurement challenges, lack of social-environmental metrics, and Western-centric case studies further limit its global applicability.

3. Comparative Insights

Despite their limitations, both VBM and CSV aspire to reconcile corporate strategy with societal imperatives. Yet, as Zopounidis and Lemonakis (2024) argue, true innovation requires transcending the shareholder–stakeholder dichotomy through sustainable governance frameworks that integrate ethical plurality, long-term stakeholder engagement, and measurable social outcomes. The evolution of these frameworks underscores a crucial need for embedded ethical accountability, co-creation mechanisms, and systemic evaluation tools that align economic activity with the principles of justice, equity, and human

dignity.

Interdisciplinary Analysis

Socio-Humanistic Contributions to Development

Socio-humanistic values empathy, dignity, and equity, are foundational to inclusive development and socially responsive policymaking. Empathy, particularly in education, enhances inclusivity and dismantles systemic barriers. As Rogahang et al. (2024) notes, empathetic teaching fosters equitable learning environments by recognizing and responding to students' diverse backgrounds.

In Namibia, the University of Namibia's response to COVID-19 exemplifies the application of these values. Despite infrastructural challenges, such as unstable electricity and limited internet access, the university adopted blended learning approaches grounded in classical liberalism and social constructivism frameworks that promote equal opportunity and human dignity (Okpalaoka, 2021). The International Covenant on Economic, Social and Cultural Rights (ICESCR) frames education as both a human right and a vehicle for realizing other rights. Article 13 emphasizes education's role in developing human personality and dignity, supporting its alignment with Namibia's inclusive education goals.

To uphold equitable access, the University of Namibia distributed learning devices and integrated online and face-to-face teaching methods. Although disparities persisted, especially in rural areas, these efforts reflect a philosophical and practical commitment to fairness (Tshabangu et al., 2013). These initiatives also support SDG 4, which calls for inclusive, equitable, and quality education. Education, as Uyanga & Eman (2016) argue, is central to social transformation, promoting intellectual growth, social responsibility, and democratic values such as accountability and equity. It advances social justice by:

- Ensuring equal opportunities,
- Raising awareness of rights and responsibilities, and
- Encouraging participatory governance.

In this context, blended learning is more than a technological adaptation; it is a sociopolitical strategy that aligns with international human rights norms and decolonization efforts in education. The COVID-19 pandemic exposed structural inequalities, prompting institutions to reconceptualize education as a

tool for justice and dignity. This shift highlights the role of socio-humanistic values in shaping resilient and inclusive educational systems. Hence, policy must embed empathy and dignity into actionable strategies such as inclusive curricula, targeted resource distribution, and support for marginalized students. As Timidi and Okuro (2024) contends, education fosters ethical governance and critical consciousness, contributing to collective progress.

Scientific Rationality and Development

Scientific rationality, marked by empirical inquiry, systematic methodology, and commitment to innovation, underpins modern development paradigms. The integration of scientific methods and technological advancements is increasingly recognized as essential to achieving sustainable development outcomes, particularly within the Global South. At its core, scientific rationality utilizes the scientific method, observation, hypothesis formulation, experimentation, and analysis to construct evidence-based solutions to societal challenges. Manginte (2024) emphasizes that such empirical frameworks enhance the credibility and adaptability of policy decisions, ensuring they are data-driven and subject to iterative refinement.

Mota & Oliveira (2014) argue that innovation has transitioned from being a product of scientific research to becoming its initiator. They note that the trajectory of modern science is increasingly shaped by innovation demands, reflecting a “circular” rather than linear model of knowledge production. This is especially pertinent to sustainability, where innovation must not only generate economic value but also reconcile environmental constraints and social equity. The authors insist that a reformed educational paradigm—anchored in sustainability and innovation is essential for forming professionals who can navigate and solve contemporary challenges. This is echoed by Cortés et al. (2021), who reveal through bibliometric analysis that innovation-sustainability research in the Global South is gaining momentum, albeit unevenly across regions. Countries such as China, India, Mexico, and Nigeria are demonstrating increased research output and impact in sustainable innovation. Notably, while China leads in volume, countries like Nigeria and Mexico achieve higher citation impact per publication, suggesting quality and relevance over sheer quantity.

Cortés et al. (2021) provide strong empirical support for the role of scientific rationality in development. Their study of over 14,000 documents in the management, business, and STEM fields found that post-SDG (Sustainable Development Goals) announcements, there was a notable up tick in research production, particularly on sustainability-related themes. The authors also note the rise of academic-corporate collaboration in sectors like energy and pharmaceuticals, though still limited in scope. These findings affirm that the integration of scientific methods and innovation frameworks is not merely aspirational but already in progress within the Global South. However, the study warns of significant regional disparities—e.g., China's dominance compared to Indonesia's marginal presence highlighting the role of national investment in R&D and institutional support as critical factors.

Both Mota & Oliveira, (2014) and Cortés et al. (2021) underscore the need for systemic reforms in education to sustain innovation. Mota & Oliveira, (2014) propose independent learning and internationalization as strategies to prepare students for innovation-centric futures. They argue that only through a restructured curriculum that embraces technological creativity, ethical awareness, and sustainability goals can education produce the caliber of professionals needed to drive forward the sustainability agenda. Similarly, Cortés et al. (2021) recommend enhanced academic-corporate partnerships, especially in countries where such collaborations are nascent. They emphasize that knowledge management, biotechnology, and sustainable urban systems are among the most promising clusters for future development.

Case Studies and Comparative Perspectives

The complex landscape of urban development in Nigeria, though less empirically documented than European case studies such as Hamburg, similarly contends with the entanglement of competing public values and spatial conflicts. As Herzog et al. (2024) assert, identifying public values and their geospatial manifestations is central to inclusive urban development, especially in cities undergoing rapid demographic and infrastructural transformation. Nigerian metropolises like Lagos and Abuja exemplify these challenges, where modernization imperatives often clash with the need to preserve community spaces, prompting displacement, contestation over land use, and ecological degradation. This reflects the inherent conflicts outlined in Godschalk's

sustainability/livability prism, namely, the tensions between economic opportunity, social equity, ecological quality, and livability. These cases underscore Nabatchi (2012) call for participatory mechanisms that genuinely capture the pluralism of urban values rather than presupposing them.

In the educational domain, the Nigerian Social and Emotional Learning Project (NELPRO) exemplifies an integrative, socio-humanistic response to the psychosocial challenges facing Nigerian students. Designed to institutionalize evidence-based SEL practices from preschool through secondary school, NELPRO operationalizes core competencies such as self-awareness, self-management, responsible decision-making, social awareness, and relationship skills. These efforts have shown measurable impacts on student outcomes, including academic performance, emotional well-being, and reduced incidences of school-based violence and bullying (Pham, 2024).

Complementing this systemic initiative, Mahoney et al. (2021) provide empirical support for SEL efficacy through an experimental study conducted in Jos South LGA, Plateau State. Their research demonstrated significant improvement in adolescents' emotional intelligence following structured emotional-social intelligence training. The study emphasizes the relevance of integrating such training into the formal school curriculum to combat a wide array of socio-emotional and behavioral issues, including aggression, truancy, and susceptibility to radicalization. Grounded in the Broaden-and-Build Theory of Positive Emotions, the intervention shows that enhancing adolescents' emotional intelligence fosters resilience, optimism, and social cohesion, critical attributes for navigating Nigeria's volatile socio-political climate.

Collectively, these Nigerian case studies illuminate the necessity of embedding interdisciplinary frameworks in public policy and education. In urban planning, acknowledging diverse stakeholder values and potential spatial conflicts can guide more democratic and sustainable outcomes, as emphasized by (Adeloye et al., 2017). In education, the integration of emotional intelligence and SEL fosters not only academic success but also civic agency and communal stability. These findings reinforce the proposition that interdisciplinary, participatory approaches are vital to addressing the multifaceted societal challenges confronting contemporary Nigeria.

Convergence and Tensions Between Humanistic and Scientific Paradigms

The integration of humanistic and scientific paradigms within sustainability science reveals both points of synergy and sites of conflict. On the one hand, aligning empirical rigor with ethical imperatives allows for more holistic and inclusive approaches to societal problems. For example, embedding indigenous knowledge, local contexts, and normative concerns into scientific research helps make sustainability initiatives more socially legitimate and epistemically robust (Ijatuyi et al., 2025). This pluralistic integration supports development initiatives that are not only technically effective but also ethically responsive.

However, tensions inevitably surface when epistemic values such as replicability and rigor conflict with moral imperatives like equity, justice, or stakeholder inclusion. Nagatsu et al. (2020) note that sustainability science frequently encounters difficulties in balancing the demand for objectivity with the need to address normative dimensions, such as power asymmetries or value-laden decisions. This reflects a broader philosophical debate about the role of values in science, where scholars like Resnik and Elliott (2023) and Gould et al. (2023) argue that value-free science is neither attainable nor desirable.

Philosopher Thomas Kuhn's seminal work further illuminates this dynamic. In *The Structure of Scientific Revolutions*, Kuhn (1962) as cited by Politi and Shan (2023) challenges the cumulative, linear view of scientific progress by proposing that science advances through paradigm shifts triggered by accumulating anomalies. These shifts are often accompanied by changes in the epistemological and normative frameworks guiding scientific inquiry. For instance, sustainability science's transdisciplinary turn, embracing action-oriented, stakeholder-inclusive methodologies, can be viewed as a paradigmatic transformation, replacing reductionist models with systems-based, participatory approaches. As Kuhn puts it, the emergence of new paradigms not only changes what is studied but also redefines what counts as a valid question or method within the field.

These shifts illustrate that science is not merely a neutral tool for uncovering facts, but a human enterprise shaped by social values, institutional structures, and normative commitments. As such, the integration of scientific and humanistic paradigms must be grounded in both epistemological openness and

ethical reflexivity. According to Nagatsu et al. (2020) Philosophers of science are uniquely positioned to assist in this endeavor by clarifying the conceptual foundations, scrutinizing the methodological assumptions, and guiding the normative orientations of sustainability science.

Ultimately, forging a just and sustainable future demands a deliberate synthesis of humanistic and scientific perspectives. This synthesis must be continuously negotiated, informed by critical reflection, and responsive to the evolving nature of societal goals and scientific understanding.

Policy Implications And Practical Applications Framework for Value-Centered Policy-Making

Value-centered policy-making is an evolving approach that emphasizes the integration of ethical, societal, and evidence-based dimensions into policy development, especially in complex systems like healthcare. This approach recognizes that decision-making processes should not solely rely on technical efficiency or political expediency, but must also align with foundational societal values and moral imperatives.

Hanel et al. (2021) argue that values are not merely abstract ideals but are operational concepts that shape every stage of the health policy process. They propose a conceptual model in which terminal values (e.g., equity, justice, dignity) serve as overarching policy goals, while instrumental values (e.g., efficiency, access, quality improvement) function as mechanisms for achieving those goals. Importantly, the model illustrates how values interplay with principles, criteria, and evidence to ensure coherent and context-sensitive policy development. This model responds to a significant gap in policy frameworks by highlighting that ambiguity or conflicts in value systems often result in ineffective or ethically questionable policy outcomes.

In parallel, Hanel et al. (2021) developed a multi-dimensional framework based on critical interpretive synthesis to explain how values inform health policy decisions in Latin America. Their framework categorizes values into four types:

- **Goal-related values** (e.g., equity, universality, quality, solidarity) as guiding principles,
- **Technical values** (e.g., efficiency, sustainability, evidence-based decision-making),

- **Governance values** (e.g., transparency, accountability, participation), and
- **Situational values**, which reflect context-specific drivers like political ideology, historical legacies, or international pressures.

This typology illustrates the multifaceted and dynamic role of values, showing how they influence both the selection of policy options and their implementation under varying sociopolitical conditions.

Taken together, these models underscore that successful value-based policy-making must:

1. Clearly define and operationalize values at both macro and micro levels of decision-making,
2. Create institutional mechanisms to reconcile value conflicts through participatory processes, and
3. Ensure alignment between policy instruments and core ethical commitments embedded in a society's governance philosophy.

By making values explicit and integrating them systematically, governments can foster more legitimate, sustainable, and contextually appropriate policy interventions.

Institutional and Educational Implications

Institutions and educational systems serve as vital mechanisms for embedding value-driven and ethically grounded practices. Ethical leadership within organizations can significantly shape institutional culture, fostering integrity, accountability, and social responsibility. As Zahari et al. (2024) asserts, ethical leadership functions as a foundational pillar of effective corporate governance, cultivating trust among stakeholders, enhancing corporate reputation, and promoting long-term organizational sustainability through transparent practices and moral reasoning.

In the educational sphere, embedding ethical leadership within curricular frameworks is equally critical. Developing future leaders requires an emphasis on moral reasoning, civic responsibility, and principles of justice. Ethical leadership, as defined by Ayugi, entails not only normatively appropriate conduct but also the promotion of such behavior through consistent communication and decision-making processes that reflect integrity, fairness,

and respect for others. By incorporating such leadership principles into academic curricula, educational institutions can nurture leaders who are prepared to confront complex ethical dilemmas and uphold socially just governance practices across sectors (Nadeem, 2024). Thus, both institutional and educational systems must act synergistically to instill a culture of ethical responsibility one that prioritizes stakeholder trust, equitable governance, and the pursuit of sustainable development over short-term gains.

Ethical Leadership and Governance

Ethical leadership plays a pivotal role in shaping governance structures that emphasize justice, transparency, and accountability. As noted by Zhang et al. (2018), ethical leaders significantly influence follower behavior by eliciting *other-praising moral emotions* such as elevation and gratitude, which in turn foster moral actions like reporting unethical behavior and avoiding misconduct. This emotional mechanism aligns with social information processing theory, suggesting that leaders serve as salient ethical cues within organizational contexts, thereby guiding followers' attitudes and behaviors toward ethical conduct.

Furthermore, ethical leadership has been positively associated with enhanced organizational transparency and stakeholder trust, key components of robust governance. Ughulu (2024) argues that ethical leaders, by embodying values such as integrity, fairness, and accountability, actively promote transparent communication and decision-making. They do so not only by modeling ethical behavior but also by institutionalizing it through clear policies and participatory governance structures that emphasize accurate reporting, fairness, and open dialogue.

Ethical leadership reinforces governance by creating emotionally resonant and structurally sound environments where ethical behavior is the norm and misconduct is discouraged through both cultural and procedural mechanisms.

Innovation with a Human Face: Ethical Imperatives in AI-Driven Biotechnology

The integration of cutting-edge technologies such as artificial intelligence (AI), synthetic biology, and climate science into biotechnology presents both

transformative opportunities and profound ethical challenges. As Wheeler (2025) asserts, AI-enabled bioengineering, particularly in protein design, is reshaping the scientific landscape,expediting therapeutic innovation while simultaneously lowering barriers to misuse, such as the development of novel bioweapons.

The dual-use dilemma, the capacity for AI tools developed for beneficial purposes to be repurposed for harmful applications, necessitates urgent ethical oversight and robust biosecurity safeguards. Scholars such as Hastuti and Syafruddin (2023)have emphasized the need for responsible innovation frameworks that can mitigate emerging threats while preserving scientific progress. These frameworks include technical safeguards (e.g., refusal mechanisms and access control), policy instruments (e.g., DNA synthesis screening mandates), and community-led ethical commitments, such as those promoted by the Responsible AI x Biodesign initiative.

In healthcare, the deployment of AI technologies must address critical issues of privacy, data protection, and informed consent. The potential for AI to automate diagnostic and treatment recommendations amplifies concerns about transparency and accountability. Wheeler (2025)notes that AI systems like DeepBind and AlphaFold, while groundbreaking, must be coupled with user-centric design and interdisciplinary oversight to ensure that they serve patients with empathy and uphold public trust.

Furthermore, the convergence of AI and biotechnology calls for inclusive, multi-stakeholder engagement. As highlighted by Hastuti and Syafruddin (2023)Proactive dialogue among scientists, ethicists, policymakers, and the public is vital to develop socially responsive innovation. Managed-access frameworks and open-access scientific tools must be restructured to balance transparency with control, ensuring that innovation is not hindered, yet remains aligned with humanistic values and global security priorities.

In essence, innovation with a human face must transcend mere technological advancement. It requires an ethical consciousness that anticipates misuse, incorporates community values, and champions inclusive governance models Wheeler (2025). Only through such integrated approaches can humanity harness

AI's vast potential in biotechnology for collective well-being.

Challenges And Critiques

Epistemological Conflicts: Humanities vs. Empirical Sciences

A recurrent challenge in interdisciplinary research is the epistemological divergence between the humanities and the empirical sciences. This divide is rooted in fundamentally distinct methodologies, ontologies, and knowledge validation paradigms. The humanities often privilege context-dependent, interpretive, and qualitative approaches that foreground meaning, symbolism, and human subjectivity. Conversely, the empirical sciences typically prioritize quantifiable data, controlled experimentation, and objective generalizability.

This epistemic bifurcation has been widely recognized in scholarly discourse. As C.P. Snow famously articulated in *The Two Cultures* (1959) as cited by de Melo-Martín (2010), Western intellectual life has become polarized into “two polar groups”: literary intellectuals and scientists. Snow lamented that the lack of mutual comprehension between these groups impedes societal progress, a sentiment echoed in contemporary reflections. de Melo-Martín (2010) elaborate on Snow's thesis, arguing that this rift has led to an “epistemic void,” wherein a scientist and a philosopher often speak past each other, failing to engage in productive dialogue. They assert that the entrenchment of disciplinary silos—exacerbated by institutional structures, resource allocation disparities, and methodological biases—remains a critical impediment to interdisciplinary synthesis.

Adding to this, Lane (2019) critiques the absence of integrated epistemological frameworks in model development involving both the humanities and sciences. Lane argues that neglecting interpretive theories during the early stages of computational modeling leads to conceptual gaps and methodological misalignment. He proposes that recognizing and embedding the interpretive logics of the humanities alongside empirical protocols can significantly improve interdisciplinary research outcomes, especially in simulations that seek to represent complex human phenomena.

Furthermore, the divergence in epistemologies often leads to conflicting conceptions of what constitutes “truth” or “valid knowledge.” Clifford Geertz

(1973), cited by "Horsthemke (2019), emphasizes that while sciences aim for empirical universality, the humanities engage with contextual and symbolic truths embedded in cultural narratives. Similarly, Max Weber and Wilhelm Dilthey underscore that understanding human action demands interpretive depth, not merely causal explanation, what Dilthey called the difference between *erklären* (to explain) and *verstehen* (to understand).

These philosophical and methodological tensions pose serious challenges for interdisciplinary collaboration. However, as both Lane (2019) and "Horsthemke (2019) argue, the solution does not lie in subsuming one paradigm under the other, but rather in fostering a productive epistemological pluralism. Acknowledging the validity of different knowledge traditions and cultivating intellectual humility across disciplines are prerequisites for developing robust, integrative frameworks capable of addressing the complex, multidimensional challenges of contemporary society.

Risk of Moral Relativism and Technocratic Reductionism in Value-Centered Development

A critical challenge to value-centered development paradigms is the latent danger of moral relativism, wherein ethical standards are reduced to subjective cultural or individual preferences, thereby eroding the foundation for universal principles of justice, dignity, and human rights. As articulated in the *Internet Encyclopedia of Philosophy*, moral relativism holds that "moral judgments are true or false only relative to some particular standpoint (for instance, that of a culture or a historical period) and that no standpoint is uniquely privileged over all others". While this stance may encourage cultural tolerance, it simultaneously undermines the possibility of moral critique and universal normative standards, potentially legitimizing practices that violate fundamental human rights.

Critics of moral relativism argue that it "implies the pernicious consequence that 'anything goes,'" whereby even slavery or systemic discrimination may be justified if deemed morally acceptable within a given cultural framework. This relativistic posture thus threatens the integrity of ethical appraisal across contexts, weakening efforts to foster globally coherent developmental ethics.

Conversely, over-reliance on technocratic rationality in development frameworks introduces the danger of reductionism, whereby complex moral and sociocultural phenomena are oversimplified into quantifiable or engineering problems. This technocratic reductionism can marginalize the humanistic and ethical dimensions of development, effectively ignoring cultural specificities, indigenous value systems, and existential concerns. The risk here lies in substituting moral deliberation with instrumental logic, leading to solutions that may be efficient but ethically vacuous or socially alienating.

Hence, effective value-centered development must navigate between the extremes of moral relativism, which collapses normative universals, and technocratic reductionism, which obscures ethical depth. A nuanced approach is required, one that respects cultural plurality without forfeiting moral critique, and that integrates technical efficiency with ethical and contextual sensitivity.

Barriers to Interdisciplinary Integration in Research Practice

Despite growing recognition of the epistemological and societal value of interdisciplinary research, its practical implementation remains hampered by persistent structural, cognitive, and institutional constraints.

The entrenched separation of academic disciplines continues to pose a significant barrier to genuine interdisciplinary collaboration. As Ylijoki (2022) argues, the dominance of vertically organized disciplinary hierarchies within universities and funding institutions reinforces siloed structures, limiting opportunities for cross-disciplinary engagement. This is further exacerbated by the bureaucratic rigidity of funding schemes such as Horizon 2020, where only 27% of the programs explicitly encouraged participation from the social sciences and humanities (SSH), and where the humanities in particular were underrepresented in over 90% of projects claiming interdisciplinary scope (Muhdiarta, 2025).

A key challenge to effective interdisciplinary practice lies in the epistemological and methodological divergences between disciplines. Truscott and Smith, (2019) emphasizes that distinct theoretical languages, varying explanatory frameworks, and incompatible inferential logics can impede the co-production of knowledge. These cognitive distances are particularly stark between SSH fields and natural or technical sciences, where shared meta-theoretical

frameworks are often lacking, leading to what Wagner et al. (2011) describe as the “Achilles' heel” of interdisciplinarity difficulties in achieving meaningful integration.

The academic reward system is typically configured to privilege discipline-specific achievements, such as publication in high-impact disciplinary journals and tenure within established departments. Consequently, researchers are often disincentivized from pursuing interdisciplinary pathways that may lack clear metrics of evaluation or recognition (Truscott and Smith, 2019; Ylijoki 2022). Moreover, SSH scholars are frequently involved only peripherally, often in predefined “add-on” roles such as ethics, communication, or public engagement—rather than being engaged in the formulation of research problems or design (Viseu, 2015).

Addressing these impediments requires a reconfiguration of academic infrastructures. Baum and Bartkowski (2020) calls for long-term investment in integrative environments rather than short-term project-based funding. Such environments would entail not only structural inclusion of SSH but also collaborative design processes, shared epistemic frameworks, and equitable distribution of leadership and resources. Furthermore, fostering interdisciplinary literacy through education, training, and institutional policies is vital to bridging methodological divides and aligning incentive structures with the collaborative demands of contemporary knowledge production.

Conclusion

This study has explored the complex interplay between socio-humanistic and scientific values in shaping a just, inclusive, and ethically grounded development paradigm. The major findings reveal that while scientific rationality fosters innovation and empirical rigor, socio-humanistic values provide the ethical compass necessary to ensure that progress is equitable, dignified, and contextually responsive. Frameworks such as Service-Dominant Logic (S-D Logic) and Value-Based Engineering (VBE) exemplify how interdisciplinary methodologies can integrate ethical principles with technological innovation. Moreover, case studies from Nigeria and beyond illustrate the practical benefits of embedding empathy, equity, and scientific reasoning into education, urban planning, and public policy. Yet, the pursuit of

value-centered development is fraught with challenges, including epistemological divides between the sciences and humanities, the risks of moral relativism and technocratic reductionism, and institutional barriers to interdisciplinary collaboration. These tensions underscore the urgent need for balanced development strategies that neither marginalize ethical considerations in favor of technical efficiency nor succumb to cultural relativism at the expense of universal justice.

In light of these insights, the study emphasizes the imperative for a renewed balance between socio-humanistic and scientific values. This balance is not a mere conceptual ideal but a practical necessity for confronting global challenges such as inequality, ecological degradation, and social fragmentation. By aligning empirical inquiry with normative commitments—such as justice, human dignity, and sustainability—societies can navigate the moral complexities of modernity more effectively. Ultimately, this calls for a renewed commitment to interdisciplinary collaboration—one that dismantles academic silos and fosters genuine dialogue between the sciences, humanities, and social sciences. Such collaboration is essential for designing ethical, evidence-based, and inclusive systems capable of advancing collective human flourishing. In doing so, we can move toward a development model that is not only technically sound but also morally compelling and universally just.

References

- Adeloye, D., David, R. A., Olaogun, A. A., Auta, A., Adesokan, A., Gadanya, M., Opele, J. K., Owagbemi, O., & Iseolorunkanmi, A. (2017). Health workforce and governance: the crisis in Nigeria. *Human Resources for Health*, 15(1), 32. <https://doi.org/10.1186/s12960-017-0205-4>
- Aluko, O. A., Odewale, A. T., Taiwo, K., & Adefeso, H. (2024). Unlocking Inclusive Growth and Sustainable Development in Nigeria: A Roadmap Through Challenges and Opportunities. *AFRICAN JOURNAL OF APPLIED RESEARCH*, 10(1), 201223. <https://doi.org/10.26437/ajar.v10i1.683>
- Baum, C. M., & Bartkowski, B. (2020). Its not all about funding: Fostering interdisciplinary collaborations in sustainability research from a European perspective. *Energy Research & Social Science*, 70, 101723. <https://doi.org/10.1016/j.erss.2020.101723>
- Beschorner, T., & Hajduk, T. (2017). Creating Shared Value. *A Fundamental Critique* (pp. 2737). https://doi.org/10.1007/978-3-319-48802-8_3

- Cortés, J. D., Guix, M., & Carbonell, K. B. (2021). Innovation for sustainability in the Global South: bibliometric findings from management & business and STEM (science, technology, engineering and mathematics) fields in developing countries. *Heliyon*, 7(8), e07809. <https://doi.org/10.1016/j.heliyon.2021.e07809>
- Curşeu, P. L., & Schrujjer, S. G. (2017). Stakeholder diversity and the comprehensiveness of sustainability decisions: the role of collaboration and conflict. *Current Opinion in Environmental Sustainability*, 28, 114120. <https://doi.org/10.1016/j.cosust.2017.09.007>
- de Melo-Martín, I. (2010). The Two Cultures: An introduction and assessment. *Technology in Society*, 32(1), 59. <https://doi.org/10.1016/j.techsoc.2009.12.002>
- Dwivedi, Y. K., Jeyaraj, A., Hughes, L., Davies, G. H., Ahuja, M., Albashrawi, M. A., Al-Busaidi, A. S., Al-Sharhan, S., Al-Sulaiti, K. I., Altinay, L., Amalaya, S., Archak, S., Ballestar, M. T., Bhagwat, S. A., Bharadwaj, A., Bhushan, A., Bose, I., Budhwar, P., Bunker, D., ... Walton, P. (2024). "Real impact": Challenges and opportunities in bridging the gap between research and practice Making a difference in industry, policy, and society. *International Journal of Information Management*, 78, 102750. <https://doi.org/10.1016/j.ijinfomgt.2023.102750>
- Firk, S., Richter, S., & Wolff, M. (2021). Does value-based management facilitate managerial decision-making? An analysis of divestiture decisions. *Management Accounting Research*, 51, 100736. <https://doi.org/10.1016/j.mar.2021.100736>
- Gamage, A. N. K. K. (2025). Research Design, Philosophy, and Quantitative Approaches in Scientific Research Methodology. *Scholars Journal of Engineering and Technology*, 13(02), 91103. <https://doi.org/10.36347/sjet.2025.v13i02.004>
- Gould, R. K., Soares, T. M., Arias-Arévalo, P., Cantú-Fernandez, M., Baker, D., Eyster, H. N., Kwon, R., Prox, L., Rode, J., Suarez, A., Vatn, A., & Zúñiga-Barragán, J. (2023). The role of value(s) in theories of human behavior. *Current Opinion in Environmental Sustainability*, 64, 101355. <https://doi.org/10.1016/j.cosust.2023.101355>
- Groothuizen, J. E. (2025). Axiological reflection for nursing ethics education: The missing link in understanding value conflicts. *Nursing Ethics*, 32(4), 12301239. <https://doi.org/10.1177/09697330241295369>
- Hanel, P. H. P., Foad, C., & Maio, G. R. (2021). Attitudes and Values. In *Oxford Research Encyclopedia of Psychology*. Oxford University Press. <https://doi.org/10.1093/acrefore/9780190236557.013.248>
- Hastuti, R., & Syafruddin. (2023). Ethical Considerations in the Age of Artificial Intelligence: Balancing Innovation and Social Values. *West Science Social and Humanities Studies*, 1(02), 7687. <https://doi.org/10.58812/wsshs.v1i02.191>
- Herzog, R. H., Gonçalves, J. E., Slingerland, G., Kleinhans, R., Prang, H., Brazier, F., & Verma, T. (2024). Cities for citizens! Public value spheres for understanding conflicts in urban planning. *Urban Studies*, 61(7), 13271344. <https://doi.org/10.1177/00420980231207475>

- Horsthemke, K. (2019). Educational research, culturally distinctive epistemologies and the decline of truth. *European Educational Research Journal*, 18(5), 513526. <https://doi.org/10.1177/1474904119840174>
- Ijatuyi, E. J., Lamm, A., Yessoufou, K., Suinyuy, T., & Patrick, H. O. (2025). Integration of indigenous knowledge with scientific knowledge: A systematic review. *Environmental Science & Policy*, 170, 104119. <https://doi.org/10.1016/j.envsci.2025.104119>
- Kamoun, P. (2001). Mental retardation in Down syndrome: a hydrogen sulfide hypothesis. *Medical Hypotheses*, 57(3), 389392. <https://doi.org/10.1054/mehy.2001.1377>
- Klimczuk, A., Gawron, G. P., & Toczyski, P. (2024). Editorial: Towards 2030: sustainable development goal 1: no poverty. A sociological perspective. *Frontiers in Sociology*, 9, 1487228. <https://doi.org/10.3389/fsoc.2024.1487228>
- Kuah, A. T. H., Kim, C. H., & Le Queux, S. (2020). Multiculturalism in Singapore and Malaysia: approaches and outcomes. *Equality, Diversity and Inclusion: An International Journal*, 40(3), 290308. <https://doi.org/10.1108/EDI-05-2019-0148>
- Lane, J. E. (2019). Understanding Epistemological Debates in the Humanities and Social Sciences Can Aid in Model Development: Modeling Interpretive and Explanatory Theories (pp. 6779). https://doi.org/10.1007/978-3-030-17090-5_4
- Mahoney, J. L., Weissberg, R. P., Greenberg, M. T., Dusenbury, L., Jagers, R. J., Niemi, K., Schlinger, M., Schlund, J., Shriver, T. P., VanAusdal, K., & Yoder, N. (2021). Systemic social and emotional learning: Promoting educational success for all preschool to high school students. *American Psychologist*, 76(7), 11281142. <https://doi.org/10.1037/amp0000701>
- Manginte, S. Y. (2024). Fortifying Transparency: Enhancing Corporate Governance through Robust Internal Control Mechanisms. *Advances in Management & Financial Reporting*, 2(2), 7284. <https://doi.org/10.60079/amfr.v2i2.173>
- Matin, A., & Ekram Yawar, M. (2025). A Review of Neoclassical Economics and its Importance. *Porta Universorum*, 1(5), 2446. <https://doi.org/10.69760/portuni.0105003>
- Mota, R., & Oliveira, J. F. (2014). Combining innovation and sustainability: an educational paradigm for human development on earth. *Brazilian Journal of Science and Technology*, 1(1), 2. <https://doi.org/10.1186/2196-288X-1-2>
- Muhdiarta, U. (2025). Investigating the Challenges of Bureaucratic Reform in Developing Countries: A Case Study Approach. *Ilomata International Journal of Social Science*, 6(2), 689702. <https://doi.org/10.61194/ijss.v6i2.1687>
- Nabatchi, T. (2012). Putting the “Public” Back in Public Values Research: Designing Participation to Identify and Respond to Values. *Public Administration Review*, 72(5), 699708. <https://doi.org/10.1111/j.1540-6210.2012.02544.x>
- Nadeem, M. (2024). Distributed leadership in educational contexts: A catalyst for school

- improvement. *Social Sciences & Humanities Open*, 9, 100835. <https://doi.org/10.1016/j.ssaho.2024.100835>
- Nagatsu, M., Davis, T., DesRoches, C. T., Koskinen, I., MacLeod, M., Stojanovic, M., & Thorén, H. (2020). Philosophy of science for sustainability science. *Sustainability Science*, 15(6), 18071817. <https://doi.org/10.1007/s11625-020-00832-8>
- Okpalaoka, C. (2021). Infrastructural Challenges in Nigeria and the Effect on the Nigerians Economy: A Review of Literature. *Environmental and Earth Sciences Research Journal*, 8(4), 159162. <https://doi.org/10.18280/eesrj.080403>
- Painter-Morland, M. (2013). The Role of Business in Society. In *Social Innovation* (pp. 283293). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-36540-9_25
- Pham, S. Van. (2024). The Influence of Social and Emotional Learning on Academic Performance, Emotional Well-Being, and Implementation Strategies: A Literature Review. *Saudi Journal of Humanities and Social Sciences*, 9(12), 381391. <https://doi.org/10.36348/sjhss.2024.v09i12.001>
- Pichet, E. (2011). Enlightened shareholder theory: Whose interests should be served by the supporters of corporate governance? *Corporate Ownership and Control*, 8(2), 354362. <https://doi.org/10.22495/cocv8i2c3p3>
- Politi, V., & Shan, Y. (2023). Beyond Structure: New Frontiers of the Philosophy of Thomas Kuhn. *International Studies in the Philosophy of Science*, 36(2), 8186. <https://doi.org/10.1080/02698595.2023.2264158>
- Price, E. C. (2004). National Research Council. Nutrient Requirements of Nonhuman Primates, 2nd revised edition. Washington, DC: The National Academies Press2003. pp. 286 + xviii, £34·95 (Paperback). ISBN 0 309 06989 0. *British Journal of Nutrition*, 91(1), 169170. <https://doi.org/10.1079/BJN20031008>
- Rambaldi, C. (2022). Development as freedom: the alternative discourse of Amartya Sens book. *Academia Letters*. <https://doi.org/10.20935/AL5446>
- Resnik, D. B., & Elliott, K. C. (2023). Science, Values, and the New Demarcation Problem. *Journal for General Philosophy of Science = Zeitschrift Fur Allgemeine Wissenschaftstheorie*, 54(2), 259286. <https://doi.org/10.1007/s10838-022-09633-2>
- Richards, G. (2020). Designing creative places: The role of creative tourism. *Annals of Tourism Research*, 85, 102922. <https://doi.org/10.1016/j.annals.2020.102922>
- Rogahang, S. S. N., Paramansyah, A., Zaelani, K., Iqbal, M., & Judijanto, L. (2024). Inclusive Education Practices: Fostering Diversity and Equity in the Classroom. *Global International Journal of Innovative Research*, 1(3), 260266. <https://doi.org/10.59613/global.v1i3.46>
- Roszkowska-Menkes, M. (2021). Porter and Kramers (2006) “Shared Value.” In *Encyclopedia of Sustainable Management* (pp. 16). Springer International Publishing.

- https://doi.org/10.1007/978-3-030-02006-4_393-1
- Simons, M., Goossensen, A., & Nies, H. (2022). Interventions fostering interdisciplinary and inter-organizational collaboration in health and social care; an integrative literature review. *Journal of Interprofessional Education & Practice*, 28, 100515. <https://doi.org/10.1016/j.xjep.2022.100515>
- Spiekermann, S. (2023). *Value-Based Engineering*. De Gruyter. <https://doi.org/10.1515/9783110793383>
- Thibault, G. E. (2019). Humanism in Medicine: What Does It Mean and Why Is It More Important Than Ever? *Academic Medicine*, 94(8), 10741077. <https://doi.org/10.1097/ACM.0000000000002796>
- Timidi, E. T., & Okuro, G. (2024). POWER OF EDUCATION IN SHAPING DEMOCRATIC CITIZENSHIP AND GOOD GOVERNANCE. *Studies in Humanities and Education*, 5(2). <https://doi.org/10.48185/she.v5i2.1295>
- Truscott, J., & Smith, M. S. (2019). Theoretical Frameworks in L2 Acquisition. In *The Cambridge Handbook of Language Learning* (pp. 84108). Cambridge University Press. <https://doi.org/10.1017/9781108333603.005>
- Tshabangu, I., Matakala, V., & Zulu, A. (2013). Equitable Access to Higher Education: Trends, Commodification and quality dimensions in Namibia. *International Journal of Education*, 5(1). <https://doi.org/10.5296/ije.v5i1.3077>
- Ughulu, J. (2024). Ethical Leadership in Modern Organizations: Navigating Complexity and Promoting Integrity. *International Journal of Economics, Business and Management Research*, 08(05), 5262. <https://doi.org/10.51505/IJEBMR.2024.8505>
- Uyanga, U. D., & Emana, I. E. (2016). Education as an Instrument for Achieving Social Justice and Good Governance. *Journal of Educational and Social Research*. <https://doi.org/10.5901/jesr.2016.v6n2p205>
- Vargo, S. L., Maglio, P. P., & Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. *European Management Journal*, 26(3), 145152. <https://doi.org/10.1016/j.emj.2008.04.003>
- Volchik, V., Maslyukova, E., & Strielkowski, W. (2023). Perception of Scientific and Social Values in the Sustainable Development of National Innovation Systems. *Social Sciences*, 12(4), 215. <https://doi.org/10.3390/socsci12040215>
- Wagner, C. S., Roessner, J. D., Bobb, K., Klein, J. T., Boyack, K. W., Keyton, J., Rafols, I., & Börner, K. (2011). Approaches to understanding and measuring interdisciplinary scientific research (IDR): A review of the literature. *Journal of Informetrics*, 5(1), 1426. <https://doi.org/10.1016/j.joi.2010.06.004>
- Wang, L. (2024). A Review on Humanistic Psychology and Its Application to Education. *Lecture Notes In Education Psychology and Public Media*, 36(1), 9196.

<https://doi.org/10.54254/2753-7048/36/20240429>

Wheeler, N. E. (2025). Responsible AI in biotechnology: balancing discovery, innovation and biosecurity risks. *Frontiers in Bioengineering and Biotechnology*, 13. <https://doi.org/10.3389/fbioe.2025.1537471>

Wobst, J., Tanikulova, P., & Lueg, R. (2025). Value-based management: a review of its conceptualizations and a research agenda toward sustainable governance. *Journal of Accounting Literature*, 47(1), 150200. <https://doi.org/10.1108/JAL-11-2022-0123>

Ylijoki, O.-H. (2022). Invisible hierarchies in academic work and career-building in an interdisciplinary landscape. *European Journal of Higher Education*, 12(4), 356372. <https://doi.org/10.1080/21568235.2022.2049335>

Zahari, A. I., Said, J., Muhamad, N., & Ramly, S. M. (2024). Ethical culture and leadership for sustainability and governance in public sector organisations within the ESG framework. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(1), 100219. <https://doi.org/10.1016/j.joitmc.2024.100219>

Zhang, Y., Zhou, F., & Mao, J. (2018). Ethical Leadership and Follower Moral Actions: Investigating an Emotional Linkage. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.01881>

Zopounidis, C., & Lemonakis, C. (2024). The company of the future: Integrating sustainability, growth, and profitability in contemporary business models. *Development and Sustainability in Economics and Finance*, 1, 100003. <https://doi.org/10.1016/j.dsef.2024.100003>