

Catuṣṣaṣṭi Kalās as a Mandala of Mastery: Transforming Jñāna into Vijñāna for Integrated Humans

Dr. K.V. Sarma

Independent Researcher, Hyderabad, Telangana

Prathyusha Karra

Marketing, DeepForrest AI, Hyderabad, Telangana

Abstract

The aim of this paper is to reinterpret the traditional Catuṣṣaṣṭi Kalās (Sixty-Four Arts) as a comprehensive and systematic curriculum for achieving human wholeness and integrative intelligence. In contrast to modern educational paradigms that increasingly promote narrow specialization and intellectual fragmentation, the Vedic knowledge framework envisions the development of the Integrated Human (Pūrṇa Puruṣa)—an individual harmonizing cognitive, ethical, technical, aesthetic, and spiritual faculties.

By synthesizing the sixty-four Kalās with the functional psychological architecture of the four Varṇa qualities—Insight (Brāhmaṇa), Courage (Kṣatriya), Resourcefulness (Vaiśya), and Purity/Service (Śūdra)—this study demonstrates how theoretical knowledge (Jñāna) is systematically transformed into realized, applied wisdom (Vijñāna). Drawing upon the historical archetype of Śrī Ādi Śaṅkarācārya and the divine pedagogical model of Śrī Kṛṣṇa, the paper proposes a Mandala of Proficiency, wherein technical mastery is governed by ethical intelligence (Sumathi, the “Good Mind”), conceptualized as the 65th Skill.

The framework further establishes functional equivalence between traditional Kalās and contemporary domains including cryptography, robotics, artificial intelligence, healthcare, economics, and sustainability sciences. By integrating ancient epistemology with modern scientific and technological challenges, this model offers a robust educational paradigm aimed at cultivating ethical competence, cognitive integration, and social responsibility, thereby contributing toward Loka-Saṃgraha (collective well-being) in the 21st century.

Keywords: Catuṣṣaṣṭi Kalās; Integrated Human (Pūrṇa Puruṣa); Svadharma; Jñāna–Vijñāna Framework; Mandala of Skill; Sumathi (Good Mind); Loka-Saṃgraha; National Credit Framework (NCrF); Vedic Education System; Integrative Learning; Varṇa Psychology; Ethical Intelligence; Interdisciplinary Education; Artificial Intelligence Ethics; Cognitive Integration; Indian Knowledge Systems (IKS); Sustainable Civilizational Models.

1. Introduction: The Crisis of the One-Dimensional Human

In the contemporary era, the accelerating drive toward hyper-specialization has produced a paradoxical outcome: unprecedented technical expertise accompanied by profound intellectual fragmentation. Modern professionals increasingly become masters of narrow disciplinary niches while remaining novices in the broader art of living. This progressive compartmentalization of knowledge erodes integrative thinking, weakens ethical discernment, and diminishes existential coherence. The resulting condition—aptly described as a “starvation for wholeness”—manifests in systemic stress, psychological imbalance, social alienation, and a pervasive loss of meaning and purpose. These challenges expose a fundamental limitation of modern educational paradigms: the absence of a unifying framework capable of harmonizing technical mastery with ethical intelligence, cognitive integration, and human flourishing.

Against this backdrop, the classical framework of the *Catuṣṣaṣṭi Kalās* (Sixty-Four Arts) offers a profoundly integrative educational vision. Rooted in ancient Indian knowledge systems, this model asserts that true wisdom does not arise from isolated mastery but from holistic competence, achieved through the balanced cultivation of intellectual, practical, aesthetic, ethical, and spiritual faculties. The sixty-four *Kalās* were conceived not merely as artistic or vocational skills but as a comprehensive civilizational curriculum designed to cultivate the *Nāgaraka*—the refined and responsible citizen equally adept in social grace, scientific reasoning, technical craftsmanship, and contemplative inquiry. This educational ideal aligns personal excellence (*Svadharmā*) with collective well-being (*Loka-Saṃgraha*), thereby embedding learning within both ethical purpose and social responsibility.

At the epistemic core of this architecture lies the transformation of *Jñāna* (theoretical knowledge) into *Vijñāna* (realized and applied wisdom). This transition requires a structured psychological and ethical framework capable of converting cognition into responsible action. The symbolic anatomy of the *Puruṣa Sūkta*, mapping cognitive, executive, productive, and service-oriented faculties to the head, arms, thighs, and feet respectively, provides a functional psychological model for this transformation. When synthesized with the *Kalā* framework, it yields a coherent taxonomy of human skill development organized around four execution pillars: Insight, Courage, Resourcefulness, and Purity/Service.

This integrative pedagogical vision finds its historical and philosophical embodiment in figures such as Śrī Ādi Śaṅkarācārya and Śrī Kṛṣṇa, whose lives exemplify the seamless convergence of intellectual rigor, ethical discernment, strategic competence, and spiritual realization. Their educational models demonstrate that technical mastery without moral intelligence risks becoming socially destabilizing. Accordingly, the present study introduces *Sumathi* (The Good Mind) as the governing principle of all skill deployment, conceptualized as the 65th Skill. *Sumathi* functions as the ethical and cognitive governor, ensuring that knowledge, power, and innovation remain aligned with compassion, responsibility, sustainability, and civilizational continuity.

In the present context, where artificial intelligence, robotics, automation, and algorithmic governance increasingly shape human decision-making, the absence of ethical anchoring in education poses systemic risks. The reinterpretation of the *Catuṣṣaṣṭi Kalās* thus acquires urgent contemporary relevance, offering a civilizational grounded framework for integrating technological advancement with human values. By mapping traditional *Kalās* onto modern domains such as cryptography, artificial intelligence, robotics, healthcare, economics, and sustainability sciences, this study proposes a *Mandala of Mastery*—a functional, interdisciplinary model for holistic education suited to twenty-first-century challenges.

Furthermore, this framework demonstrates strong alignment with modern educational policy instruments, particularly the National Education Policy (NEP) 2020 and the National

Credit Framework (NCrF), by providing a structured basis for interdisciplinary learning, ethical grounding, and competency-based credit design. Through this synthesis, the paper seeks to articulate a robust pedagogical and civilizational architecture capable of addressing the intertwined crises of knowledge, ethics, and sustainability confronting contemporary society.

2. The Divine Validation: The Sandipani Āśrama Precedent

The most compelling validation of the Catuḥṣaṣṭi Kalās as a complete and systematic educational curriculum is found in the sacred narrative of the Śrīmad Bhāgavata Purāṇa (Gita Press Edition, Canto 10, Chapter 45). The text recounts the period during which Śrī Kṛṣṇa and Balarāma, having fulfilled their immediate socio-political responsibilities in Mathurā, consciously sought formal education at the forest academy (Āśrama) of Sage Sāndīpani Muni in Avanti (present-day Ujjain). This deliberate act of submission to pedagogical discipline represents one of the most profound affirmations of the Guru-Śiṣya tradition and the sanctity of structured learning in Indian civilization.

The scripture explicitly records that the divine brothers mastered the entire corpus of sixty-four Kalās and sixty-four branches of knowledge (vidyās) within a remarkable span of sixty-four days, completing one discipline per day. This reference is of exceptional philosophical and pedagogical significance. It establishes the Kalās not as optional cultural refinements or auxiliary arts, but as the core curriculum for complete human development, even for beings regarded as the embodiment of perfection. The narrative thus affirms that holistic mastery—spanning cognition, action, aesthetics, ethics, and spirituality—constitutes the non-negotiable foundation of ideal education.

More profoundly, the Sandipani precedent reveals that the Kalā system is inherently aligned with the fourfold aims of human existence (Puruṣārthas): Dharma (ethical conduct), Artha (material prosperity), Kāma (aesthetic and emotional fulfillment), and Mokṣa (spiritual liberation). By integrating technical proficiency with ethical refinement and spiritual awareness, the Kalā framework ensures that material competence does not eclipse moral responsibility, nor does spiritual aspiration disengage from social obligation.

This episode holds paramount philosophical importance for three fundamental reasons:

1. The Standard of Efficiency:

The compression of sixty-four disciplines into sixty-four days establishes the Kalās as the most optimized and cognitively efficient curriculum, capable of rapid yet holistic mastery. It reflects a pedagogical architecture grounded in experiential learning, mental integration, and disciplined practice—qualities strikingly absent in many modern educational models characterized by prolonged specialization and fragmented cognition.

2. The Guru-Śiṣya Foundation:

The voluntary submission of the Pūrṇa Puruṣa (Complete Being) to a human Guru underscores the civilizational principle that knowledge transmission is inseparable from humility, discipline, and ethical grounding. It affirms Svadharma as both personal responsibility and social obligation, reinforcing that no level of intellectual or spiritual attainment negates the necessity of structured guidance.

3. From Jñāna to Vijñāna:

The symbolic duration of sixty-four days represents the systematic transformation of theoretical knowledge (vidyā or jñāna) into applied mastery (kalā or vijñāna). This progression captures the pedagogical essence of the Kalā system: knowledge becomes wisdom only when internalized, embodied, and ethically enacted.

In contemporary terms, the Sandipani Āśrama precedent offers a powerful critique of modern educational fragmentation. It suggests that true educational efficiency lies not in accelerated specialization, but in integrative mastery, where cognition, ethics, skill, and self-awareness evolve synchronously. This ancient pedagogical model thus provides a robust conceptual foundation for reconstructing twenty-first-century education—especially in an era dominated by artificial intelligence, automation, and algorithmic reasoning—where technical power must be balanced by ethical intelligence and holistic human development.

3. The Psychological Architecture of the Kalās

The Catuḥṣaṣṭi Kalās represent far more than a compendium of artistic, technical, or vocational skills. They constitute a complete psychological architecture of human capability, designed to harmonize cognition, emotion, action, ethics, and consciousness into an integrated developmental system. Unlike modern educational paradigms that fragment knowledge into isolated domains, the Kalā framework organizes learning according to functional human psychology, ensuring the balanced maturation of intellect, agency, productivity, and service orientation.

This architecture finds its most precise symbolic articulation in the Puruṣa Sūkta, which describes the cosmic human as an organic unity structured into four interdependent functional dimensions: head, arms, thighs, and feet. When interpreted psychologically rather than sociologically, these dimensions represent distinct yet inseparable execution faculties within the human mind–body–consciousness continuum. Synthesized with the Kalā curriculum, they yield a four-pillar psychological model: Insight, Courage, Resourcefulness, and Purity/Service.

3.1. Insight (Brāhmaṇa Function – Cognitive Intelligence)

The Brāhmaṇa dimension corresponds to cognitive intelligence, perception, discrimination, and conceptual integration. It governs analytical reasoning, abstraction, linguistic competence, mathematical cognition, and philosophical reflection. Kalās associated with linguistics, logic, poetry, metrics, astronomy, debate, and scriptural exegesis directly cultivate this faculty.

Psychologically, this domain develops metacognition—the capacity to think about thinking—thereby enabling clarity, coherence, and epistemic discernment. In modern terms, this maps onto systems thinking, theoretical science, philosophy of mind, mathematics, and data reasoning. Without this integrative cognitive axis, learning degenerates into mechanical memorization or narrow technical competence devoid of contextual understanding.

3.2. Courage (Kṣatriya Function – Executive Intelligence)

The Kṣatriya dimension governs agency, decision-making, emotional regulation, risk management, and leadership execution. It transforms cognition into purposeful action, enabling individuals to navigate uncertainty, assert moral agency, and sustain resilience under adversity. Kalās linked to martial arts, governance, strategy, music performance, drama, architecture, and public discourse strengthen this faculty.

Psychologically, this dimension cultivates emotional intelligence, volitional control, confidence, and ethical assertiveness. It regulates fear, ambition, aggression, and attachment—

essential for leadership, innovation, and societal stability. In contemporary frameworks, this aligns with executive function, leadership psychology, behavioral regulation, and organizational decision science.

3.3. Resourcefulness (Vaiśya Function – Productive Intelligence)

The Vaiśya dimension governs productive intelligence, material organization, economic reasoning, and sustainability consciousness. Kalās associated with agriculture, trade, metallurgy, crafts, medicine, architecture, logistics, animal husbandry, and economics nurture this domain.

Psychologically, this faculty integrates creativity with pragmatism, allowing individuals to convert knowledge and intention into tangible outcomes. It develops foresight, adaptability, optimization, and ecological sensitivity. In modern terms, this dimension maps onto engineering, entrepreneurship, operations research, sustainability sciences, and economic systems design.

3.4. Purity / Service (Śūdra Function – Ethical & Embodied Intelligence)

The Śūdra dimension governs embodiment, service orientation, ethical discipline, humility, and stability. It anchors cognition and agency into lived reality through disciplined execution, craftsmanship, physical coordination, and compassionate service. Kalās involving sculpture, dance, music performance, caregiving, craftsmanship, and ritual practice refine this domain.

Psychologically, this dimension cultivates somatic intelligence, empathy, patience, devotion, and ethical restraint. It grounds intellectual abstraction and executive ambition in lived human experience. In modern frameworks, it corresponds to embodied cognition, healthcare ethics, therapeutic sciences, rehabilitation, and service-based professions.

3.5. The Integrative Axis: From Jñāna to Vijñāna

These four psychological dimensions operate not as isolated faculties but as interlocking components of a single execution system. Their functional integration enables the transformation of Jñāna (theoretical cognition) into Vijñāna (realized and embodied wisdom). The Kalā system ensures that learning flows through all four dimensions:

- Insight generates understanding
- Courage activates application
- Resourcefulness enables production
- Purity/Service grounds ethical execution

This continuous circulation prevents cognitive stagnation, emotional imbalance, material excess, and ethical erosion.

3.6. Sumathi: The Ethical Governor (The 65th Skill)

At the apex of this psychological architecture stands Sumathi (The Good Mind), conceptualized as the 65th Skill. Sumathi functions as the ethical, cognitive, and existential governor that harmonizes the four pillars. It regulates motivation, intention, and moral orientation, ensuring that knowledge and power remain aligned with compassion, responsibility, sustainability, and collective welfare (Loka-Saṃgraha).

Without Sumathi, the psychological system risks degeneration:

- Insight becomes manipulation
- Courage becomes domination

- Resourcefulness becomes exploitation
- Service becomes servitude

Thus, Sumathi constitutes the central stabilizing intelligence that prevents civilizational collapse by anchoring skill within ethical wisdom.

3.7. Contemporary Relevance: A Cognitive Architecture for the AI Age

In the era of artificial intelligence, automation, and machine-driven cognition, education increasingly prioritizes computational efficiency while neglecting emotional, ethical, and existential dimensions. The Kalā psychological architecture offers a complete human-centered cognitive framework, ensuring that technological power evolves alongside moral intelligence.

By embedding ethical governance within cognitive execution, this model provides a civilizationally sustainable blueprint for future education, preventing the rise of technologically empowered yet ethically unanchored individuals.

4. Comparative Study of the Canonical (Standard) Lists

- Reconstructing the Catuḥṣaṣṭi Kalās as a 21st-Century Human Skill Architecture
- The Mandala of Mastery: A Transdisciplinary Framework for Holistic Human Development

4.1. Theoretical Framework

The following framework reconstructs the Catuḥṣaṣṭi Kalās (Sixty-Four Arts) as a multidimensional competency architecture integrating aesthetic, cognitive, technical, ethical, strategic, and spiritual intelligences. By synthesizing classical Sanskrit knowledge systems with contemporary disciplinary domains, this model establishes a trans-disciplinary curriculum capable of fostering holistic human development, cognitive resilience, ethical intelligence, and socio-economic adaptability.

Rather than viewing the Kalās as isolated artistic or vocational skills, this framework conceptualizes them as an integrated Mandala of Mastery, wherein each competency contributes to the cultivation of the Pūrṇa Puruṣa (Integrated Human Being). The Kalās are further aligned with Varṇa-based functional psychology, representing innate cognitive-operational tendencies rather than hereditary or social stratification.

“Functional Pillar denotes psychological disposition and cognitive-operational tendencies, not hereditary or social classification.”

4.2. Comparative Study of the Canonical Lists

Although the number sixty-four remains constant across textual traditions, the specific enumeration of arts varies, reflecting the socio-economic, political, and cultural priorities of different historical contexts. A multidisciplinary analysis reveals three primary civilizational traditions:

4.2.1. Kāma Sūtra Tradition (Vātsyāyana)

Emphasizes the cultivation of the Nāgaraka (refined citizen). These arts focus on aesthetic refinement, emotional intelligence, sensory excellence, and social grace, nurturing cultural sophistication and psychological balance.

4.2.2. Śukranīti Tradition (Śukrācārya)

Shifts focus toward Artha (prosperity) and governance, emphasizing statecraft, metallurgy, engineering, economics, and military sciences, thereby strengthening societal infrastructure and political stability.

4.2.3. Bhāgavata–Purāṇic Tradition

Synthesizes both domains through the lens of Līlā (divine creativity) and Loka-Saṃgraha (collective welfare), framing the Kalās as instruments for spiritual elevation, ethical leadership, and civilizational harmony.

This synthesis demonstrates that the Kalās functioned not merely as artistic accomplishments, but as a complete educational architecture for societal sustainability and human flourishing.

4.3. The Mandala of Mastery

Reconstructing the 64 Kalās as a 21st-Century Human Skill Architecture

KS = Kāma Sūtra | SP = Śrīmad Bhāgavata Purāṇa | SN = Śukranīt

No.	Canonical Sanskrit Name	Primary Source(s)	21st-Century Equivalent	Functional Pillar
1	Gāna Vidyā	KS, SP, SN	Vocal Mastery / Respiratory Therapy	Brāhmaṇa
2	Vādhyā Vidyā	KS, SP, SN	Instrumental Music / Acoustic Science	Brāhmaṇa
3	Nṛtya Vidyā	KS, SP, SN	Dance / Kinesthetic Intelligence	Kṣatriya
4	Nāṭya Vidyā	SP, SN	Drama / Public Speaking	Brāhmaṇa
5	Ālekhya Vidyā	KS, SP, SN	Painting / Visual Communication & UI-UX (User Interface (UI) and User Experience (UX) focus on human-centricity, aesthetics, & functionality)	Vaiśya
6	Viśeṣaka-chedyaka	KS, SP	Facial Marking / Facial Recognition	Śūdra
7	Taṇḍula-kusuma-bali-vikāra	KS, SP	Food Design / Culinary Aesthetics	Śūdra
8	Puṣpāstarāṇa	KS, SP	Interior Design	Śūdra

9	Daśana-vasanāṅga-rāga	KS, SP	Cosmetic Science	Śūdra
10	Maṇi-bhūmikā-karma	KS, SP	Civil Engineering & Surface Design	Vaiśya
11	Śayana-racana	KS, SP	Ergonomics	Śūdra
12	Udaka-vādyā	KS, SP	Hydro-Acoustics	Brāhmaṇa
13	Udaka-ghāta	KS, SP	Fluid Mechanics	Vaiśya
14	Citra-yoga	KS, SP	Chemical Imaging & Dyeing	Vaiśya
15	Mālya-grathana-vikalpa	KS, SP	Botanical Arrangement	Śūdra
16	Sekharaka-āpīḍa-yojana	KS, SP	Fashion Engineering	Vaiśya
17	Nepathya-yoga	KS, SP	Costume Technology	Vaiśya
18	Karṇapatra-bhaṅga	KS, SP	Jewelry Design	Vaiśya
19	Gandha-yukti	KS, SP, SN	Fragrance Chemistry	Vaiśya
20	Bhūṣaṇa-yojana	KS, SP	Ornamentation & Accessory Design	Vaiśya
21	Indra-jāla	KS, SP, SN	Visual Effects & Illusion Science	Kṣatriya
22	Kaucumāra-yoga	KS, SP	Pharmacology & Rejuvenation	Brāhmaṇa
23	Hasta-lāghava	KS, SP, SN	Fine Motor Skill Mastery	Śūdra
24	Citra-śāka-pūpa-vikāra	KS, SP	Culinary Arts	Vaiśya
25	Pānaka-rasa-āsava-yojana	KS, SP	Biotech Fermentation & Mixology	Vaiśya
26	Sūcīvāya-karma	KS, SP, SN	Textile Engineering	Vaiśya

27	Sūtra-kṛīḍā	KS, SP	Animation & Puppetry	Brāhmaṇa
28	Vīṇā-ḍamaru-vādyā	KS, SP	Advanced Acoustics	Brāhmaṇa
29	Praheḷikā	KS, SP	Logic & Problem Solving	Brāhmaṇa
30	Pratimālā	KS, SP	Competitive Memory Training	Brāhmaṇa
31	Durvacaka-yoga	KS, SP	Phonetic Mastery	Brāhmaṇa
32	Pustaka-vācana	KS, SP	Oratory & Cognitive Literacy	Brāhmaṇa
33	Nāṭikā-ākhyāyikā	KS, SP	Storytelling & Content Creation	Brāhmaṇa
34	Kāvya-samasyā-pūraṇa	KS, SP	Creative Writing	Brāhmaṇa
35	Paṭṭikā-vetra-bāṇa-vikalpa	KS, SP	Product Design	Vaiśya
36	Tarku-karma	KS, SP, SN	Textile Technology	Vaiśya
37	Takṣaṇa	KS, SP, SN	Wood Engineering	Śūdra
38	Vāstu-vidyā	KS, SP, SN	Architecture & Urban Planning	Vaiśya
39	Rūpya-ratna-parīkṣā	KS, SP, SN	Financial Technology & Gemology	Vaiśya
40	Dhātu-vāda	KS, SP, SN	Materials Science	Vaiśya
41	Maṇi-rāga-jñāna	KS, SP	Mineralogy	Vaiśya
42	Ākara-jñāna	KS, SP	Geology & Mining Engineering	Vaiśya
43	Vṛkṣāyurveda-yoga	KS, SP	Agricultural Science & Sustainability	Vaiśya
44	Meṣa-kukkuṭa-lāvaka-yuddha	KS, SP	Animal Behavior Science	Kṣatriya

45	Śuka-śārikā-prapalāpana	KS, SP	Linguistics	Brāhmaṇa
46	Utsādana	KS, SP, SN	Physical Therapy	Śūdra
47	Keśa-mārjana-kaśāla	KS, SP	Trichology & Wellness Science	Śūdra
48	Akṣara-muṣṭika	KS, SP	Non-Verbal Communication	Brāhmaṇa
49	Mlecchita-kutarka	KS, SP	Cryptography & Coding	Brāhmaṇa
50	Deśa-bhāṣā-jñāna	KS, SP	Multilingual Communication	Brāhmaṇa
51	Puṣpa-śakaṭikā-nimitta	KS, SP	Environmental Data Analysis	Brāhmaṇa
52	Yantra-mātrkā	KS, SP, SN	Robotics & Automation	Kṣatriya
53	Dhāraṇa-mātrkā	KS, SP	Cognitive Psychology	Brāhmaṇa
54	Saṁvācyā	KS, SP	Diplomacy & Strategic Communication	Brāhmaṇa
55	Mānasī-kāvya-kriyā	KS, SP	Creative Strategy	Brāhmaṇa
56	Abhidhāna-kośa	KS, SP	Lexicography & Knowledge Systems	Brāhmaṇa
57	Chando-jñāna	KS, SP	Data Patterns & Computational Rhythm	Brāhmaṇa
58	Kriyā-vikalpa	KS, SP	Creative Execution Frameworks	Brāhmaṇa
59	Chalitaka-yoga	KS, SP	Intelligence Strategy & Deception Detection	Kṣatriya
60	Vastra-gopana	KS, SP	Textile Preservation	Śūdra

61	Dyūta-viśeṣa	KS, SP	Game Theory & Strategic Risk Modeling	Kṣatriya
62	Ākarṣa-kṛīḍā	KS, SP	Physics of Force & Magnetism	Kṣatriya
63	Bāla-kṛīḍanakā	KS, SP	Child Psychology & Pedagogy	Brāhmaṇa
64	Vainayikī-vidyā	KS, SP, SN	Ethics, Discipline & Leadership	Brāhmaṇa

KS = Kāma Sūtra | SP = Śrīmad Bhāgavata Purāṇa | SN = Śukranīti

This reconstructed Mandala of Mastery establishes the Kalās as a civilizational operating system, rather than a fragmented skill list. The model integrates:

- Cognitive Intelligence (Jñāna)
- Applied Mastery (Vijñāna)
- Ethical Governance (Sumathi)
- Societal Sustainability (Loka-Saṃgraha)

Together, these dimensions create a dynamic architecture for lifelong learning, aligning seamlessly with modern frameworks such as:

- National Education Policy (NEP 2020)
- National Credit Framework (NCrF)
- Interdisciplinary AI-era Skill Development Models

This reconstruction of the Catuṣṣaṣṭi Kalās represents a paradigm shift in educational philosophy, transforming ancient wisdom into a future-ready civilizational framework.

It establishes India's indigenous knowledge systems not as cultural artifacts, but as scientifically rigorous, psychologically coherent, and globally scalable models of human development.

5. Policy Integration: NEP 2020 + National Credit Framework (NCrF)

Translating the Mandala of Mastery into India's Contemporary Educational Architecture

5.1 Strategic Policy Context

India's National Education Policy (NEP) 2020 marks a historic paradigm shift from content-heavy, examination-centric learning toward competency-based, multidisciplinary, holistic education. Complementing this transformation, the National Credit Framework (NCrF) establishes a unified, modular, and lifelong credit-based learning architecture, enabling flexible entry–exit pathways, cross-disciplinary mobility, and skill recognition across formal, informal, and vocational learning domains.

The Mandala of Mastery framework, derived from the Catuṣṣaṣṭi Kalās, aligns organically with both policy instruments. It offers a civilizationally rooted yet future-ready competency

architecture, capable of operationalizing NEP 2020's philosophical vision while providing a granular implementation blueprint for NCrF credit design.

5.2 Structural Alignment with NEP 2020

NEP 2020 identifies five foundational transformations:

NEP 2020 Principle	Mandala of Mastery Alignment
Multidisciplinarity	Integration of 64 Kalās across arts, sciences, technology, governance, and ethics
Holistic Development	Balanced cultivation of cognitive, emotional, physical, ethical, and spiritual intelligence
Experiential Learning	Transition from Jñāna (theory) to Vijñāna (applied mastery)
Skill Orientation	Systematic vocational + intellectual fusion
Ethical Grounding	Sumathi (Good Mind) as apex governance

Key Convergences

1. From Subject Silos → Integrated Skill Mandal

The Kalā framework dissolves artificial subject boundaries, fostering interdisciplinary cognition, exactly as envisioned by NEP's liberal, flexible, multidisciplinary education model.

2. From Exam-Centric → Competency-Based Assessment

The Mandala emphasizes demonstrable mastery, aligning with NEP's emphasis on competency-based evaluation, portfolios, and experiential metrics.

3. From Degree Fetishism ("Once-and-for-all" Education) → Lifelong Learning

The Kalā architecture inherently supports modular, stackable, and lifelong learning pathways, resonating with NEP's vision of learning beyond formal classrooms.

5.3 NCrF Integration Model: Credit Architecture for the 64 Kalās

The National Credit Framework (NCrF) provides a formal operational scaffold to translate the Mandala of Mastery into implementable academic programs.

Proposed Credit Architecture

Educational Stage	Kalā Integration Model	Credit Logic
Foundational (Grades 1–5)	Sensory, motor, linguistic, creative Kalās	Experiential Micro-Credits
Preparatory (Grades 6–8)	Artistic, logical, botanical, kinesthetic Kalās	Foundational Skill Credits

Middle (Grades 9–10)	Technical, mechanical, design, analytical Kalās	Modular Interdisciplinary Credits
Secondary (Grades 11–12)	Specialization clusters	Advanced Skill Credits
Undergraduate	Multidisciplinary Kalā clusters	Stackable Academic + Skill Credits
Postgraduate	Research + Applied Vijñāna mastery	Advanced Competency Credits
Lifelong Learning	Continuous Kalā certification	National Skill Bank Credits

5.4 Multidisciplinary Credit Clusters (NCrF-Compatible)

To enable academic mobility and interdisciplinary coherence, the Kalās may be grouped into credit clusters: see the table below...

Cluster	Kalās Domain	Modern Disciplines
Cognitive & Linguistic Sciences	29–34, 45, 48–57	AI, linguistics, psychology, data science
Creative & Performing Arts	1–5, 27–34	Design, music, dance, media studies
Engineering & Material Sciences	37–42, 52, 62	Robotics, civil, mechanical, materials science
Biological & Environmental Sciences	22, 43, 44, 46–47	Medicine, ecology, agriculture
Governance & Strategic Intelligence	21, 44, 52, 59–61	Public policy, defense, diplomacy, leadership
Ethics & Consciousness Studies	53, 64, Sumathi	Philosophy, leadership ethics, AI ethics

5.5 Integration with Skill India, Digital India & AI Mission

The Mandala of Mastery naturally extends into national missions:

Skill India

- Vocational Kalās → Industry-embedded micro-credentials
- Modular reskilling across life stages

Digital India

- Cryptography, coding, UI/UX, robotics, AI cognition
- Cognitive-digital fusion model

National AI Mission

- Embedding Sumathi (Ethical Intelligence) as the cognitive governor for AI education
- Preparing ethically anchored AI architects, not merely technical coders

5.6 Sumathi as the Ethical Governor of NCrF

At the apex of the framework lies Sumathi (The Good Mind) — the 65th meta-skill.

Why Sumathi is Essential for Policy Design:

Modern Crisis	Kalā-Based Response
AI Ethics	Moral governance of automation
Climate Crisis	Ecological intelligence & restraint
Social Polarization	Compassion-driven leadership
Knowledge Fragmentation	Cognitive integration

Sumathi ensures that technical proficiency remains subordinate to ethical clarity, transforming education from mere workforce production into civilizational stewardship.

5.7 Policy Innovation: Civilizational Curriculum Model

This framework enables India to pioneer a Civilizational Curriculum Model, wherein:

“Education becomes a vehicle for human flourishing, social harmony, ecological balance, and ethical governance — not merely economic productivity”

5.8 Implementation Pathway (Pilot Model)

Phase	Action
Phase I	University pilot programs
Phase II	School curriculum integration
Phase III	National digital credentialing
Phase IV	Lifelong learning expansion

Phase V	Global academic collaboration
---------	-------------------------------

This integration framework positions India as a global pioneer in ethically governed, multidisciplinary, AI-age education, offering the world a civilizational alternative to fragmented, mechanistic learning paradigms.

6. Alignment with Viksit Bharat @2047

The Mandala of Mastery as India's Civilizational Blueprint for Sustainable National Transformation

6.1 Viksit Bharat @2047: Vision and Educational Imperative

The Viksit Bharat @2047 vision envisions India as a fully developed, inclusive, technologically advanced, ethically anchored, and globally influential nation by the centenary of its independence. This transformation extends beyond economic growth to encompass human capital excellence, cultural confidence, scientific leadership, environmental sustainability, social harmony, and moral governance.

At the heart of this vision lies a foundational educational challenge:

“How can India create not merely skilled workers, but integrated, ethical, creative, resilient, and globally competent citizens?”

The Mandala of Mastery framework, reconstructed from the Catuḥṣaṣṭi Kalās, provides a civilizationally rooted yet future-ready solution to this challenge. It offers a comprehensive national competency architecture capable of nurturing the human capital required for India's multidimensional development.

6.2 From Economic Growth to Human Flourishing

While conventional development models emphasize GDP expansion, industrial output, and technological penetration, the Viksit Bharat vision rightly expands this horizon toward:

- Human well-being
- Cognitive resilience
- Ethical governance
- Social cohesion
- Environmental sustainability

The Kalā-based Mandala shifts the developmental focus:

From economic acceleration → to human flourishing → to civilizational sustainability.

This framework ensures that national development is human-centered rather than system-centered, producing whole humans, not fragmented specialists.

6.3. Workforce Architecture for India @2047

India's demographic advantage will yield dividends only if its population becomes a highly skilled, cognitively adaptive, ethically governed workforce. The Kalā framework enables next-generation workforce formation by integrating:

- Deep cognitive skills

- Applied technical mastery
- Strategic intelligence
- Ethical discernment
- Creative innovation

This ensures the emergence of: “Human-centric technologists, ethical AI architects, visionary entrepreneurs, compassionate administrators, and civilizational leaders.”

6.4. Strategic Contribution to the Six Pillars of Viksit Bharat

Viksit Bharat Pillar	Contribution of Mandala of Mastery
Economic Prosperity	Multidisciplinary workforce, innovation ecosystems, entrepreneurial creativity
Technological Leadership	Robotics, AI, material sciences, cryptography, automation, systems engineering
Human Capital Excellence	Cognitive integration, creativity, ethics, leadership, emotional intelligence
Social Harmony	Ethical grounding, compassion, communication, inclusive cognition
Environmental Sustainability	Vṛkṣāyurveda, ecological intelligence, sustainable resource management
Cultural Confidence	Revival of Indian Knowledge Systems with scientific modernization

6.5 AI Era Governance & Civilizational Safeguarding

One of the greatest risks of the AI-driven future is ethical erosion, cognitive dependency, and social destabilization. The Mandala uniquely positions Sumathi (Ethical Intelligence) as the governing apex, ensuring that:

- Automation remains subordinate to human judgment
- Technological power remains anchored in moral responsibility
- Innovation remains aligned with societal well-being (Loka-Saṃgraha)

Thus, India can offer the world a civilizational AI governance model, rather than a purely profit-driven automation paradigm.

6.6 Education → Innovation → Nation-Building Loop

The Mandala establishes a self-reinforcing national transformation cycle:

Integrated Education → Ethical Innovation → Sustainable Industry → Social Stability
→ National Prosperity

This loop directly supports the Viksit Bharat @2047 developmental trajectory.

6.7 Global Leadership through Civilizational Knowledge Systems

By operationalizing its indigenous knowledge systems through modern scientific mapping, India can emerge as:

- A global education innovator
- A leader in ethical AI
- A pioneer of sustainable development models
- A civilizational thought leader

This aligns with India's evolving role as a Vishwa Guru (global knowledge leader) in the 21st century.

6.8 Strategic Policy Outcome

By integrating the Mandala of Mastery framework into:

- NEP 2020
- NCeF
- Skill India
- Digital India
- AI Mission
- Green India Mission

India can architect a unified national human development strategy, fully synchronized with Viksit Bharat @2047. Viksit Bharat @2047 will not merely be a developed economy — it will be a consciously evolved civilization. The Mandala of Mastery offers India the intellectual, ethical, and operational blueprint to achieve this historic transformation.

7. Results and Discussion: The Integrative Logic of the Lists

The comparative study reveals that the classical enumerations of the Catuṣṣaṣṭi Kalās are not mere inventories of artistic or vocational accomplishments, but constitute a sophisticated cognitive and functional competency map designed to cultivate holistic human development.

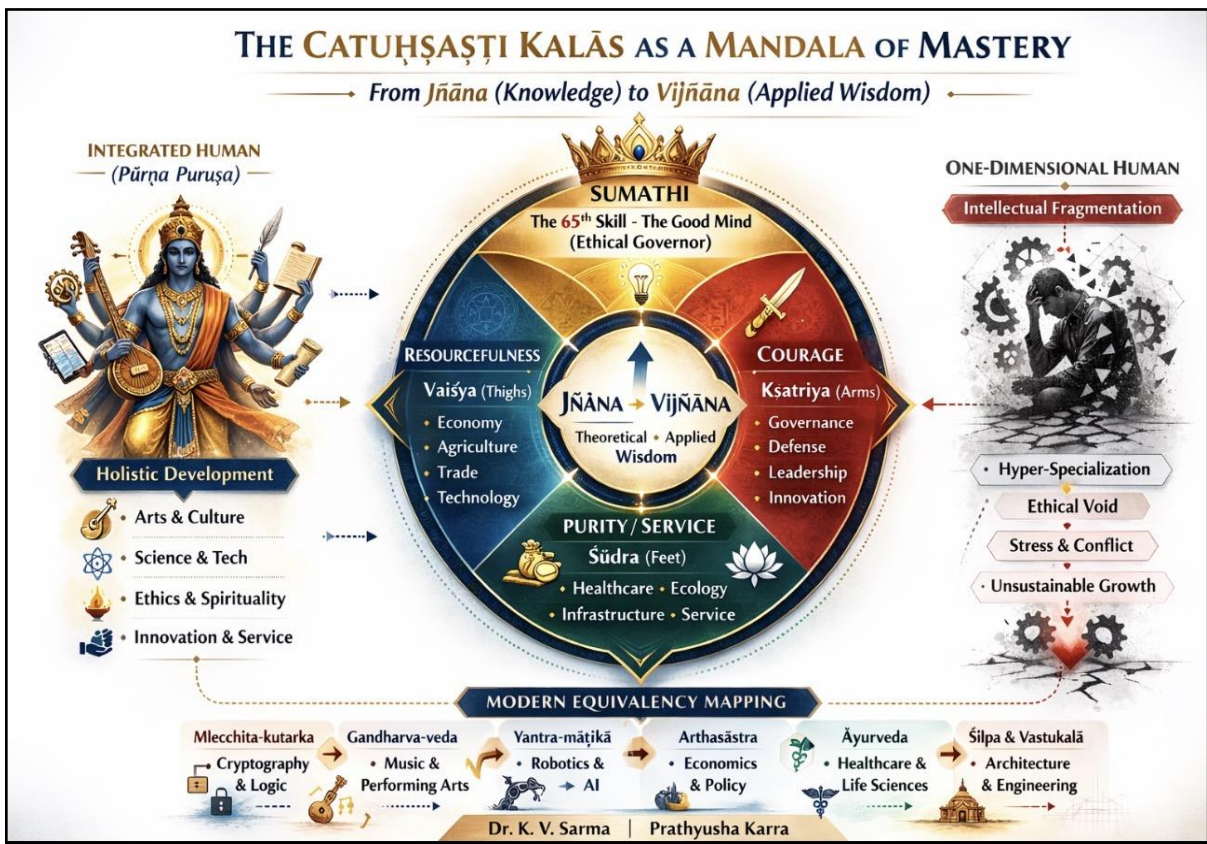
7.1. The Psychological Engine

By organizing the Kalās through the four Varṇa qualities (Brāhmaṇa, Kṣatriya, Vaiśya, Śūdra)—reinterpreted as psychological execution pillars corresponding to the head, arms, thighs, and feet—the framework ensures that no dimension of human potential remains underdeveloped. This functional architecture integrates intellectual insight, strategic courage, economic resourcefulness, and ethical service into a unified learning system.

Synthesis of the Four Aims of Life (Puruṣārthas)

The Kalās systematically guide the learner through the four classical life goals:

- **Artha** (Material Prosperity): Arts such as Dhātu-vāda (metallurgy) and Takṣaṇa (carpentry) foster technological and economic productivity.
- **Kāma** (Aesthetic Fulfilment): Gāna (singing), Nṛtya (dance), and Citra-yoga (visual arts) refine sensory intelligence and emotional well-being.
- **Dharma** (Ethical Conduct): Vainayikī-vidyā (ethics and discipline) cultivates moral discernment and social responsibility.
- **Mokṣa** (Liberation): The sustained mental discipline required in arts such as Yantra-māṭṛkā (mechanics) and Dhāraṇa-māṭṛkā (cognitive training) gradually purifies attention, preparing the mind for contemplative realization.



This progression demonstrates that technical mastery, aesthetic sensitivity, ethical integrity, and spiritual awareness were envisioned as mutually reinforcing dimensions of education.

Figure 1: The Mandala of Mastery – A Functional Taxonomy of the Catuḥṣaṣṭi Kalās

This infographic presents a functional framework for the classical Catuḥṣaṣṭi Kalās (sixty-four arts), illustrating the epistemic progression from theoretical knowledge (*Jñāna*) to applied wisdom (*Vijñāna*). The central mandala organizes the Kalās into four foundational psychological execution pillars—Insight, Courage, Resourcefulness, and Purity—modeled upon the functional dimensions of the *Puruṣa Sūkta*, corresponding to cognition, agency, sustenance, and service. The Integrated Human (*Pūrṇa Puruṣa*) represents holistic education integrating aesthetics, science, ethics, and spirituality, while the One-Dimensional Human symbolizes

intellectual fragmentation produced by modern hyper-specialization. The system is crowned by Sumathi (The Good Mind), conceptualized as the 65th Skill, functioning as the ethical governor that aligns technical competence with social responsibility, sustainability, and Loka-Saṃgraha. The model demonstrates the enduring relevance of Vedic educational architecture for contemporary scientific, technological, and ethical challenges..

7.2. Universal Relevance in the Algorithmic Age

The present study demonstrates that the Vedic ideal of the “Integrated Human” (Pūrṇa Puruṣa) remains profoundly relevant in the algorithmic and AI-driven world of the twenty-first century. Competencies such as cryptographic logic (Mlecchita-kutarka) are balanced by empathetic communication (Saṃvācya), ensuring that technological advancement remains anchored in human values. This balance directly addresses contemporary crises of hyper-specialization, ethical erosion, and cognitive fragmentation.

7.3. The Mandala of Skills: A Functional Taxonomy

The 64 Kalās collectively form a Mandala of Mastery—a visual and conceptual map of human capabilities. Synthesizing insights from the Kāma Sūtra and Śukranīti, the Kalās may be organized into four major functional domains:

7.3.1. Expressive and Aesthetic Arts (Kāma-Guna)

These skills cultivate emotional intelligence, sensory refinement, and creative expression. Examples include Gāna Vidyā (vocal arts), Nṛtya (dance), and Citra-yoga (color science). In contemporary contexts, these translate into creative design, art therapy, respiratory regulation, and wellness sciences.

7.3.2. Scientific and Mechanical Arts (Artha-Guna)

These competencies govern interaction with the material world. Dhātu-vāda (metallurgy), Takṣaṇa (carpentry), and Yantra-mātrkā (mechanics) correspond to materials science, robotics, manufacturing technology, and civil engineering.

7.3.3. Intellectual and Strategic Arts (Dharma-Guna)

These arts refine logic, communication, and protective governance. Mlecchita-kutarka (cryptic reasoning), Vaijayikī vidyā (strategic science), and Akṣara-muṣṭika (non-verbal communication) align with cybersecurity, strategic management, public policy, and inclusive communication systems.

7.3.4. Social and Personal Skills

These cultivate interpersonal harmony and cultural adaptability. Saṃvācya (conversational eloquence) and Deśa-bhāṣā-jñāna (multilingual proficiency) foster social intelligence, diplomacy, and cross-cultural competence.

7.3.5. Executing Skill through Varṇa Psychology

While the 64 Kalās provide the technical instruments, the four Varṇa qualities function as the psychological engine for execution. Interpreted through the symbolic anatomy of the Puruṣa Sūkta, they represent intrinsic cognitive-operational dimensions present within every individual:

- Brāhmaṇa (Head – Insight): Cognitive clarity, wisdom, and ethical discernment.
- Kṣatriya (Arms – Courage): Strategic agency, resilience, and protective leadership.

- Vaiśya (Thighs – Resourcefulness): Economic creativity and systemic sustainability.
- Śūdra (Feet – Purity and Service): Precision, cleanliness, humility, and selfless service (Sevā), providing the foundational stability of all action.

This reinterpretation dissolves rigid social hierarchies and repositions Varṇa as a dynamic psychological architecture for human excellence.

8. Case Study: Śrī Ādi Śaṅkarācārya as the Integrated Master

Śrī Ādi Śaṅkarācārya stands as a profound historical archetype of the Integrated Human. Though a renunciate (sannyāsin), his life reflects extraordinary mastery across intellectual, strategic, and social dimensions.

- Intellectual Brāhmaṇa Mastery: His philosophical bhāṣyas exemplify the highest peaks of metaphysical reasoning and scriptural interpretation.
- Strategic Kṣatriya Execution: The establishment of four maṭhas across the subcontinent reflects exceptional logistical planning, leadership, and institutional architecture.
- Dialectical and Communicative Excellence: His legendary debate victories demonstrate proficiency in logic, rhetoric, psychology, and social engagement.

Śaṅkara thus exemplifies how ethical clarity (Vainayikī) and strategic power (Vaijayikī) must coexist within a single personality to produce civilizational transformation.

9. Svadharma and the 65th Skill: Sumathi

Technical mastery, however, remains incomplete without ethical governance. We therefore propose Sumathi (The Good Mind) as the “65th Skill”, the cognitive crown (makutam) governing all others.

As articulated in Baddena’s Sumathi Śatakam, the highest human capability lies in discerning what to say, when to say, and how to act rightly (prasthuta-vākya). In the contemporary AI-dominated world, where algorithmic efficiency increasingly eclipses moral judgment, Sumathi represents the irreducible core of human intelligence that no machine can replicate.

When skills are practiced as Niṣkāma Karma (selfless action), the practitioner enters a state of cognitive flow, in which ethical intention, technical mastery, and contemplative awareness converge — laying the experiential foundation for Mokṣa.

10. Conclusion: The Pūrṇa Puruṣa Model

The Catuḥṣaṣṭi Kalās constitute a profound civilizational statement on the full spectrum of human potential. Rather than promoting narrow expertise, this framework envisions the formation of an integrated human being through the harmonious cultivation of sixty-four competencies across cognitive, creative, ethical, emotional, physical, and spiritual domains.

When these sixty-four Kalās are dynamically balanced with the four functional qualities of Varṇa—jñāna (wisdom), śaura (courage and leadership), vaṇijya (productive enterprise), and sevā (service)—the individual evolves into the ideal of the Dhanyudu, the fulfilled and socially responsible master of life. This synthesis enables not only personal excellence but also sustained societal coherence.

This model finds its highest embodiment in Śrī Krishna, who seamlessly integrated the roles of teacher, warrior, statesman, entrepreneur, and servant, demonstrating that holistic mastery

naturally expresses itself as Loka-Saṁgraha—the preservation of cosmic and social harmony. The Pūrṇa Puruṣa paradigm thus offers a timeless blueprint for educational renewal, leadership development, and civilizational resilience in the contemporary world.

By re-centering education around integrative human development rather than fragmented specialization, the Catuḥṣaṣṭi Kalās provide a transformative pathway toward psychological completeness, social harmony, ethical leadership, and spiritual fulfillment, aligning individual realization with collective well-being.

Acknowledgements

The authors respectfully acknowledge Dr. Kasivajjula S. Viswanatham, GM (Rtd.), NABARD, and former UNDP Consultant for World Water Resources Management, for his scholarly support in proofreading and refining the manuscript, and for his valuable contributions to its conceptual clarity and linguistic precision.

References:

1. Sarma, K. V. (2025). The Four Varṇas as the Four Qualities of an Integrated Human. *Vedic Science*, 27 (Oct-Dec), 34–41.
2. Sarma, K. V. (2025). *The Essence of the Divine: Who is Krishna Bhagavan*. ISBN 9789355927163.
3. *Śrīmad Bhāgavata Purāṇa*. (n.d.). Book 10, Chapter 45. Gita Press.
4. Vātsyāyana. (n.d.). *Kāma Sūtra* (Chapter 3: The Sixty-Four Arts).
5. Śukrācārya. (n.d.). *Śukranīti* (Section on social and political skills).
6. Baddena (Bhadra Bhūpāla). (n.d.). *Sumati Śatakam*.

Educational Implication Note

Early exposure to integrated multidisciplinary skills—ideally before age 20—cultivates holistic intelligence, psychological confidence, adaptability, and long-term health. This was the foundational aim of the Gurukula system, which sought to produce complete human beings rather than narrow specialists. Reviving this approach offers transformative potential for modern education, mental health, workforce readiness, and national development.