



Reshaping the future of Design Education: Takeaways from the accounts of the ancient Indian Rishis

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Abstract. Design Education today is being imparted across the globe by varied institutions. We frequently witness new academic approaches, teaching methods, and pedagogies being discussed, and presented at various Design symposiums, and conferences, in the attempt of improving Design Education. While some investigate new strategies via experimentation and imaginative lenses, others investigate past wisdom to identify its relevance in the present context. The paper explores the latter through the teaching methods of ancient Indian teachers (also called Rishis) and seeks to determine its significance in the modern context.

Ancient India had a long and illustrious history of learning and education. There are several examples that stand out and have valuable lessons for educators of today and future. The paper incorporates instances from Pt. Sriram Sharma Acharya's 'Pragya Purana: Devsanskriti Khand (fourth volume)', which contains references to Indian culture, gurukuls, and the old Indian educational system. The paper discusses three instances of which one presents an intriguing relationship between diet and education as explained by Maharishi Uddalaka. Another instance is Maharishi Uddalaka's description of how he teaches in the absence of any physical infrastructure, while the last instance is from Takshashila, where Acharya Brahaspati employs a novel method of assessing his Ayurvedic pupil before he graduates. The paper goes into additional detail about the instances cited above from the 'Pragya Purana', that demonstrate significant takeaways for the Design education.

Keywords. Alternative Assessment, Ancient India, Design Education, Diet and Education, Indian Rishis, On-the-go Classes

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Introduction

Design Education has seen tremendous growth and footprint in the past few years. We have a range of institutions offering design courses as stand-alone institutions, as well as design departments (or School of Design) being set up in legacy institutions. The teaching methods and curriculum vary in these institutions and are often influenced by the vision, mission and philosophy of the institute. The instructional methods and pedagogy are usually discussed and presented in Design conferences, forums, symposiums, etc. with academicians sharing the benefits as well as challenges while practicing them. Some share their new and exciting experimental journeys while some explore the possibility of leveraging traditional wisdom in modern day setup.

In any educational setup (including Design), there seems an over emphasis on the teaching learning environment, infrastructure, placements, industry projects, etc. which is understandable given the need of admissions as well as institutional rankings, but this also leads to overlooking of some fundamental aspects. Sometimes these obvious aspects are left to age old and continued practices like teaching within classrooms, assessments and evaluation through examinations, and something as basic as the meals offered to students. This has been a practice with the majority of institutions with an exception of very few.

The paper investigates an alternative potential in these aspects by reflecting on past wisdom and providing instances from the ancient Indian education system. Ancient Indian education provides numerous lessons for modern-day teachers, including a sense of ownership towards the students.

Methodology

There is a large amount of literature available on the ancient Indian education system, which covers topics such as the goal of education, curriculum, instructional techniques, teacher-student relationships, and so on. These are useful for imagining a broad picture, but they rarely give specific descriptions or instances that may

aid in understanding them in further depth. This led to a detailed reading of specific *Puranas* (पुराण) or ancient texts, which contained collections of instances with social and moral lessons, and which were pertinent to the subject and set in the framework of ancient Indian education.

In specific – ‘Pragya Puran, Devsanskriti - Chaturth Khand (fourth volume)’ authored by Pt. Shriram Sharma Acharya, is referred for the instances mentioned in the paper. Spread across four khands (volumes), the Pragya Puran is a collection of actual instances with Sanskrit shlokas as well as related writings from literature such as the Upanishads [1]. The paper has referred to the Devsanskriti Khand, which is the fourth volume and contains references to Indian culture, gurukuls, and the ancient Indian educational system. Traditionally, Pragya Puran was offered in the form of *Pragya Puran Katha* (प्रज्ञा पुराण कथा) and was intended to be spoken orally by the narrator (कथावाचक) with the larger audience to make it as simple as possible for them to understand the lessons and underlying meanings. Even today, individuals and organizations that are the custodians of traditional Indian culture, such as the All-World Gayatri Parivar (<http://www.awgp.org/>), host similar events.

After the identification of instances, the next step of takeaways was derived and their relevance to design education was elaborated and complemented with contemporary research findings in support, through research papers, website articles, blogs, etc. Numerous publications and research papers on topics such as Vedic education, Gurukulum or Gurukul system, Guru-Shishya parampara (Teacher-Student Tradition), role of teachers in ancient India, along with instance-specific takeaways about – Diet and Education, mobile/ on-the-go classrooms, newer/ alternative assessment methods, etc. and more were examined and cited in the study.

It has also been observed that the term ‘Guru’ and ‘Acharya’ are frequently used in the literature as a translated synonym for a teacher. To avoid any potential contradictions, the term ‘teacher’ has been used instead of ‘Guru’ or ‘Acharya’ in this paper, except where it is di-

rectly quoted from other literature.

Education in Ancient India

India was once the pinnacle of the teaching-learning environment and rose to the rank of Jagatguru (teacher of the world) [2]. It was one of the foremost locations in the ancient period for scholars seeking knowledge in a variety of disciplines, and what worked as a catalyst were the teachers or Rishis, who taught and assessed their learners in unique ways besides taking care of them just like their own child [3]. Teachers in ancient India went to considerable lengths to ensure that their students grasped the knowledge and that their teachings were observable in practice using a variety of approaches.

The importance and significance of education were well acknowledged in ancient India. As a result, academics were venerated, and scholars as well as knowledgeable individuals held a privileged status in society, which is also evident from the Sanskrit shloka (verse) below [4] -

विद्वत्त्वं च नृपत्वं च न एव तुल्ये कदाचन।
स्वदेशे पूज्यते राजा विद्वान् सर्वत्र पूज्यते॥

*Vidvatvaṃ ca nṛpatvaṃ ca na eva tulye kadācan/
Svadeśe pūjyate rājā vidvān sarvatra pūjyate //*

The above shloka (verse) says that a king and a knowledgeable person are not comparable [5]. The king's power and supremacy are limited to his defined region (his kingdom), but the knowledge of an educated person has no borders and hence a knowledgeable person is adored all over the world. This verse exemplifies the value of a learned person as well as the importance of education.

Teachers in Ancient India

In ancient India, teachers were highly respected, and learning was considered sacred. They occupied a prominent position not just in their gurukuls (residential schools) or ashrams (hermitages), but also in society at large. This is also evident from the shloka in Taittiriya Upanishad [6] -

आचार्य देवो भव।

Ācārya devo bhava means honoring the teacher as God.

With such a respected position, teachers too were expected to maintain certain decorum and standards. As per Rigveda 7/2/3, the teacher should be "truthful, kind and compassionate besides being reflective" [7].

The teachers held complete authority over the gurukuls (Figure 1) or ashrams where they taught. They had complete autonomy over the gurukul's varied functions, including student selection, teaching methods, curriculum design and development, and syllabus design, among many others. Students' physical, mental, and moral growth were considered while enforcing norms of conduct. In those days, strict attention to standards of conduct and discipline was an inextricable part of schooling [8]. It was up to the teacher to decide when the course concluded for a student and was dependent on the student's performance and satisfaction with the teacher [9]. Also, teachers were assigned to various designations like 'Acharya', 'Upadhyaya', 'Guru', 'Shikshak', etc. according to the parameters of the engagement with the students [10].

Teacher-student relationship

In ancient India, the teacher-student relationship was regarded as one of the purest. It emanates dedication and is the pinnacle of devotion [2]. The teacher's actions both within and outside of the classroom allowed the pupils who remained in the gurukuls to absorb the ideals. This close relationship resulted in the student's complete and holistic development [8]. The teacher treated the students as if they were his/her children, caring for them as if they were his/her own [11], while also being an expert in the field of premium education [7]. The students were entitled to interact freely with their teacher about their doubts and questions. This is evident from the age-old tradition of Guru śiṣya saṃvāda (गुरु शिष्य संवाद), a communication mode, which aided in deeper understanding of the highest truths of spiritual traditions [12].



Figure 1: A visual representation of Gurukul, where a Guru (teacher) is teaching the Shishyas (students).

Findings and Takeaways

The study discusses three instances in detail from ancient Indian educational contexts and discusses their implications for Design Education. These are related to - 1. Diet and Education, 2. On-the-go Classes, and 3. alternative ways of assessment.

Diet and Education

The scientific sages of spiritual science had carefully examined the subtle aspects of food and discovered that each food item has sattvic (which purifies the body and brings peace to the mind), rajasic (which is overly stimulating), and tamasic (which exacerbates sluggishness and indolence) qualities in itself, and that by consuming them, the mind is created in the same way [13, 14]. Diet held an important part in the ancient Indian education system and thus those living in the gurukul, or ashram pursued a vegetarian diet [15].

जैसा अन्न, वैसा मन

Jaisā anna, vaisā mana meaning we become what we eat.

The above-mentioned association between food and mind has been described in detail by Pt. Sriram Sharma Acharya in his article titled 'Jaisa anna waisa mann' in Akhand Jyoti [14],

which presents numerous citations from the Upanishads on the same.

The instance about Maharishi Uddalaka [1] is presented here where he imparts the significance and relevance of diet to his students in parallel to education, through an experiment.

आहार भी, विद्या भी : यह गुरु का ही दायित्व है कि तरह-तरह से शिष्यों की परीक्षा ले एवं उन्हें तत्त्वविद्या का मर्म समझाये। महर्षि उद्दालक ने गुरुकुल के प्रवीण छात्रों को बुलाया और परीक्षा लेने के लिए उनके आहारों को एक-एक मास के लिये बदल दिया। अवधि पूरी होने पर सभी को बुलाया गया और उनकी स्थिति जाँची गयी। जिसे एक महीने भूखा रखा गया था, वह सब कुछ भूल गया, आँखों के सामने अन्धेरा छाने लगा था और स्मृति जवाब दे रही थी। जिसने तामसिक वस्तुयें खायी, उसकी चंचलता बढ़ गई और पढ़ने से मन उचट गया। जिसके आहार में मादकद्रव्यों का समावेश था, उसने अध्ययन में अरुचि दिखाई और घर लौटने की आज्ञा माँगने लगा। इसी प्रकार किसी को झग-डालू, किसी को शान्त, किसी को सौम्य, किसी को उद्धत पाया गया। अध्ययन पर भी इस बदली मनःस्थिति का वैसा प्रभाव पड़ रहा था। प्रस्तुत परिवर्तन का रहस्य बताते हुए उद्दालक ने छात्रों से कहा- "अन्न से ही प्रकारान्तर से बुद्धि और चित्त बनता है। जैसा अन्न खाया जाता है, वैसा ही मन बनता है। विद्या को जितना महत्व दिया जाता है। उतना ही अनुकूल आहार पर भी ध्यान दिया जाना चाहिए।"

Diet and Education (Translation in English): It is the teachers' responsibility to put the dis-

ciples to various tests and to communicate the essence of philosophy to them. To take the assessment, Maharishi Uddalaka summoned the students and had them adjust their diets for a month. At the conclusion of the period, everyone was summoned, and their status was verified. For a month, the student who was kept starving forgot everything. His memory was fading and there was darkness in front of his eyes. The agitation of someone who ate tamasic foods intensified, and he became fickle-minded. One whose diet consisted entirely of intoxicants was disinterested in studies and wanted to be allowed to return home. Similarly, some students quarrelled, while others were found to be quiet. "The intellect and the mind are formed primarily from food," Uddalaka told the students, describing the key to the current metamorphosis. The mind is consumed in the same manner that food is consumed. Thus, A healthy diet should be valued in the same way that education is valued.

Takeaways for Design Education

Ancient literature like- Ashtanga Hridaya, Sushruta Samhita, Charaka Samhita, etc. not only discusses the effects of varied food but also highlights the need for good eating habits [16]. As inferred by Maharishi Uddalaka, food has a direct correlation with the mind and intellect of the individual. The same has been supported by many research studies which have established that nutrition alters our mood and behavior as well as one's brain function [17, 18]. The research by Fernando Gómez-Pinilla supported by the National Institute of Neurological Disorder and Stroke on 'Brain foods-the effects of nutrients on brain function' presents the intriguing potential that dietary changes could be a practical technique for improving cognitive ability [17]. Despite such evidence, we have barely seen it translate to student's dietary needs. Although schools and colleges promote a balanced diet, but leveraging it in complimenting desired abilities specific to a profession remains to be witnessed.

The primary skill sets expected from designers include- Empathetic outlook, Inquisitiveness, Creativity and imagination, Cross-disciplinary work and collaboration skills, Articulation and

pitching of ideas, and many more [19].

Can these skills be reinforced further by considering a specific diet plan and eating habits? Adding a glimpse in this direction, multiple studies have connected the vegan or vegetarian diet to greater empathy than the omnivore one [20]. Also, students' academic performance benefits from healthy eating habits [21]. In addition, researchers have found evidence that tyrosine (a food supplement and a biochemical precursor of dopamine) promoted convergent 'deep' thinking which forms one of the dimensions of Creativity [22].

The instance (Diet and Education) presents an exciting dimension of leveraging food as a medium to impart desired skill sets. Design institutions can use these directions to thrust themselves to the forefront and become leaders by establishing a specific diet and eating habits for developing the competencies needed to become a good designer, which is backed up by scientific research.

On-the-go Classes

To better transmit knowledge to students, various teaching pedagogies were explored and implemented in the Gurukuls, including teaching through travel [3]. The example presented below not only demonstrates one of these strategies but also how teachers communicated with one another to better understand their practices and efficacy.

The instance is a conversation between Maharishi Jaratkaru and Maharishi Uddalaka [1]. Here, Maharishi Jaratkaru is intrigued and enquires Maharishi Uddalaka about his meritorious students in the absence of the physical infrastructure of the school.

चलता-फिरता गुरुकुल : महर्षि जरत्कारु ने महर्षि उद्दालक से पूछा- "आपके गुरुकुल में प्रशिक्षित हुए छात्र सर्व-त्र यशस्वी हो रहे हैं पर उस अनुपात से आपका आश्रम और छात्रावास तो कहीं दीख नहीं पड़ता है फिर छात्र पढ़ते कहाँ होंगे"? महर्षि उद्दालक ने कहा- "हमारा गुरुकुल एक स्थान पर नहीं चलता । छात्रों को साथ लेकर हम परिभ्रमण करते रहते हैं । इसमें इन्हें भौगोलिक ज्ञान होता है । विभिन्न प्रकार की परिस्थितियों तथा व्यक्तियों से निपटने का अवसर मिलता है । पैदल चलने से हम सबका स्वास्थ्य भी अच्छा रहता है और

अनेक स्थानों के लोगों के धर्मोपदेश सुनने का अवसर मिलता है। यह व्यावहारिक शिक्षा पुस्तकीय ज्ञान से कम महत्वपूर्ण नहीं है। इसलिए हमने यही उचित समझा कि स्थिर गुरुकुल बनाने की उपेक्षा चलता-फिरता-विद्यालय चलाए। इस उपाय का अवलम्बन करने से हमारे छात्र स्थिर विद्यालयों में पढ़ने वालों की तुलना में अधिक सुयोग्य बनते एवं यशस्वी होते हैं।" जरत्कारु का समाधान हो गया।

Mobile Gurukul (Institution) (Translation in English) : Maharishi Jaratkaru asked Maharishi Uddalak – "Students trained in your Gurukul are becoming successful everywhere, but your classrooms and hostel are not visible anywhere, then where are the students studying?" Maharishi Uddalak said- "Our Gurukul does not run in one place. We go on travel by taking the students along. In this, they gain geographical knowledge. They also get an opportunity to deal with different types of situations and people. Besides this, walking is beneficial for our health, and it allows us to hear discourses from learned individuals from many places. This practical education is no less important than book knowledge. That's why, rather than building a permanent Gurukul, we believed it would be more suitable to conduct the school on the go. By following this method, our students become more capable and successful than those studying in stationed schools". Jaratkaru's query was resolved.

Takeaways for Design Education

Field trips provide a chance to inspire and connect students to comprehend and grasp classroom subjects, hence increasing a student's knowledge base and encouraging further learning and higher-level thinking skills [23]. We are not arguing the fact that the mentioned method of learning through travel is absent in the current education system. Almost every design institution plans and conducts- Industrial tours, Study trips, etc., and offers subjects like- 'Environmental exposure', 'Craft study and Documentation', etc. which addresses this aspect of learning to a certain extent, however, it does not do complete justice and limits to at most a semester-long project.

'On-the-go classes' may sound new to many, but have already been experimented in a slightly different form as Chalta Firta School (CFS) or

the mobile learning center (MLC) under Sarva Shiksha Abhiyan in India with the aim of bringing education to all via education at doorstep [24]. Similarly, Save the Children (NGO) and the Delhi State Government collaborated to create two Mobile Anganwadi Centres (buses) or Mobile Learning Centers, with the goal of providing education to every marginalized kid [25]. In another example, 'Shodh Yatra'- a program of SRISTI, spearheaded by Professor Anil K. Gupta (Founder-The Honey Bee Network, SRISTI, NIF, and GIAN), is a journey on foot in the search for knowledge, creativity, and innovations at the grassroots. It aims at unearthing traditional knowledge and grassroots innovations and is also a voyage of mutual information sharing and exchange. They recently concluded their 49th Shodha-yatra in Uttar Pradesh [26].

The instance 'Mobile Gurukul' gives an interesting insight into investing in the just-needed facilities and give due emphasis on learning through travel, thereby connecting the students with on-ground needs and challenges as well as developing an interdisciplinary approach and a holistic thought process. With design institutions offering field trips and student exchange programs, the concept of 'On-the-go classes' in Design education is not far-sighted and can be a game-changer. The concept can work with effective collaborations with communities, organizations and institutions and has the potential to be disruptive in design education.

Newer & alternative ways of assessment

The curriculum and pedagogy in Design education has evolved over a period and are still in the process of refinement with improved technologies and newer challenges. This evolution not only demands better and more effective methods of teaching but also alternatives to evaluation methods instead of the standardized methods of writing examination and jury based assessment. The book titled 'Beyond Tests and Quizzes: Creative Assessments in the College Classroom', where the authors discuss creative assessment and various methods of accomplishing it, is an interesting endeavour in this direction [27].

The following instance informs about a creative method of evaluation by Acharya Brihaspati [1] for his student of Ayurveda (alternative medicine system) before he graduated from the Takshashila University.

जीवक की परीक्षा : आदर्श शिक्षक मात्र अध्ययन ही नहीं करते, छात्र को उस विद्या में ऐसा पारंगत कर देते हैं, कि वह स्वर्ण बनकर निखर उठता है। तक्षशिला विश्वविद्यालय में सात वर्ष तक आयुर्वेद पढ़ने के उपरान्त आचार्य बृहस्पति ने जीवक की परीक्षा लेकर विदा करने का मुहूर्त निकाला। उनसे हाथ में खुरपी देकर कहा- “एक योजन की परिधि में एक ऐसी वनस्पति खोजकर लाओ, जो औषधि के काम न आती हो।” जीवक एक सप्ताह तक घूमे और लौटने पर बोले- “गुरुदेव ! एक भी ऐसी वनस्पति नहीं मिली, जो औषधि के काम न आती हो।” बृहस्पति ने अपने शिष्य को गले लगा लिया व कहा- “वत्स ! तुम सफल रहे। जाओ अब आयुर्वेद का प्रकाश दिग-दिगन्त फैला दो।”

Test of Jeevak (Translation in English) Ideal teachers do not only study, but they also make the student so proficient in that knowledge, that the student shines like gold. After studying Ayurveda for seven years at Takshashila University, Acharya Brihaspati decided to take the final examination of his student-Jeevak, as a part of the completion of his studies. He gave him a trowel and said, “Find a plant that is not useful as medicine within a circumference of 1 Yojana (which is approx. 12.8 km [28])”. Jeevak roamed for a week and on his return said - “Dear Teacher! Not a single plant was found, which is not useful as medicine”. Brihaspati embraced his disciple and said - “Dear Student! you were successful, now go and spread the light of Ayurveda across.”

The above mentioned can be an outcome only when one has a complete understanding of the subject, which in this context was about plants, their properties, and their medicinal benefits. Jeevak passed this test and his talent was evident from the fact that later, he became a very renowned physician and skilled surgeon who was appointed as personal physician to King Bimbisara as well as Gautama Buddha, besides continuing to treat and cure the poor for free [6, 29].

Also, if we analyse the examination conducted by the teacher- a) Brief was clear and demanded identification and specimen of the plant.

b) A constraint in the form of distance was provided. c) A “trowel” tool was offered as an element to confound students. d) Freedom of time, which eased out performance pressure.

Thus, the examination brief had its own set of assessment features that evaluated not only the students’ comprehension of the topic, but also its application, spatial understanding, and most importantly, ensured time as a stress-free component.

Takeaways for Design Education

The assessment in design institutions is deliverable-based like- posters, mind maps, presentations, products (physical and digital), sheets, models, etc., and are in some way exhausted in due course of study. The need for newer and alternative assessments, creative in nature is on the rise; and even many teachers feel that their assignments should get the students excited about the work [30].

Sharing an example, Ben Motz, a cognitive scientist, and faculty member of Indiana University Bloomington’s Department of Psychological and Brain Sciences, examines his students’ comprehension of concepts in his cognitive psychology course by having them create 60-second public service announcements about the concepts [31]. Likewise, Queens University in Canada, has a specific section on their website highlighting ‘Teaching and learning in higher education’ that showcases examples of innovative assessment methods. These are used by their teachers to measure their students’ learning progress. This includes assessment methods like- ‘ConceptTests’, ‘ePortfolios’, ‘podcasts & vlogs’, ‘talk show performances’, among others [32]. These examples demonstrate the need for fresh assessment methodologies, as well as institutions catching up.

However, it is not being suggested that conventional evaluation techniques be discontinued or none among the educators are practicing new or alternate ways of assessments; nonetheless, a balanced approach combining traditional and alternative assessment methods is very much attainable as a general practice. The teacher may make this decision based on the content, context,

objective, and audience [33]. In addition, the National Education Policy 2020 of India too, advocates for a transition away from high-stakes assessments and toward more continuous and comprehensive assessments [34].

The instance ‘Test of Jeevak’, gives educators today a unique opportunity to relook our current assessment methods and explore newer & alternative ways of assessments with creative assignments as per the subjects being taught and wherever feasible.

Conclusion and Way forward

The three instances given in the study provide insights into how we might improvise both Design Education and Educators (Table 1).

Rather than being exclusives, these should be viewed as a few of many other possibilities for improvements. It is also fascinating to find that the methods used in the ancient times as mentioned in the instances have found some relevance which is evident (in domains other than Design) from a few contemporary research findings cited in the paper.

The paper’s insights for Design education can be used as a platform for further investigation. For purposes of execution, these must be thorough and backed up by additional research. We hope that the findings will pique the interest of scholars in relevant fields, prompting them to create in-depth resources for the benefit of others.

S. No.	Instance Title	Description	Takeaways for Design Education
1	Diet and Education	Maharishi Uddalaka experimented with the diet changes of students and studied their impact on them.	Introducing dietary plans with good eating habits that complement and enhances Designer skill sets.
2	On-the-go Classes	Maharishi Uddalaka explains the benefits of on-the-go classes as compared to permanent ones, to Maharishi Jaratkaru.	Relook the needs of institute infrastructure and incorporate ‘On-the-go classes’ for interdisciplinary outlook and holistic development.
3	Newer and alternative ways of assessment	Acharya Brihaspati’s unique evaluation of his graduating student (Jeevak) of Ayurveda.	Adopt a balanced approach of evaluation with traditional and new and alternative assessment methods.

Table 1: Overview of the three instances

Scope for future research

The paper examines a few instances of ancient rishis in the context of ancient Indian education and expands on them to draw intriguing directions as takeaways. One can imagine the volume of ancient texts available by the fact that these instances are primarily derived from one selected literature – Purana (Pragya). These ancient texts are further available in different khands (volumes) and besides them, we have- Vedas, Upanishads, Shastras, Vedangas, Vangmaya, Samhitas, Sutras, etc. providing a plethora of information on different spheres of life, knowledge, existence, nature, architecture, medicine, arts, astronomy, etc. The more we study ancient literature, the more we will be able

to extract insights and benefit from it. As a result, a lot more reading and derivation in the current context is necessary, which can only be done if more like-minded people join the research in this field. We need more historians and researchers to dig into our rich educational system and unearth the lessons that might assist us to overcome today’s difficulties in their respective fields of study.

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