

Higher education's seat at the table: Defining ethical artificial intelligence

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ABSTRACT

This research highlights critical contributors to national and international recommendations for artificial intelligence regulation regarding ethical domains and a prescription for incorporating said ethical language into the higher education ecosystem for artificial intelligence (AI) usage. A document review with commonality matrices on ethical guidance is explored. Content analysis of five influential documents across government, organization, business, and education reveals thirteen categories within three themed groups. Categories, Responsible and Safe & Secure, are showcased as defining characteristics in ethical AI.

Keywords: ethics, artificial intelligence, AI, responsible, safe, secure, higher education

El lugar de la educación superior en la mesa: Definiendo la inteligencia artificial ética

RESUMEN

Esta investigación destaca los aportes clave a las recomendaciones nacionales e internacionales para la regulación de la inteligencia artificial en lo que respecta a los ámbitos éticos, así como una prescripción para incorporar dicho lenguaje ético en el ecosistema de la educación superior para el uso de la inteligencia artificial (IA). Se explora una revisión documental con matrices de puntos en común sobre orientación ética. El análisis de contenido de cinco documentos influyentes en los ámbitos gubernamental, organizacional, empresarial y educativo revela trece categorías dentro de tres grupos temáticos. Las categorías «Responsable» y «Seguro y protegido» se presentan como características definitorias de la IA ética.

Palabras clave: ética, inteligencia artificial, IA, educación superior responsable y segura

高等教育的地位：定义伦理人工智能

摘要

本研究重点关注国家和国际层面关于人工智能监管伦理领域的建议，并提出将这些伦理规范融入高等教育人工智能(AI)应用生态系统的方案。研究采用文献综述法，并构建了伦理指导的共性矩阵。通过对在政府、组织、企业和教育领域具有影响力的五份文件进行内容分析，揭示了三个主题组下的十三个类别。其中，“负责任”和“安全可靠”这两个类别被强调为伦理人工智能的关键特征。

关键词：伦理，人工智能，AI，负责任，安全，可靠，高等教育

Higher education must ask for a seat at the table and not surrender ethical AI matters to the exclusive hands of technology professionals. To that end, society must first clearly identify what ethical AI is despite vast historical distinctions (Singer, 2024; Gordon, n.d.) and varied discipline contexts (Winkler, 2022; Tzimas & Demetriadis, 2021). Artificial Intelligence (AI) is the next social challenge and user engagement frontier. While AI, as a designed product of technology experts, remains elusive primarily to the average consumer, who appreciates AI algorithmic suggestions and the ability to simplify complex tasks (von Walter et al., 2022), governments and industries are diving into its potential for improved services and substantial returns on investment (Davenport & Bean, 2022). The ethical implications, side effects, and impacts of developing, using, and expanding AI cannot be understated. With the recent controversial images created by Google's AI Gemini,

requiring Google to suspend its AI operations temporarily and for senior vice president Prabhakar Raghavan to issue an apology because the AI "...missed the mark," it is clear that boundaries for ethical AI must be explored (as cited in Bushard, 2024).

Problem, Rationale, and Benefit

Higher education faces a problem of pure semantics, and it cannot assume that the words "ethical AI" are understood and applied evenly; the language describing, defining, and detailing what "ethical AI" is, or should be, is complex. By conducting a document analysis of highly influential publications from national and international organizations, such as the U.S. White House (2023), the U.S. Department of Defense (2023), the United Nations (UNESCO, 2021), and influential leaders within the business, manufacturing, and the educational landscape (MIT Technology Review In-

sights, 2024; Maslej et al., 2024), higher education becomes part of the broader discussion to incorporate shared language into its guidance while also understanding how to create coalitions of mutual interest best. Three focus constituents benefit immediately from this review in crafting ethical AI guidance: [1] higher education administrators for university AI ethical guidance, [2] curriculum developers of teacher preparation programs to include developing ethical AI boundaries, and [3] teacher candidates for understanding on how to incorporate ethical AI usage within their educational settings.

Overview and Questions

While research exists across the vast spectrum of general AI topics regarding development, programming, and design, and some researchers lament AI to be an existential human crisis requiring universal definition and regulation (Winkler, 2022; Federspiel et al., 2023), a profound gap has surfaced in terms of defining ethical AI from a holistic standpoint. A societal definition drawn collectively from expert technology designers, as well as novice technology users, could help guide higher education in boundary setting for using ethical AI in curriculum development, instruction, and educator facilitation. For example, much controversy has always surrounded legal industries such as tobacco, alcohol, and even sugar production; however, where the producer's responsibility ends and the consumer's responsibility begins is subject to ethi-

cal debate. In some instances, laws have helped define boundaries of business ethics by prescribing consumption age, usage amounts, percentage of a total part, responsibility of use statements, disclaimers, and nutritional contribution. For AI, expert developers have ideally created business practices around their ethical considerations, while consumers draw from their product knowledge to construct their understanding.

At present, AI experts develop a product, nescient users gleefully consume the product, and ethical AI definition remains at the penumbral of society. Many questions surround the burgeoning topics of both *ethics* and *AI*. This focused research seeks to understand:

[1] “*Do high-level organizations of influence clearly articulate what ethical AI is through shared terminology?*”

[2] “*Is ethical AI a predominant concern of organizations of influence?*” and

[3] “*Can a consolidated definition of ethical AI be discerned from the publications of organizations of influence?*”

A general background on AI, ethics, and document content analysis is supplied, followed by an in-depth review of the methodology employed and a critical discussion of defining ethical AI in higher education.

Background: Artificial Intelligence

AI is not a new concept, even though it has only just burst on the scene of societal

awareness. The term and research discipline were coined in 1956 by mathematics professor John McCarthy at the Dartmouth College Artificial Intelligence Conference and later reaffirmed in 2006 at the esteemed AI@50 event (Moor, 2006). Today, AI has exploded in use and name recognition from the youngest consumer to the most advanced businesses on earth, having a footprint in everyday life activities, such as algorithmic assistance in online shopping and financial investment, health evaluation in medicine, science exploration in agricultural sustainability, and Earth system supports in weather, mapping, and environmental tracking (von Walter et al., 2021; Xu et al., 2021). Traditional human interaction events, such as gaming, have also been impacted. In 2016, premier international Go player Lee Se-dol shook the world by losing, in the first of its kind competition, to AlphaGo, an AI product purchased from DeepMind by Google in 2014 (BBC News). While the result of this loss brought acclaim within the tech world, AI's prevalence in the collective conscience took root in November 2022 with the release of OpenAI's ChatGPT.

ChatGPT is a fully operational AI language model that allows the average non-technical user and technology expert alike the ability to ask questions and receive real-time human-like responses. Its success has been exponential in exploring AI's research potential, having hundreds of publications, 1000+ collaborating institutions, and peak Google searches addressing ChatGPT, all within a few months of its release

(Farhat et al., 2024). Still dominating worldwide interest, ChatGPT averages more than 600 million visitors a month and has seen monthly visits as high as nearly two billion (Duarte, 2024). The recent decline in visits from peak interest may be associated with the advent of other AI models. Microsoft's 2024 release of its AI, Copilot, has been credited with increased profits as Office365 boasts millions of new subscribers (Stradling, 2024).

AI development is not slowing. Machine learning is the next generation of AI, launching machines from program-oriented gadgets that complete tasks to autonomous machines that can fully interpret and generalize responses independently and with an ethical lens (Xu et al., 2021; Bertoncini & Serafim, 2023). Addressing this growth requires further evaluation of the technology and the competition it offers to humanity.

Ethical AI

Ethics concern nuanced philosophical rules associated with distinctive groups, belief systems, human behavior, and values judgment associated with conduct, outcomes, intent, and reasoning, based on moral governing principles of right and wrong (Singer, 2024). Origins of ethics span ancient belief systems from the seventeenth-century BC Code of Hammurabi, third and fourth-century BC early Greek philosophers Socrates and Aristotle, and influencers of Asian codes, such as fifth-century BC Confucianism, to notable modern-day philosophers, such as Kant, Bentham, Mill, and Anscombe (Gordon, n.d.;

Singer, 2024; Winkler, 2022). As a philosophy, ethics is an abundantly debated concept with a legacy that still lacks complete understanding; controversy over ethical AI is no different leading some stakeholders toward a universal definition.

Critical of varied disciplines of ethics, such as business ethics, medical ethics, and legal ethics, researchers encourage universal definitions drawn from natural law, human dignity, and minimalist understanding (Winkler, 2022). Unique areas of ethical disciplines, such as the niche field of learning analytics (Tzimas & Demetriadis, 2021), contribute to calls for consolidation of definitions and legislation addressing AI development. A large study of 53 publications addressed ethical learning analytics. It identifies concerns within the area of educational instructional design, noting that a duty to society regarding ethical data exists regardless of limited legislation by the United States or the European Union (Tzimas & Demetriadis, 2021). Understanding ethics in isolation of discipline remains nebulous. Tzimas and Demetriadis (2021) nicely articulate an approach to ethical learning analytics that is accurate, balanced for privacy, well-understood, and transparent, and helps to consolidate meaning. Disparity in disciplines is not the only concern for ethical definition and AI; the impact of AI on humans is also a matter of debate.

While ethical AI development is not the only challenge for the human condition, it is presumed to be a "... Long-term existential risk ..." (Win-

kler, 2022, p. 3) and is included in a proposed definition of universal ethics, which includes punishment for violations. Careless use of AI may very well be a severe threat to the overall health of humanity, which requires an immediate call for regulation (Federspiel et al., 2023). Answering the urgency for ethical AI development leadership, The United Nations Educational, Scientific and Cultural Organization (UNESCO) ranks among the few that have drafted specific guidance (Federspiel et al., 2023; Winkler, 2022; UNESCO, 2023).

Juxtaposed to the concern surrounding what ethical AI may render, some researchers posit autonomous experiences by AI that could govern and grow itself, whereby the AI either is programmed with moral and ethical standards that are then applied by the AI independently or the AI develops agency for ethical understanding and then exercises its decision making based on that agency (Bertoncini & Serafim, 2023). By allowing AI the ability to learn continuously and apply its intuition, nefarious actors who might input poisonous data would become irrelevant, thus making the AI act independently like a human (Xu et al., 2021). That being said, research in the area of ethical AI remains a fractured comprehension in tune with centuries of complex ethical definitions and dilemmas.

Research Consolidating a Clear Articulation of Ethical AI

Ethics is well-studied, and each area has a solid following; ethical AI is no

exception. Among the studies attempting to isolate defining characteristics of ethical AI, Schiff et al. (2021) offer robust content analysis regarding the similarities and differences associated with organizational responsibility in developing ethical AI. Despite the more significant societal benefit of applying a cohesive description of ethical AI, as is evident within public organizations, it is economics, not duty, that remains a primary motivator for private organizations (Schiff et al., 2021). Values for ethical AI remain misaligned. The work by Schiff et al. (2021) highlights disparity among the 25 presented topics, with the highest score listed in *social responsibility* and the lowest scores addressing *misinformation* and *deception*.

Green et al. (2019) also acknowledge similarities in corporate value statements in AI development that facilitate expert discussion around complex AI topics. That being said, while Green et al. (2019) note the impact of identifying AI vision within businesses, they assert a case for a broader discussion around ethical AI considerations associated with social justice and general societal well-being. Meanwhile, a profound gap remains in defining ethical AI holistically.

Methodology

This research employed a Grounded Theory (GT) document content analysis approach. A document analysis affords the use of extant data retrieved by researchers within context and provides a reflexive opportunity to interpret data meaningfully

toward building theory (Bowen, 2009; Khan, 2014; Glaser & Strauss, 1967; Ralph et al., 2014). While many qualitative methods are interactive on some level with participants or phenomena through observation, interview, or focus groups, to name a few, document content analysis is wholly unobtrusive and benefits from fixed content within documentation (Bowen, 2009). An iterative process relying on a cursory review, content examination, thematic analysis, and interpretive practice, content analysis heavily relies on researcher neutrality throughout review and sensitivity towards selected material (Bowen, 2009; Glaser & Strauss, 1967).

In order to isolate shared language regarding ethical AI, a content analysis explored influential organizational publications. The researcher took special care in gathering data by extracting meaning from the content presented in publications through a systematic process that protected the researcher's sensitivity (Ralph et al., 2014). In their seminal work on GT as a methodology, Glaser and Strauss (1967) suggest that theory should then emerge from thematic categories determined by theoretical sampling, where a researcher determines which group, category, or review should be next based on some relationship and the imprecise sensitivity and interpretation of the researcher. Theoretical sampling, a unique strength of GT (Khan, 2014), is employed in this research to help identify what documents should be included in this study.

Theoretical Sampling

Critical documentation was analyzed via web search engines to determine whether a high level of understanding of ethical AI was discernible from organizational publications that broadly address AI governance. Sampling included cursory scanning of various documents to identify specific areas of focus on ethical AI by influential organizations that had published intact documents versus news articles or vague mentions. Afterward, selected documents were specifically reviewed on ethical AI, rather than other broad esoteric concepts, such as privacy or values.

Sensitivity in Content Selection

The quantity of documents should not dictate a document review; instead, the quality of selected documents bolsters research (Bowen, 2009). In keeping with these notions, the researcher thoughtfully considered publications addressing AI and ethics from internationally recognized organizations with four or more isolated influential characteristics: notoriety, public persona, recognizability, responsibility, authenticity, and impact. Driven by researcher curiosity initially, a Google search yielded vast pages of potential results that included broad ethical AI. Parsing the results using Boolean indicators, such as *and*, *not*, and *or*, yielded a refined list of potential items for review. The selected defining characteristics helped to determine whether or not a government, business, or educational body was easily identified by an average reader who

the researcher considers having no special training in technology or philosophy. As such, private local businesses, niche markets, or specialized expert documentation were excluded. Additionally, all selected publications must be published online, open-access, archival, and written in English. The results of the document selection reflect a sensitivity to allowing the documents to emerge through careful reading and were identified as meeting all required defining characteristics (see Table 1).

Summary of the Documents

Under Review

The selected documents were cataloged, scanned for merit, and read for interpretation. Five combined documents were analyzed, including 219 pages of text and illustrations and over 1,300 mentions of *Artificial Intelligence*, *AI*, *ethics*, *ethical*, or *ethically*. The reviewed documents span the U.S. government, the United Nations, business coalitions, and education and began with the White House's executive order on AI (2023).

U.S. White House Executive Order Publication (#1-Executive Order). President Joe Biden spoke to the demand for AI guidance from the United States White House briefing room. In the historic *Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence*, the President answers the call for AI clarity for various constituents (The White House, 2023). The executive order describes the expectations for AI development, training, and governance

Table 1. Documents With Internationally Influential Characteristics

Document Type	Defining International Influential Characteristics
1. U.S. White House Executive Order	
Notoriety	Government Executive
Public Persona	President
Recognizability	Executive Order
Authenticity	White House Archives
2. U.S. Department of Defense Publication	
Notoriety	Government Department of Defense
Public Persona	DoD Secretary of Defense
Recognizability	Government Department of Defense
Responsibility	Government Department of Defense
Impact	Government Department of Defense Bases
3. United Nations Guidance	
Notoriety	Governing Body
Recognizability	Governing Body
Responsibility	Government Membership of Member States
Impact	Governing Body
4. Business Review Publication	
Notoriety	International Corporations
Recognizability	International Corporations
Authenticity	International Corporations
Impact	International Corporations
5. U.S. University Publication	
Notoriety	Acclaimed University
Recognizability	Acclaimed University
Responsibility	Acclaimed University
Impact	Acclaimed University

Note. Created in Excel.

and identifies ethical considerations. The online publication, downloaded to a PDF, contains seventy-six pages of text, with three uses of *ethical* or ethical words and over 450 mentions of *Artificial Intelligence* or *AI*.

U.S. Department of Defense Publication (#2-DoD Data AI Strategy). Last year, Deputy Secretary of Defense Kathleen Hicks presented the *Data, Analytics, and Artificial Intelligence Adoption Strategy Accelerating Decision Advantage* guide with key outcomes desired by the Department of Defense (2023). While the publication

outlines military and strategic objectives such as adoption, application, resilience, and efficiency in AI incorporation, it also specifies ethical testing, alignment with their principles, data management, and safety. The guide also highlights the *DoD AI Ethical Principles* pyramid, showcasing “Responsible A.I.” as the top concern (Department of Defense, 2023, p. 7). While not under this research, it is essential to note that the focus document highlighted AI guidance introduced in 2020. The *DoD AI Ethical Principles* detailed five critical areas of ethical AI application (U.S. De-

partment of Defense, 2020). The online publication under this review (2023), downloaded to a PDF, contains twenty-six pages of text and illustrations, with five uses of the words *ethics* or *ethical*, and over 100 mentions of *Artificial Intelligence* or *AI*.

U.S. University Publication (#3-HAI AI Index Ch 3). Education has carved out a bold interest in AI guidance by publishing the *Artificial Intelligence Index Report* curated by the world-renowned Stanford Institute for Human-Centered Artificial Intelligence (HAI) (Maslej et al., 2024). The annual report addresses vital trends, progress, and initiatives of focus headlined as the “Top 10 Takeaways.” Highlighted among the *takeaways* is the world’s increasing unease with AI advancement juxtaposed with excitement (Maslej et al., 2024, p. 6). The report identifies ethical reasoning and moral considerations as paramount regarding sensitive areas, such as medical, legal, and data management matters. The online publication, downloaded to a PDF, contains 502 pages of text and illustrations addressing nine focused chapters, such as *Education*, *Diversity*, and *Economy*. As such, chapter three alone, titled *Responsible AI* (Reuel, 2024), was included in this review, which consists of 61 pages and includes 24 uses of the words *ethics*, *ethical*, or *ethically* and over 200 mentions of *Artificial Intelligence* or *AI*. The only other chapters that mention *ethics* were two occurrences in chapter two and three in chapter nine. Thus, Chapter Three includes overwhelming occurrences to warrant review.

International Business Review Publication (#4-MIT Tech Review). Partnering with Microsoft, the *MIT Technology Review Insights* guide highlights more than 300 manufacturing companies and their deployment and scalability of AI systems (2024). While the analysis of surveys does not explicitly address ethical implications, it does address the industry pressures to increase profitability through AI and the challenges facing research and development and factory production (MIT Technology Review Insights, 2024). These manufacturing insights can help understand ethical implications from the lens of business management. Further, these insights are impactful in light of the signed open letter of eight major technology firms, including big names Microsoft and Mastercard, for resolving their commitment to UNESCO’s ethical AI recommendations (UNESCO, 2024). The online publication, downloaded to a PDF, contains twelve pages of text and illustrations. *Ethics* is not directly mentioned; however, the merit of this document was seen for its impact and insight into business practices and includes more than 150 mentions of *Artificial Intelligence* or *AI*.

United Nations Guidance Publication (#5-UNESCO). The United Nations organization UNESCO supports sustainability, education, and scientific support to promote peaceful multinational communications (UNESCO, n.d.). In a world increasingly impacted by the complexity of AI, UNESCO has officially adopted, in their *Recommendation on the Ethics of Artificial Intelligence* publication regarding

human rights in AI governance, four core values for AI exploration that address human dignity, environment thriving, diversity, and peaceful living (2021). Additionally, UNESCO bolsters its values by specifying “ten core principles,” including topics in fairness, ethical transparency, and oversight, and eleven “actionable policies,” including topics in ethical impact and governance (2021; UNESDOC Digital Library, 2023). The online publication, downloaded to a PDF, contains 44 pages of text and illustrations with 113 uses of the words *ethics*, *ethical*, or *ethically*, and over 400 mentions of *Artificial Intelligence* or *AI*.

Document Content Analysis Using Atlas.ti

In order to properly review and code the five selected documents, Atlas.ti was used in the web-based platform. Atlas.ti is a well-established qualitative data analysis product founded in 1993 by Thomas Muhr to support the international demand for comprehensive analysis software (Atlas.ti, 2024a). Available in both a web-based or desktop platform, the program supports manual coding through colorful visualizations that turn on or off selected codes, quote management, and organization of the entire coding process (Atlas.ti, 2024b). Moreover, Atlas.ti can utilize OpenAI’s Chat GPT to afford researchers an enriched experience with AI-enabled coding and document summaries and has provided exponential growth in the field of generative AI and educational qualitative research (Velazquez, 2024; Davison et al., 2024). Atlas.ti’s

document review and coding processes, however, do not require AI-enabled features and can be manually controlled by a researcher (Atlas.ti., 2024b), which is the case with this study. The human researcher exclusively performed careful document scanning, creation of codes, and analysis.

Creating Theme Groups and Categories

Utilizing an inductive approach, all five documents were analyzed in Atlas.ti according to the concepts of *AI* and *ethics*. Each document was evaluated for words, passages, and phrases that included or implied a relationship between AI and ethics. First, cursory scanning was used to isolate areas within each document that overtly detailed a relationship within the concepts. Overt items were initially coded as key terms, such as vocabulary and meaningful text. Second, an in-depth reading of each document was used to understand the relationship between overt information and implied meaning in the text. The researcher was careful to maintain sensitivity to content information rather than personal feelings or intuition, and frequent breaks were used to refocus on possible themes, categories, and potential subcategories. Finally, an intentional reading of implied connections to the themes was isolated for meaning.

At each stage, categories and subcategories were created to draw out patterns. Significant information that was repetitive was initially considered a category, and minor information or supportive quotes were considered sub-

categories. Subcategories with extensive similarities were combined to limit the number of categories to a meaningful and manageable number, eventually yielding no subcategories. Categories were also consolidated, with some individual categories merged where necessary. Themes began to emerge, which allowed for the consolidation of categories into theme groups. This continuous and interactive review continued until all documents were coded.

Results

The document analysis of all five documents yielded a comprehensive review of characteristics associated with ethical AI. Through reflexive reading that maintained sensitivity towards emerging concepts, three theme groups and thirteen categories were finalized. The three theme groups were labeled according to their direct relevance to ethical AI and for how each referred to the categories. The theme groups were titled Key Features, Contribution, and Supportive Terms (see Figure 1). Key Features of ethical AI was determined to be the predominant theme group, which included five categories with the highest number of codes totaling 207 occurrences. Contributions to ethical AI contained the highest number of codes in support of ascertaining what characteristics are essential to the consolidation of a definition of ethical AI. It included six categories with 95 occurrences. Finally, Supportive Terms was the smallest theme group with only four categories and 44 occurrences. Categories were

assigned to the theme groups dependent on their relative occurrence: 0-20 occurrences were considered Supportive Terms; 21-30 occurrences were considered Contribution; and 31-50 occurrences were considered Key Features.

The categories were drawn out through continuous scanning, rereading, and interpretative meaning. In all, thirteen categories were identified as influential towards ethical AI. The thirteen categories, ranked in coding occurrence order, were *Responsible*, *Safe & Secure*, *Strategic Testing*, *Collaboration*, *Governance*, *Accountable*, *Trustworthy*, *Fairness*, *Transparency*, *Privacy*, *Misinformation/Misuse*, *Explainable*, and *Consent* (see Figure 2). In determining the final categories, some codes were merged to isolate meaning within the final thirteen categories. The merged categories included reliability merged with *Accountable*, sensitivity merged with *Privacy*, accuracy merged with *Trustworthy*, and strategic and testing merged to create *Strategic Testing*. These merged categories reflect a secondary review of outlier quotes, that when scrutinized, seemed more appropriate in their merged categories rather than independent in their initially coded categories. A final thirteen categories resulted.

Interconnected Relationships Within the Categories

The relationship between categories is staggering, particularly within the Key Features theme group. While Figure 2 aptly showcases *Responsible* as tied with *Safe & Secure* for overall occurrence-

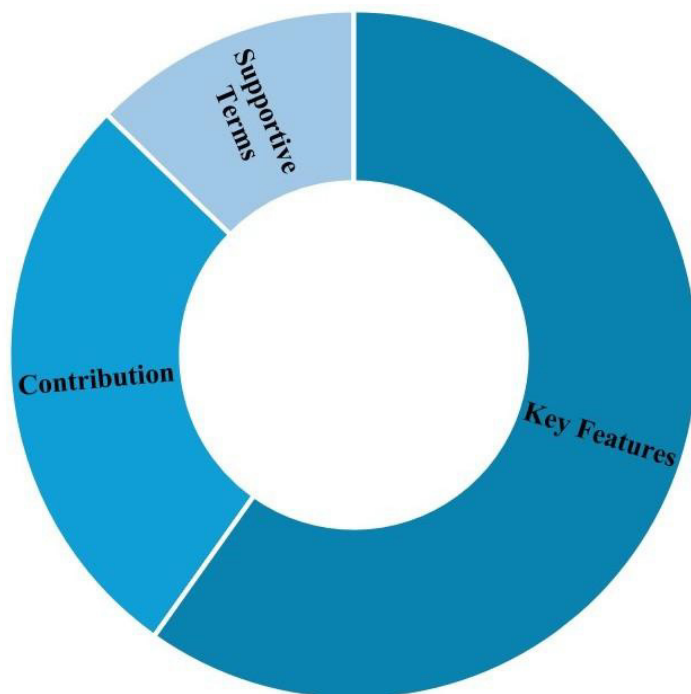


Figure 1. Theme Groups Associated with Thirteen Categories
Note. Created in Excel.

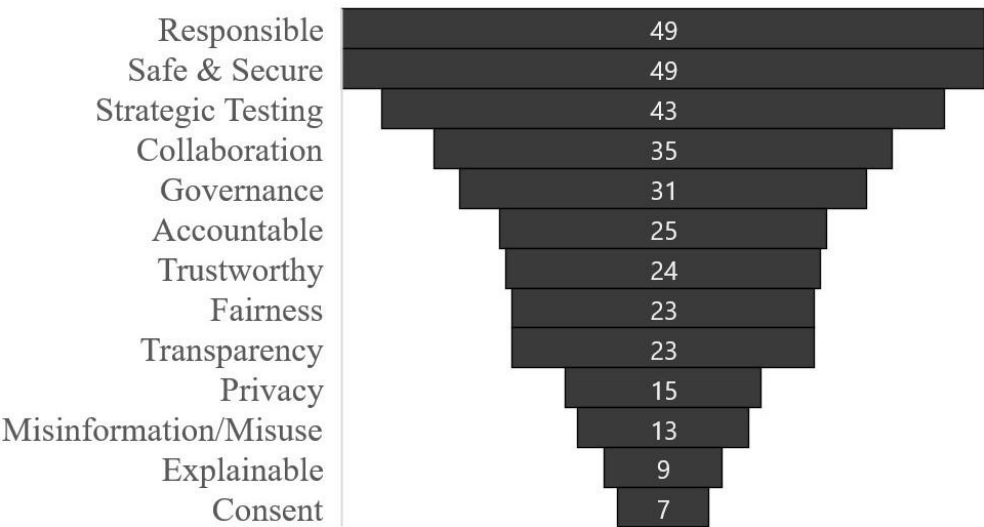


Figure 2. Thirteen Categories Associated with Three Theme Groups
in Order of Total Coding Occurrence
Note. Created in Excel.

es, the co-code occurrences within the Key Features theme group demonstrate *Responsible* alone as having the highest co-code occurrence with 51 versus *Safe & Secure's* 48 co-code occurrences. This distinction highlights that *Responsible* is the Key Feature that dominates across all categories and *Safe & Secure* makes up co-occurrences throughout the Contribution and Supportive Terms theme groups.

With *Responsible* housing the most vital co-code occurrences and among the highest category occurrences, it's notable to showcase its commonalities. The below Pareto chart plots the distribution of the co-code occurrences in descending frequency per the percentage of the adjusted total of 75 co-

code occurrences (see Figure 3). It's important to note that *Governance* and *Accountable* tied for seven each co-code occurrences, and *Misinformation/Misuse* and *Privacy* tied for four co-code occurrences, making the raw total of co-code occurrences 86, however, 75 independent co-code occurrences are reported given the tied categories. Figure 3 showcases a significant weight given to *Safe & Secure* with its 25 co-code occurrences. Equally impressive are the eleven co-code occurrences of *Collaboration* and nine of *Fairness*, which are dominant to *Strategic Testing* despite the higher code occurrence for *Strategic Testing*, particularly for *Fairness*, which is grouped within the Contribution theme group instead of *Responsible's* Key Feature theme group.

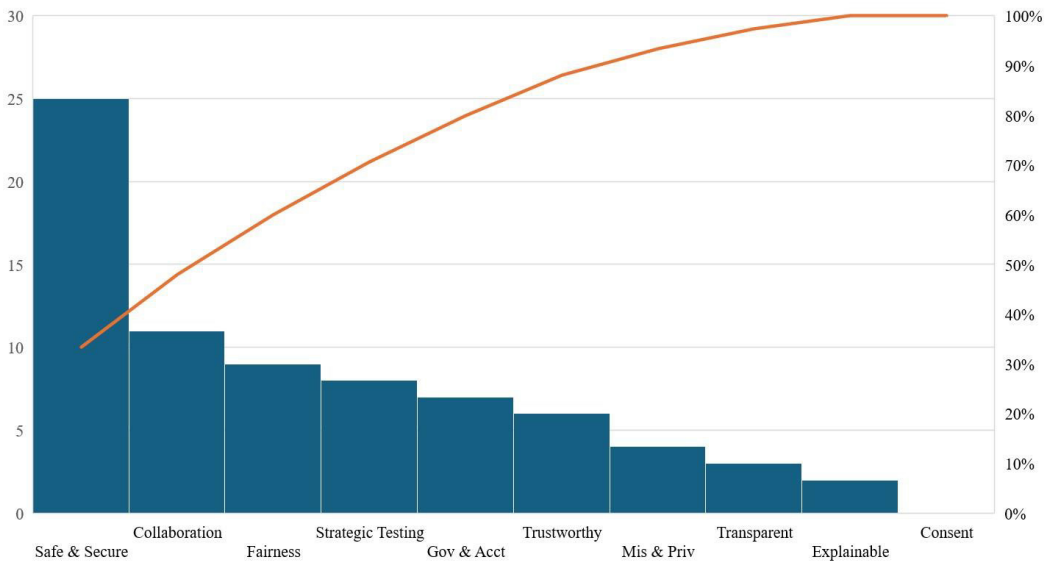


Figure 3. *Responsible Category: Co-Code Occurrence Among All Categories*

Note. Created in Excel.

The lowest co-code occurrences within the Key Features theme group were in *Governance*, which also holds the lowest place within the theme group and scored a mere seven co-code occurrences with *Responsible*. Interestingly, *Governance* tied its low co-code occurrences (seven) with *Accountable*, in light of being outscored by additional mentions in the overall occurrences (31). *Accountability* held a modest category with 25 overall and a mere seven in co-code occurrences with *Responsible*.

Given *Responsible*'s commanding primary role in ethical AI characteristics, it's notable for showcasing its lowest co-code categories. Coming in top of the bottom half, *Trustworthy* demonstrated six co-code categories. Given *Trustworthy*'s overall occurrence (24), it is unsurprising that it was dominant in the lower half of the co-code occurrences with *Responsibility*. What is surprising, however, is that *Misinformation/Misuse*, tied with *Privacy*'s four co-code occurrences each, overtook *Transparent*'s three co-code occurrences, given that *Transparent*'s overall occurrences were higher at 23 versus 15 for *Privacy* and 13 for *Misinformation/Misuse*. Finally, it's remarkable to see how low *Explainable*, with two co-code occurrences, and *Consent*, with zero co-code occurrences, fared against *Responsibility*. These low categories demonstrated little relevance having netted the lowest overall occurrences at nine for *Explainable* and seven for *Consent*. Further exploration of category importance relies heavily on understanding the category distribution with the highest and lowest occurrences and co-code occurrences

between document and co-document relationships.

Interconnected Relationships Within the Document

Despite *Responsible* leading the co-code category occurrences, the most vital categories within the Key Features theme group included *Responsible* and *Safe & Secure*. These categories are tied for the dominating characteristics, each having forty-nine occurrences throughout the coding of all five documents. A Sankey diagram showcases the categories across documents (see Figure 4). It is appropriate to note the commanding impact that *Responsible* and *Safe & Secure* have across documents #1, #2, and #3. While *Strategic Testing* was third in terms of occurrences across documentation, it was the highest in documents #2 and #3 and spanned all five papers. *Collaboration* and *Governance* had a balanced influence across all documents, except *Collaboration* had the best showing in document #2, with 16 occurrences. Finally, only four categories were present in all five papers: *Collaboration*, *Governance*, *Strategic Testing*, and *Safe & Secure*.

As for the two highest versus two lowest categories, *Responsible* and *Safe & Secure* versus *Explainable* and *Consent*, a stark difference is seen in influence across all documents. When considering only the highest and lowest categories, *Safe & Secure* was the only category to be coded in all five papers, spanning only one mention in document #4 and 25 mentions in document #1. Conversely, *Consent* was the only

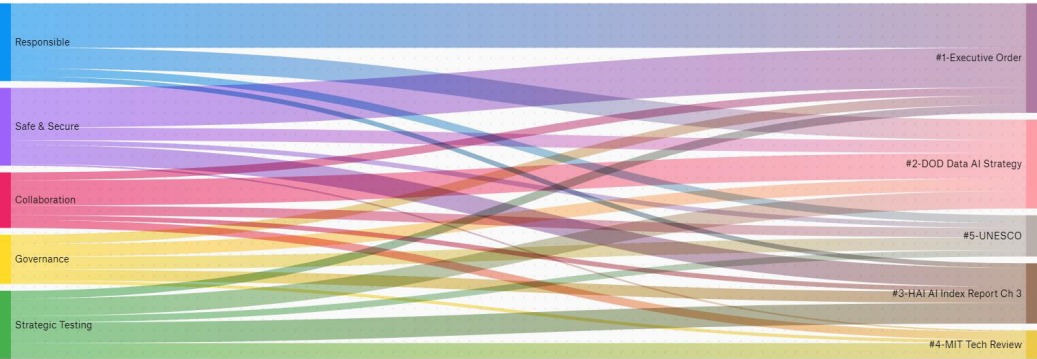


Figure 4. Sankey Diagram: All documents and all Key Features

Note. Created in Atlas.ti (2024a) showcasing five categories across all documentation.

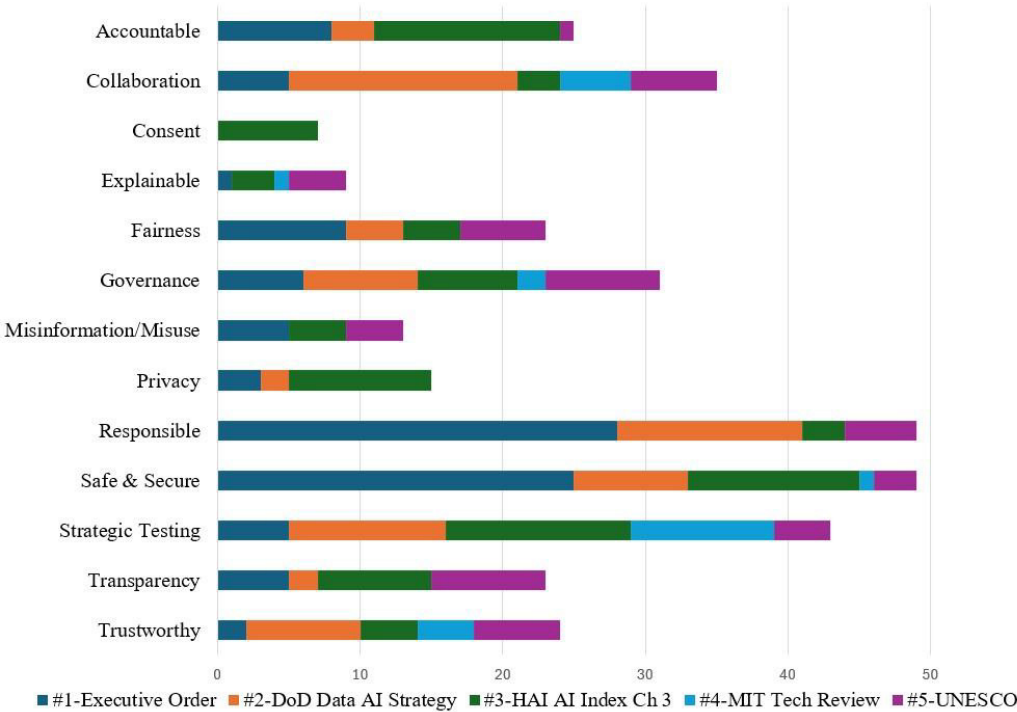


Figure 5. Category Occurrences Across All Documents

Note. Created in Excel.

category coded relevant in seven mentions within document #3 alone. This disparity is showcased in Figure 5 per each category.

Of the remaining nine categories, it's interesting to note that the only document with all categories mentioned

was document #3, with the highest tied mentions in the categories *Accountable* and *Strategic Testing* and the lowest tied mentions in the categories *Collaboration*, *Explainable*, and *Responsible*. Table 2 highlights each occurrence in every document for each category. It

showcases the lack of cross-category mentions in document #4 with seven categories not containing a single occurrence. Additionally, document #2 had three categories, and document #5 had two categories with zero occurrences. Further, document #1 closely followed document #3 in highlighting most categories, with only *Consent* having zero mentions. It's important

to note that only document #3 included *Consent* as a relevant category, with all seven mentions entirely within that document. Finally, document #1 had the strongest showing across all categories, totaling 102 of the total category occurrences, and document #4 had the weakest showing, with only 23 of the total category occurrences.

Table 2. *All Categories, Documents, and Occurrences*

Category	#1- Executive Order	#2-DoD Data AI Strategy	#3-HAI AI Index Ch 3	#4-MIT Tech Review	#5- UNESCO
Accountable	8	3	13	0	1
Collaboration	5	16	3	5	6
Consent	0	0	7	0	0
Explainable	1	0	3	1	4
Fairness	9	4	4	0	6
Governance	6	8	7	2	8
Misinformation/Misuse	5	0	4	0	4
Privacy	3	2	10	0	0
Responsible	28	13	3	0	5
Safe & Secure	25	8	12	1	3
Strategic Testing	5	11	13	10	4
Transparency	5	2	8	0	8
Trustworthy	2	8	4	4	6

Note. Created in Excel.

The relationships between categories and documents provide insight into defining and determining whether or not organizations of influence provide shared articulation, terminology, and concern regarding ethical AI. A meaningful review of five documents yielded three theme groups and thirteen categories toward this effort.

Discussion

This research did not seek a saturation of knowledge in focused disciplines of exceptional depth, such as the academic fields of Ethics, Social Science, Programming, Computer Science, or Artificial Intelligence. Instead, this research sought to narrow

the discussion for the average computer layperson and non-technical consumer or academic and aid in creating boundaries for ethical AI in higher education. While some research does attempt to isolate ethical AI definition (Schiff et al., 2021; Green et al., 2019), too many terms are broadly analyzed, and economic or societal impacts are the focus, rather than what an umbrella understanding should be for baseline ethical AI issues. In answering the research questions herein, mixed results warrant further evaluation.

To answer the first research question, “*Do high-level organizations of influence clearly articulate what ethical AI is through shared terminology?*” the researcher believes multiple affirmative examples exist to support this claim. Specifically, within the overwhelming occurrences in the Key Feature theme group containing *Responsible, Safe & Secure, Strategic Testing, Collaboration, and Governance*, it is clear that shared terminology exists. Furthermore, the predominant tied categories of *Responsible* and *Safe & Secure* highlight a feeling that all other characteristics could easily be captured within a general understanding of responsibility and security, characteristics sought by many people in many areas of life.

The researcher's second question, “*Is ethical AI a predominant concern of organizations of influence?*” indicates an affirmative response, at least within the documents under review. Document reviews hold inherent limitations during isolated review and thus cannot presume to indicate what an entire organization values. That being said, the

categories that emerged through sensitive and reflexive review highlight that organizations are thoughtful and purposeful in AI exploration. One exception, however, is showcased with *Consent's* poor representation across documents. In this case, further examination is warranted around consent as a general principle, with an individual acquiescing to action versus consent as an interaction with AI.

Finally, “*Can a consolidated definition of ethical AI be discerned from the publications of organizations of influence?*” the researcher would answer in the negative with one caveat. Ethics is elusive and controversial to the experts in the academic fields, and ethics are distributed across disciplines, such as business ethics and medical ethics. Therefore, it is premature in the development of AI and the limited scope of this research to make a bold claim of definition. That being said, it is helpful to many AI constituents to consider the categories presented herein when they consolidate a definition.

In considering whether or not this GT approach contributed to theory development in ethical AI, it is asserted that ethics are not yet completely understood and thus cannot be assumed to be understood by either an AI or the humans attempting to define the discipline. Furthermore, assertions that AI could autonomously develop its definition of ethical AI are premature without first developing society's understanding. Expansion in ethics education falls squarely in the lap of education experts, and higher education plays a part in this broader discussion. The Key Features

theme group may offer insight into appropriate education topics.

Key Features are the Roadmap for Understanding

The Key Feature theme group overwhelmingly demonstrates that *Responsible*, *Safe & Secure*, *Strategic Testing*, *Collaboration*, and *Governance* are essential to defining ethical AI. Of the top five categories, four are the only categories, out of all thirteen, to have spanned all five documents, with the only exception being *Responsible*. *Responsible* lacked reference in document #4 and warrants further discussion regarding a specific area of limitation. Nevertheless, *Responsible* demonstrates a primary value in defining ethical AI because it has "... the potential to help solve urgent challenges while making our world more prosperous, productive, innovative, and secure" (The White House, 2023, p. 1). That said, the value for responsible reporting of AI innovation has been lacking as "... there is no universally accepted set of responsible AI benchmarks used by leading model developers" (Maslej et al., 2024, p. 14). A priority for responsibility in AI development must be addressed, but not without considering other factors to improve the AI experience. Responsible AI is a package plan.

Of the dominant categories closely related to *Responsible*, *Safe & Secure* boasted the most substantial showing in document #1, which may reflect the nature of the U.S. government's interest in protecting the nation. A detail that makes sense given the fact that the

document is a presidential executive order, and the nation's government must oversee AI development to ensure "... AI systems function as intended, are resilient against misuse or dangerous modifications, are ethically developed and operated in a secure manner ..." (The White House, 2023, p. 2), as well as provide the "... development platforms for continuous experimentation and deployment and then maximize the adoption of responsible AI shared services" (Department of Defense, 2023, p. 11). To that end, our government, for its citizens, and other governments for their citizens, should address regulation, or the lack thereof.

Collaboration, *Governance*, and *Strategic Testing* warrant a commanding discussion around the emphasis of the U.S. government and the Department of Defense, given the strong occurrence across all three categories. In light of national stability and security and an international footprint with overseas bases, it makes sense to see a pattern emerge. Collaboration among nations and organizations can enhance the development of ethical AI and increase the value of the education consumers, experts, and AI developers place on ethical AI advancement with increased transparency across agencies (The White House, 2023; Maslej et al., 2024). Furthermore, "Creating effective, iterative feedback loops among developers, users, subject matter experts, and test and evaluation (T&E) experts will ensure capabilities are more stable, secure ..." and capable of scaling ethical AI systems without increased risk (Department of Defense, 2023, p. 6).

In addition to protecting the nation's AI infrastructure, a vested interest rests in all organizations to ensure ethical AI is defined and developed positively to protect "... fundamental ethical concerns, for instance regarding the biases they can embed and exacerbate, potentially resulting in discrimination, inequality, digital divides, exclusion and a threat to cultural, social and biological diversity..." (UNESCO, 2021, p. 5). Protecting our nation and its citizens is not mutually exclusive, which requires governments and organizations alike to focus on the harmful impacts AI can have on users. Consumers are more likely to experience discrimination, harmful material, and inaccurate content from a variety of language models, such as in chatbot interactions that "... end up collecting significant amounts of private and sensitive information ..." (Maslej et al., 2024, p. 8) on unsuspecting consumers, or suggest inappropriate algorithmic recommendations, making the development of ethical AI not only a safety and responsibility issue but also a human rights issue (UNESCO, 2021).

Protecting government, organizations, and consumers requires the accelerated definition of ethical AI, which may take longer than the development of AI may afford. Of curiosity, document #5 lacked the broad contribution to ethical AI definition that the researcher would have supposed, given its vested interest in protecting individual privacy. With a title such as *Recommendation on the Ethics of Artificial Intelligence* (UNESCO, 2021), it was shocking not to discover a United Nations overt definition of ethical AI. With

an emphasis on human rights and digital awareness, the researcher hopes that UNESCO will become undisguised in its leadership by further researching and eventually contributing to a clear worldwide definition of ethical AI. That being said, researcher fatigue may have contributed to not pulling out a clear and concise definition. However, the implied description to what ethics is generally and how UNESCO (2021) applies that knowledge is noted. Businesses may lend to definition development and clarity in association with organizations.

Unsurprisingly, consumer activity is the result of manufacturers' adoption of ethical AI, at least so much that profits drive the discussion. *Strategic Testing* had its most substantial showing in document #4. Given the nature of business, it is expected that a document *Taking AI to the Next Level in Manufacturing* (MIT Technology Review Insights, 2024), which showcases 300 manufacturing companies' production and R&D investment around technology, would focus heavily on both strategy and testing independently or together. Higher education plays a distinct role in amplifying businesses' value for ethical AI by increasing AI understanding in graduates across all disciplines, including non-technical majors. This increase is not only a business advantage but also contributes to university enrollments. Shortages in skilled and educated laborers profoundly impact the ability of manufacturing companies to scale and increase AI capabilities with business reporting that "... talent and skills shortages are the toughest impediment to scaling AI ..." (MIT Technol-

ogy Review Insights, 2024, p. 10). It is a missed opportunity for both business and higher education to not embrace the expansion of ethical AI education.

Implications and Limitations

As with all research, some limitations exist within the study. The knowledge base for AI is ever-changing, and the researcher does not boast expertise in either technology or AI. With the selected methodology, content analysis poses some risks to document retrievability in the event further research or replicate studies are initiated. It doesn't offer a complete picture of an organization's beliefs and practices when single documents are reviewed in isolation (Bowen, 2009). Further, theoretical sampling, while remarkable within Grounded Theory, has implications for concern regarding the particular documents selected or the guiding of themes to emerge; however, it is essential to note that sampling is a struggle in all research as finite resources dictate inclusions and exclusions (Khan, 2014).

The AI-enabled coding Atlas.ti program includes processes that can yield ethical concerns for researchers who do not appropriately disclose its use, use its insights as their own, share private data material with the AI, or allow bias to manipulate their research (Davison et al., 2024). Ensuring the integrity of this research is only as good as the peer-level trust provided within the discipline; the ethical behavior of the researcher must remain intact, and the research community is at the mercy of relying on the assumption that ethi-

cal research behavior has indeed been adhered to herein.

Further, it is essential to note that a lack of occurrences in categories that list zero (see Table 2), such as within documents #1, #2, #4, and #5, is not necessarily a reflection of the absence of a matching term or concept. Instead, there is a lack of relevance for whether or not the researcher noted it as being meaningful to supporting the research. It is possible that a matching term, such as "accountable," was present in a document. However, its material value to the overall meaning or sensitivity of the research was low. It is possible that a shared term was used differently than what was associated with the research. For example, "explainable" has multiple meanings and would only be coded if associated with the research. Also, in some instances, a document, such as document #3, had an overwhelming number of category words, such as "responsible"; however, its uses were not measured due to its formatting support rather than research relevance.

Finally, *Responsible* earns a specific mention in relation to this study. Despite having a commanding lead throughout the review, it must be noted that a research weakness, not a document weakness, may be evident. Document #4 focused on business development. As such, *Responsible* was not a tagged category, resulting in the only document not receiving a *Responsible* code. This is not surprising as the focus of the document addresses manufacturers' early deployment of AI and its impacts on research, design, factories, and

production (MIT Technology Review Insights, 2024). While *Responsible* was not noted within this document, value was emphasized in *Strategic Testing* due to the early adoption of AI in business ecosystems. Additionally, Document #3 titled *Chapter 3: Responsible AI* (Reuel, 2024), reviewed low with a mere three *Responsible* occurrences noted overall, despite *Responsible's* decisive relevance in this research, and notwithstanding the obvious focus of the document. This disparity may be due to the researcher's intentional disregard for using an in vivo code for *Responsible*. Document #3 presented an astounding 161 individual uses of the specific word responsible, as compared to 26 in document #1, 21 in document #2, zero in document #4, and five in document #5. As such, it's highly credible that the researcher intuitively or unconsciously disregarded the *Responsible* category in document #3 a vast majority of the review time. This over-sensitivity may distract from the overt messaging of responsibility generally in document #3 and, therefore, should not be a reflection on the document itself. That being said, document #3 was the only document to be coded comprehensively with occurrences in all categories, thereby making it the most reflective document within this research for the ethical AI definition landscape.

Rationale and Expansion on Research

This research builds on existing research regarding the impact of responsibility as a key factor in ethical AI and the need for businesses

to expand their values beyond production and R&D to social issues (Schiff et al., 2021; Green et al., 2019). However, it restrains notions that AI may soon be able to govern its own ethical development (Xu et al., 2021; Bertoncini & Serafim, 2023) without first expanding human education on the difficult concept of ethics. Three focus constituents benefit greatly from this research in that higher education administrators can improve AI ethical guidance, curriculum developers of teacher preparation programs can embed ethical AI boundaries into credentialing programs, and teacher candidates can support young learners with ethical AI usage within educational settings.

Conclusion

Document analysis is a fruitful method as it supplies opportunities to track changes over time, verify facts, and draw out meaningful connections (Bowen, 2009; Glaser & Strauss, 1967)

This article contributes to the body of research on the definition of ethical AI and expands on the use of document content analysis. Higher education is best served by this knowledge by expanding courses to students that require an advanced understanding of ethics, as well as higher education must be part of the broader discussion in further research which gives them a seat at the debate table on ethical AI.

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