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Prerequisites of Teacher and Student for Surgical Learning: A Review of *Shishyopanayaniya Adhyaya*

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ABSTRACT

Background: Shishyopanayaniya Adhyaya is the second chapter of Sutrasthana of Sushruta Samhita. It lays down the foundation of surgical education including selection of disciple and teacher, method of initiation and regulation of study. The chapter defines shishya lakshana and guru lakshana, emphasizing that surgical competence requires not only intellectual ability but also character, conduct and commitment. It describes shishyopanayana vidhi as a formal witnessed initiation and details adhyayana vidhi and adhyayana nishedha to ensure protected kala, desha and avastha for learning. In the context of competency-based medical education emphasizing professionalism, ethics and safe learning environment, critical appraisal of these prerequisites provides early insights into teacher-student relationship and academic governance.

Aim: To critically review the prerequisites for teacher and student described in Shishyopanayaniya Adhyaya along with Dalhana's Nibandha Sangraha commentary and to evaluate its relevance in contemporary medical education.

Materials and Methods: This is a literary review on Sushruta Samhita Sutra Sthana Chapter 2 with Dalhana commentary were studied in detail. Relevant modern literature on medical education, medical ethics were referred to understand the ancient principles.

Observation: The chapter prescribes twenty one qualities for ideal student including lineage, young age, good nature, courage, purity, conduct, humility, enthusiasm, strength, grasping power, self-control, memory, intelligence and resilience along with physical features and pleasant behavior. It describes a formal induction ceremony involving selection of auspicious date, preparation of sterile platform and performance of oblation. It discusses eligibility of different classes including debate on teaching Shudra with good qualities. It lays down dual oath for student and teacher, guidelines for free treatment for poor and needy and refusal for antisocial persons, and a detailed list of non-study days.

Conclusion: Shishyopanayaniya Adhyaya provides a comprehensive framework for producing an ideal physician combining skill, ethics and mental stability. Its principles of psychometric selection, sterile induction ceremony, two-way Guru-Shishya accountability, free healthcare for needy, and academic holidays are highly relevant to reform current medical education plagued by burnout, commercialization and ethical degradation.

Keywords: Sushruta Samhita, Shishyopanayaniya Adhyaya, Dalhana, Nibandha Sangraha, Medical Student Selection, Medical Ethics, Anadhyaya.

Introduction

Surgical training is distinct among health professions because the learner acquires skill by operating on living patients. The quality of the learner and the teacher therefore influences patient safety as directly as the curriculum. Modern surgical education addresses this through structured selection, simulation, graded supervised responsibility, and assessment of conduct and teamwork¹. These measures are recent, but the underlying concern is ancient. In *Ayurveda*, surgery is taught under *Shalya Tantra*, and its principal text is *Sushruta Samhita*. After the first chapter on the origin and scope of the science, the second chapter of *Sutra Sthana* is devoted entirely to the student. It is titled *Shishyopanayaniya Adhyaya*², which means initiation of the student, the formal act of bringing the learner close to the teacher. This surgical text starts with the student, not with instruments or operations. This shows that preparing the right person was considered the first step of surgical training. The chapter describes who can study, what qualities a student should have, how initiation should be done, what oath student and teacher should take, which patients should be treated free and which should be refused, and when studies should be avoided. At present, selection in medical education is mainly based on entrance examination, with little attention to aptitude, conduct and resilience³. This review examines the contents of *Shishyopanayaniya Adhyaya* along with *Dalhana's* commentary and assesses its relevance for improving medical education and ethics.

Review of literature

Prerequisites of the student

Table 1 - Student prerequisites⁴.

Group	Classical quality	Meaning	Modern concept
Intellectual	<i>medha</i>	Grasping and retaining what is taught	Learning ability, encoding and retrieval
	<i>smriti</i>	Recalling past experience	Memory, pattern recognition
	<i>mati</i>	Foresight about what is to come	Anticipation, clinical judgement
	<i>pratipatti</i>	Understanding and applying meaning	Comprehension, transfer of learning
Temperament	<i>shaurya</i>	Courage, absence of despondency	Composure under pressure
	<i>dhriti</i>	Mental steadiness	Emotional regulation
	<i>kleshasaha</i>	Able to bear hardship	Stress tolerance, resilience
	<i>Shakti , bala</i>	Enthusiasm and capacity to finish tasks	Motivation, perseverance
Moral	<i>shila, shaucha, achara, vinaya</i>	Disposition, cleanliness, conduct, self-control	Professionalism, asepsis, humility
Background	<i>anvaya, vayah</i>	Family connection, suitable age	Readiness, support
Communicative	Clear, fine speech organs; pleasant mind, speech and movement	Composed, agreeable bearing	Communication skill, teamwork

Intellectual capacity

The sequence from *medha* to *smriti* to *mati* to *pratipatti* runs from taking knowledge in, to storing it, to anticipating consequences, to applying it. *Dalhana's* definition of *medha*, the capacity for retention (*avadharana*) and for drawing out (*karshana*) what has been learned, already contains the two halves of memory that cognitive science calls encoding and retrieval. Cognitive science describes the whole chain as encoding, retrieval, prediction and transfer, and clinical reasoning research treats the last two as the marks of expertise⁵. Foresight deserves emphasis in surgery, where an irreversible step must be judged before it is taken.

Temperament and stamina

Shaurya, *dhriti* and *kleshasaha* describe a person who stays composed in an emergency, persists through long training and tolerates fatigue. Acute stress⁶ impairs decision making and fine motor control, and non-technical skills such as composure and situational awareness are now taught and assessed alongside technical skill. While the classical view treats these as prerequisites to be selected for, current evidence shows they can also be developed through stress management, deliberate practice and graded exposure. They are therefore best assessed at entry and systematically trained thereafter.

Clarity of speech and composed bearing

The physical descriptors of tongue, lips, teeth and face *anu-jihva-oshtha-dantagra-riju-vaktra-akshi-nasa* have no anatomical or predictive value and should not be applied literally. If read literally, they would also exclude persons with disabilities who can perform safely with reasonable accommodation. Their functional intent is *vak-shuddhi* and *saumyata*, clear speech and a composed, agreeable manner. This corresponds to what is now treated as a core clinical competence. Communication failures contribute to patient harm, while effective communication supports consent, teamwork and trust⁷. Unlike physical features, communication skill is measurably trainable.

Moral and personal discipline

Shaucha, cleanliness of body and mind, translates directly into asepsis and infection control, which remain foundational to surgical safety. Vinaya, restraint of senses and humility, corresponds to self-regulation and receptivity to feedback, both essential for learning from error. Shila and achara, disposition and conduct, align with what is now termed professionalism. Classical teaching treats professionalism as fixed character present at entry. Current understanding sees it as professional identity formation that develops through training and is shaped by role models and institutional culture.

The Learner's code of Conduct (Abhyarthi Niyama)⁸

It constitutes the shishya-shapatha, the oath administered before agni as witness. The disciple is enjoined to abandon the passages which delineates boundaries of professionalism. Kama-krodha-lobha-moha-mana correspond to conflict of interest, emotional dysregulation and ego-related error, factors associated with impaired clinical judgement and failure to escalate. Aharesha pertains to regulation of impulse and appetite. Irshya-parushya-paishunya align with disruptive behaviour, which evidence links to erosion of teamwork, communication failure and compromised patient safety. Anrita relates to integrity in documentation, consent and research reporting. Alasya corresponds to diligence and the mitigation of fatigue-related error, while ayashasya karma encompasses actions constituting professionalism violations. Nicha-nakha-roma, shaucha and kashaya-vasa translate to personal hygiene and prescribed dress, presently understood within the domains of infection prevention and professional identity formation. The stipulation of mad-anumatasthana-gamana-shayana-asana-bhojana-adhyayana reflects the residential gurukula structure. Its functional equivalent in modern training is not personal servitude, but adherence to institutional policies, prescribed duty hours and graded supervision in accordance with competence.

The Induction Ceremony (Upanayaniya Vidhi)⁹

The procedure begins with planning for admission. An auspicious tithi, karana, muhurta and nakshatra (lunar constellation) is selected. This represents standardization of timing and creation of a psychologically conducive environment for initiation, rather than mere astrological determinism. The site for initiation is required to be in an auspicious direction, clean and level. An altar measuring four hastas in length and breadth is prepared, smeared with cow dung and covered with darbha grass. Deities, learned Brahmanas (who studies Veda) and physicians are worshipped with flowers, parched rice, cooked food and jewels, signifying respect for the knowledge tradition and the professional community. Lines are drawn on the altar and sanctified water is sprinkled. An image of Brahma is installed to the south and fire is established, marking formal commencement. The fire sacrifice is then performed. Sacrificial sticks from khadira (Acacia catechu), palasha (Butea monosperma), devadaru (Cedrus deodara), and bilva (Aegle marmelos) or from kshirivrikshas, namely nyagrodha (Ficus benghalensis), udumbara (Ficus racemosa), ashvattha (Ficus religiosa) and madhuka (Madhuka longifolia), smeared with curd, honey and ghee, are used for oblation. This use of specific herbal dravyas reflects antiseptic, aromatic and symbolic purposes within a formal institutional induction.

Social Accountability and Vaidhya Dharma¹⁰

The text directs that the physician should care for preceptor, poor, friends, ascetics, refugees, pious persons, orphans and persons coming from afar seeking help, as his own kin and treat them with his own medicines. This prescribes equity-oriented care and prioritization of vulnerable populations including economically disadvantaged, displaced and unsupported persons, and upholds professional solidarity. Hunter, bird-catcher, unrighteous and sinner are stated as not to be cared for. In historical context this indicates avoidance of occupations involving cruelty and conduct involving unlawful or unsafe activity. In present era this cannot be interpreted as denial of emergency care, which remains ethically and legally mandatory. It is interpreted as need for caution, institutional safeguards and adherence to medico-legal norms when dealing with persons engaged in violent or unlawful activity, with refusal permissible only for elective care that compromises safety or ethics. Observance of these duties is said to enhance knowledge, reputation, virtue and professional sustainability, corresponding to professionalism, altruism and social accountability.

Conditions that Protect Learning¹¹

The eighth day of dark fortnight, the fourteenth and fifteenth days of dark fortnight, and the eighth, fourteenth and fifteenth days of bright fortnight; during sunrise and sunset; during untimely lightning and thunder occurring in seasons other than rainy season; during emergency or calamity of self, of one's relatives, one's country and the king; at burial ground; while riding on animals; in sacrificial grounds or places wherein animals are sacrificed; during natural calamities like earthquakes etc. and presence of malevolent stars and comets etc and in conditions and days on which the person is unclean. In brief, this represents *kala-niyama* (time regulation)-mandatory rest, *desha-niyama* (place regulation) - avoidance of unhygienic and distressing surroundings, *aapad-niyama* (crisis regulation) - suspension during personal and national calamity, and *shishya-avastha-niyama* (learner-state regulation) - need for *shaucha* (cleanliness) and mental readiness. The underlying principle that *adhyayana* (study) requires protected *kala* (time), *desha* (place) and *avastha* (state) remains relevant.

A Reciprocal model of surgical learning

Table 2: The model of surgical learning

Stage	Student's part	Teacher's part
Selection	Possess intellectual, temperamental, moral and communicative qualities	Judge fitness, refuse if unfit
Entry	Take part in the formal initiation	Preside and witness
Commitment	Abandon the listed faults, adopt disciplined conduct	Take a vow of fair conduct, accept accountability
Training	Learn under direction, with truthfulness and humility	Teach honestly, supervise graded practice, model conduct
Practice	Treat the vulnerable with care	Show the ethic in practice
Sustaining	Observe rest and suitable conditions	Protect the conditions for learning

Discussion

The chapter integrates *shastra adhyayana* with character, conduct and communication. The strengths of the classical position lie in its view of competence beyond technical skill, inclusion of *vinaya* and *shishtachara*, requirement of formal and witnessed commitment through *shishyopanayana*, emphasis on two-way ethical bond between *guru* and *shishya*, concern for vulnerable patients, and attention to conditions of learning such as protected *kala*, *desha* and *avastha*. The description of *adhyayana vidhi*, daily recitation, comprehension of meaning and emphasis on *artha-jnana* and *pravachana* ability points to early understanding of retention, spaced learning and communicative competence, aspects since supported by empirical literature on learning. The same text prescribes criteria for admission related to family, caste and physical features, and directs exclusion of certain categories of patients and specific appearances of the student. Such criteria cannot be transferred to a contemporary setting based on merit, equal opportunity and non-discrimination and should be understood as socio-historical markers rather than predictors of ability. Literal application would discriminate against persons with disabilities and conflict with the duty to treat and principle of equity in care. Similarly, rules based on astronomical considerations, *nimitta* and omen, and prohibitions linked to specific tithis represent traditional belief systems of the period. These may be interpreted functionally as protected time, attention to environmental safety and psychological suitability, but do not constitute empirical evidence of effect. The source is known through a commentary tradition, notably *Dalhana*, in which readings differ, hence interpretation of *shastra* should be tied to commentary and cross-checked with primary manuscripts. Further, the limitations includes classical claims were normative and not tested empirically; parallels drawn with modern educational concepts indicate consistency of intent and not proof of efficacy. Other elements of the chapter such as emphasis on *shaucha*, *shishya-shouchya*, *guru-shushroosha*, disciplined daily routine, avoidance of *adhyayana* in unstable or unhygienic states, and insistence on ethical practice before independent practice, align with current emphasis on professionalism, infection control, and patient safety and supervised learning.

Conclusion

Surgical learning, as set out in the second chapter of the *Sutrasthana*, depends on a learner chosen for intellect, steadiness, communication and character, a teacher who judges fitness and accepts accountability, a public and reciprocal commitment, an ethic of care for patients, and conditions that protect learning. Analysed against modern science, most of these elements are supported by research on clinical reasoning, motor learning, professionalism, psychological safety, rest and burnout. Provisions on class, bodily features, exclusion of patients and astronomical timing belong to their historical setting and should be set aside or reinterpreted. The central message, that surgical competence is built on the quality and conduct of both learner and teacher, remains relevant to surgical education in the present era.

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