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Convergences Between Ancient Indian Pedagogical Traditions and Modern Outcome-Based Education Frameworks

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Abstract
Ancient Indian education system and contemporary of Outcome-Based Education (OBE) based on blooms taxonomy resonate structurally and philosophically. The NEP gave rebirth of Indian knowledge system (IKS) dealing with cognitive hierarchies, ethical frameworks, and institutional model has brought strategic alignment with contemporary 21st century education requirements. Converging purusharthas, Pramana system of epistemology and rigourous standard of ancient universities like Nalanda and Takshashila, drawing a blueprint emerges for enchancing the educational objectives, accreditation standards, and vocational Training. The Pa-per analyses integration of the four Purusharthas with Program educational objective and how modern metrics and ancient wisdoms symbiotically produce holistic, ethically sounded students and moreover, new research backed mapping model of bloom and astanga for more authentic assessment.

Keywords: *Outcome-Based Education (OBE), NEP 2020, Indian Knowledge system (IKS), Blooms Taxonomy, Purusharthas.*

1.Introduction
Modern education is primarly shifted towards the blooms taxonomy which talks about the outcome based learning and involvement of cognitive, psychomotor and affective domain with measurable outcome and continuous formative assessment [1].However, ancient Indian education system worked in same sophiscated philosophical tradition mapping more holistic approach of human intellect. The similarity between these two systems suggest that the modern system had precursors in Indian darshanas (school of thought) with specifically within the framework provided in ashtanga yoga and Pramana system. With introduction of Indian education policy NEP 2020, which has brought spotlight on the Indian knowledge system, clearly shows the ancient cognitive hierarchies and ethical frameworks aligns with contemporary education requirements [2]. In past, university like Takshaila which once ran decentralized, mentor led city of learning and Nalanda which was residential based centralized culture and debate culture clearly shows how ancient education approach was more skilled based and provides blueprint for strengthening modern based learning [3,4]. In, Yoga darshan by acharya Patanjali carved out eight limbed paths starting from ethical foundation till cognitive integration which fits modern outcome learning [5]. Based on all of this, new mapping techniques can be developed for strengthening the modern outcome based learning and aligning with NBA, NAAC evidence and authentic assessment.

2.The Epistemological Architecture of Learning
Modern educational psychology usually uses blooms revised taxonomy to represent the hierarchial cognitive development (6 levels) [1]. Ancient Indian darshans offers same contrast of sophistica-tion and holistic approach of human intelligence, especially Ashthanga Yoga and Pramana system covering all three domain (cognitive, affective, psychomotor) development

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with core being strong ethical building. [9]

2.1.Ashtanga Yoga and the cognitive Hierarchy system

Patanjali's Ashtanga yoga presents eight limbed pathways which begins from ethical sensitivity, moves to handling mental stress and improving focus and touching awareness and critiquing thought patterns and finally achieving transformation [5]. The Mapping of Ashtanga yoga and blooms taxonomy could be easily understood in tabular form: This beautifully depicts how core understanding of cognitive focus is greatly dealt with specific inclu-sion of pratyahara which is further divided into four: Indriya (sensory), Prana (vital energy), karma (ac-tion), Mano (mind) control. This suggests that ancient educators has understanding that without over-coming the external impulses, it hard to function on higher cognitive level (mainly evaluation, create) [5]. In modern comparison, it perfectly fixes the issue of attention and digital distraction, focusing on enabler concept (attention management) which is first step before the academic application. As shown in Table 1.

Table 1 Mapping of Ashtanga Yoga to learning domains of Bloom's taxonomy

Ashtanga Yoga Limb	Primary Learning Do-main	Bloom's Correla-tion	Educational Significance
Yama & Niyama	Affective	Receiving, Responding, Valuing, Organization, Characterization	Establishes ethical sensitivity (e.g.: Ahimsa) and self-regulation (e.g.: Tapas) for disciplined learning.
Asana & Pranayama	Psychomotor	Imitation, Manipulation, Precision, Articulation, Naturalization	Enhance neuromuscular coordination and breath control, pre-pares the body for handling constant mental rigor.
Pratyahara	Transition (Bridge)	Moving from sensory input to mental processing	Going from senses to cognition, serving as gateway between external stimuli and internal cognition.
Dharana	Cognitive	Apply, Analyze	Sustained focus on a single objective, intentional application of mental energy.
Dhyana	Metacognitive	Analyze, Evaluate	Effortless awareness and discernment (Viveka), observing and reflecting the thought patterns.
Samadhi	Transformative	Create	Integration of learner and subject, pinnacle of creative synthesis and transformation.

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2.2.The Parmana system

Pramana system developed which revolved around five knowledges which could be fitted as precursor to modern scientific method. Pramana itself means proof, which talks about acquiring valid knowledge [6,7]. **The five pramanas which governs the impart-ment of knowledge:**

1) **Apta Pramana (Testimony):** Subject expert delivers and student receive which depicts "Rembering" phase which deals with foundational knowledge and acquiring basic knowledge.
2) **Pratyaksha Pramana (Perception):** Direct observation through senses or their extension
3) **Upamana Pramana (Analogy**): Knowledge acquired through comparison and imaginative creativity. This requires the learner to bridge existing knowledge with new concepts, mirroring the "Apply" level.
4) **Anumana Pramana (Inference):** Logic Governing your thoughts, all conclusion drawn based on reasoning and prior knowledge.
5) **Yukti Pramana (Application):** Yukti deals the applying the knowledge acquired and on the scenario

which requires new thought process. This could be easily understood by relating analogy to "create" do-main of blooms taxonomy. Professional competence is build by adapting the situation insight while dealing individual cases. Assessment often stops at the analysis level (anumana) but for the work force ready yukti (applying) plays vital role and ultimate goal. Designing the examination based on achieving the yukti, graduate's com-petence level can be improved exponentially. This design just don't play as philosophy thought but can be carried forward as practical guide. [8]

2.3.Programme Educational Objectives refined based On Purusharthas

2.3.1.Mapping of PEOs with Purusharthas

Modern educational framework added with Purusharthas philosophy brings balance between materialism and Spiritualism, thus, preventing the chance of unethical practices and banality of job. Purusharthas aligned with particular educational and life aims which can be easily understood in form of table mapped with educational inference drawn. Achieving Artha limited by Dharma resolve the modern problem of cheating and duping people and keeps the check on inequality in society. When the pursuit of wealth (Artha) is guided by ethical prin-ciples (Dharma), it provides a powerful medicine to today's corporate scandals and growing inequality. Maintaining high emotional intelligence, proves beneficial in decision making, and introducing the entrepreneurship in curriculum, will make the students ready to for early business decision and managing the resources thus strengthening the society as whole. Self-realization is just not philosophical thought rather attaining the attitude of wisdom and lifelong learner. This four when achieved holds massive power of transformation of an individual both professionally and personally. As shown in Table 2.

Table 2 Purushartha mapping with educational objectives

Purushartha	Interpreted Definition	Educational Result	Modern Mapping (PEOs/POS from NBA)
Dharma	Righteousness/Duty	Social and moral conduct	Professionally ethically sounded, Social Justice, Sustainability.
Artha	Worldly De-sire/Wealth	Success achieved ethically	Entrepreneurship, Economic Contribution, Financial Literacy.
Kama	Desire/Emotional fulfillment	Wellbeing of Emotion	Mental Health, Arts, Soft Skills, Interpersonal Relationships.
Moksha	Liberation/Self-Realization	Expose to creative thinking and access of super consciousness	Lifelong Learning, Building Intellectual Autonomy, Wisdom.

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2.4.Pramāṇa Triangulation Assessment Technique (PTA)

Assessment is difficult part, as this part holds the key, proper planning without the proper execution fails to achieve its outcome. Astanga and Pu-rusharthas both are the requirement part, Pramana system is for Implementation part. This assessment methodology is perfect fit for the constructive alignment (Miller Alignment) and for meeting the accreditation (NBA/NAAC) criteria [9,10]. Pramana Triangulation Assessment (PTA) is an OBE assessment method, where each CO mapped with PO (NBA Based) and by minimum three (pramāṇas), from which attainment of outcome can be achived more strongly rather than final exams, thus, providing solid foundation of assessment. Pramana system focused on Pratyakṣa (perception), Anumāna (inference), Upamāna (compar-ison/analogy), Śabda (reliable testimony) but in some of profession Yukti (Contextual judgement) is included, which typically explains the applying of existing knowledge in performing new type of work, thus competence readiness. Already the blooms taxonomy exists for OBE systems but it lacks clarity in part of assessment often rely on written exams and minor changing with seminar, project but still lag in complete attainment of the outcome needed for learning. This PTA solves this by exacting the evidence at performance and judgment levels (not just limited to cognition), syncing well with performance frameworks like Miller's pyramid (Knows → Knows how → Shows how → Does) [10]. As shown in Table 3.

Table 3 Pramāṇa mapping with assessment and OBE alignment

Pramāṇa	Typical Assessment Tools	OBE Contribution
Pratyakṣa (direct perception)	Lab practical, field observation, viva, simulation, and product inspection	Direct performance evidence aligned with "Shows/Does"
Anumāna (inference)	Data analysis, diagnosis, troubleshooting, and design calculations	Assesses analytical reasoning and interpretation
Upamāna (analogy/comparison)	Case comparison, benchmarking, and pattern-based design	Supports transfer of learning and pattern recognition
Śabda (reliable testimony)	Literature review, standards compliance, and annotated bibliography	Strengthens academic rigor and ethical referencing
Yukti (applied judgment)	Open-ended scenarios, internship evaluation, and design under constraints	Demonstrates authentic competence in real contexts

2.5.The PTA Mapping Table

For Pramana easily implementation, mapping is done for setting different type of assessment easily and fitting with OBE. [3]

2.5.1. PTA "Triangulation Rules"

To ensure rigorous assessment practices, three foundational rules can be use. **The first rule as follows:** Every Course Outcome must be supported by a minimum of three pramāṇa-based evidence types. For theory-heavy COs, integrate Śabda, Anumāna, and Upamāna. For skill- or practice-oriented COs, com-bine Pratyakṣa, Anumāna, and Yukti. This frame work reinforces constructive alignment by shifting the assessment focus from content coverage to authentic outcome verification [9]. **The second rule** uses Competence Level Gate

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based on Miller. **Third rules** take an account of National Skills Qualification Framework (NSQF) which includes Responsibility dimension is designed to show progression "from working under supervision to becoming autonomous" [11]. This can be achieved by observation at workplace, structured Apprenticeships and Government Platform of Yukti 2.0. As shown in Table 4.

Table 4: Competence level gate based on Miller

Miller Level	Meaning	PTA level	Meaning
Knows	Recall of facts	Śabda	Based on books, Papers
Knows How	Analysis, infer	Anumāna	Reasoning, diagnosis, logical steps
Shows How	Demonstrates skill	Pratyakṣa	Observe performance
Does	Real work in real setting	Does	Real work in real setting

2.6.Standard Rubrics Template

Design of universal four level rubrics could be used as standard reference for quick adoption and modification according to their curriculum needs, below rubrics perfectly captures the same: As shown in Table 5. [4]

Table 5 Standard four level rubrics template

Category	L1	L2	L3	L4
5.1 Pratyakṣa (Performance)	Performs with full guidance, commit frequent errors	Performs routine steps, minor help and guide needed	Performs independently, fulfills all criteria	Performs naturally, can perform related task easily
5.2 Anumāna (Reasoning)	States result without reasoning	Applies partial logic, weak assumptions	Proper reasoning, correct assumptions and conclusion	Evaluates whether alternatives exist, check uncertainty/ limitations, proposes improvements
5.3 Yukti (Judgment)	Select option without any context	Considers few constraints, fails in ethics	Approach constraint in balance way, justify the selection	Anticipates consequences, adapts the plan accordingly, can do things autonomy fashion

3.Scoring & Attainment

3.1.Evidence Weighting

For Finding attainment for complying NBA and NAAC, simple but powerful weigheing Technique is framed which work past of written exam and more on continuous improvement and performance.

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Preventing overweighting written exams, different Pramana can be assigned different weights: [6]

- Pratyakṣa: 30%
- Anumāna: 25%
- Yukti: 25%
- Śabda: 10%
- Upamāna: 10%

This fits the idea that higher outcomes followed by higher authenticity (performance).

3.2.Achieving CO attainement

A Course Outcome (CO) found to be attained if BOTH of the following conditions are satisfied:

1) **Direct Assessment Condition:** Sixty percent (60%) or more of the learners achieve a score of sixty percent (60%) or higher on the Pramana weighted rubric bundle mapped to the CO, wherein assessment tools are distributed across Pratyakṣa (30%), Anumāna (25%), Yukti (25%), Śabda (10%), and Upamāna (10%).
2) **Indirect Assessment Condition:** Either **(a)** seventy percent (70%) or more of learner's report satisfaction at or above the thresh-old in Course outcome exit feedback surveys, OR **(b)** faculty assign an average rating of 3.5 or higher on a 5-point scale for learner achievement of the CO.

CO attainment calculation Formula

CO Weighted Score = Σ (Pramana Score × Pra-mana Weight)

Where:

Each Pramana Score = Average percentage of students achieving threshold in that assessment category (0-100 scale).

Threshold per assessment tool = 60 percent of marks (Assigned According to difficulty level)

Example: CO1: Apply Safety Protocol in work place

The following table 6 presents the calculation of CO attainment for CO1. As shown in Table 6.

Table 6 Calculation of CO attainment

Pramana	Assessment Tool	% Students Score	Assigned Weight	Weighted Contribution
Pratyakṣa (Direct Observation)	Lab observation checklist	75%	30%	75 × 0.30 = 22.5
Anumāna (Inference)	Written case analysis	65%	25%	65 × 0.25 = 16.25
Yukti (Logical Reasoning)	Internship safety audit project	70%	25%	70 × 0.25 = 17.5
Śabda (Reliable Testimony)	Industry supervisor report	80%	10%	80 × 0.10 = 8.0
Upamāna (Comparison)	Peer safety protocol review	60%	10%	60 × 0.10 = 6.0
TOTAL			**100%**	**70.25 / 100**

Challenges

While the convergence of ancient traditions and modern frameworks offers immense potential, the path to integration is lengthy systemic transformation. Scientific Validation Requirement: New re-search methodologies with constant testing, will improve the changes for recognizing on global stage, different fields need specific empirical proof, for which robust

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research needs to be done. Faculty Readiness: A major obstacle in implementation is lack of training in teacher and educators who are well read in IKS and adopting advanced pedagogy. Rural areas which still face the shortage of educators, implementing this becomes biggest challenge. Without capacity-building, IKS integration risks itself becoming more of aspirational rather than functional. The Digital Division: Division which exist in rural and urban areas hinders the access to this methodology adoption and will follow old traditional ways. Filling this gap is most vital to make it widely adopted. Conflict Between Modern and Ancient: Mod-ern Western frameworks follows quantifying and empirical validation, whereas traditional Indian systems focused on intuition, qualitative insight, and wisdom from experience. Fulling both the knowing method requires careful approach for not reducing it to oversimplification

Conclusion

Mapping of Ashtanga Yoga and the Pramana system onto Bloom's Taxonomy, more nuanced and holistic learning system can be developed. The Purusharthas which offer a robust value system for defining Program Educational Objectives that just not prioritize social responsibility but emotional well-being & professional success. The Assessment system designed in this paper offers new perspective of assessing the learner ability and capability of learning, and Present modern OBE with ancient Pramana system in measurable way. Evolution of Technology and Artificial intelligence, present new challenge as it new studies are evolving which suggest it Excess A.I cripples the cognitive development and in inter-net Era where information overload is everywhere, ancient education system becomes more relevant than ever, which suggest enlightment and to pursue of universal wellbeing. The success of these integration of modern and ancient education system lies in hands of policy maker, industry leader and educators. They need to get out of discussion of dichotomy which exist between modern and ancient, rather push for integration. Future rewards those who took strong decision in present. The wide arrays of implementation needed for strong validation and inculcating in Indian education system. [7]

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