KERALA STATE HIGHER EDUCATION COUNCIL PUBLICATION

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HIGHER EDUCATION MATTERS

magazine

A GATEWAY TO HIGHER LEARNING INITIATIVES

Designing and Implementing Curricula for Higher Education

KNOWLEDGE AND KNOWLEDGE SYSTEMS

K.P. Mohanan & Tara Mohanan

K-REAP

Kerala's Digital Leap in Higher Education

Higher Order Cognitive Process

Outcome Based Education-Part VI

Special Articles

AI in Universities: How LLMs are transforming Research:
Ali Shiri
AI and the Future of Education

Scholar View

- *From Anagram to Law: How F=kx became a cornerstone of Physics and Engineering:*
  Prof. Gangan Prathap
- *Victorian Alumni Association: A case of Institutional Best Practice:*
  Prof. Mohan Menon

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HE MATTERS

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Our aim is to serve students, teachers, administrators and other stakeholders by providing valuable insights into the educational scenario, innovations in teaching and learning, policy changes, and career opportunities. Whether you're navigating the challenges of administration, teaching the next generation, preparing for your future career, or thinking of transforming your educational landscape, this magazine is your first hand information and expert perspectives for your journey.

Curated Stories
Higher Education Matters Magazine prides itself on the educational content published in the magazine in print. We believe knowledge is power, which is why we work so hard to cover topics about local to global issues and initiatives pertaining to higher education. Throughout the magazine you may come across articles open to every reader irrespective of online or print editions. If you have any questions about the nature of the magazine, please reach out to us.

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We receive stories and observations fulfilling the aims and objectives of the magazine from the like minded people engaged with higher education sector. We take on partners who are providing articles & news and whose contributions fall within our editorial guidelines.

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Opening Note | Editor in Chief

Dear Readers,

In this sixth edition, we navigate the intellectual, technological, and philosophical currents reshaping higher education. With a blend of global perspective and local initiative, this issue presents both time-tested wisdom and forward looking innovations that challenge us to reflect, reimagine, and reform.

We begin with a foundational inquiry: What is knowledge? In a lucid, thought provoking piece, K.P. Mohanan and Tara Mohanan unravel the structure and essence of knowledge systems. Their article serves as a philosophical scaffold, grounding our understanding of learning, cognition, and the role of higher education in society. Building on this theme, Designing and Implementing Curricula for Higher Education explores how institutions can realign pedagogy to nurture "higher order cognitive processes" rather than simply deliver content.

These reflections take tangible form in Kerala's digital leap 'K-REAP' an ambitious platform unifying academic governance, student lifecycle management, and learning through state of the art infrastructure.

Equally compelling is our double feature on artificial intelligence in academia. While AI and the Future of Education (UNESCO overview) examines ethical dilemmas and systemic shifts in classrooms, Ali Shiri's AI in Universities focuses on research: the promise and peril of large language models transforming scholarly work. Together, these pieces provide a holistic view of AI's impact on pedagogy and publication.

Finally, in From Anagram to Law: How F = kx became a Cornerstone of Physics and Engineering, Prof. Gangan Prathap guides us from linguistic puzzles to physical principles, a metaphor for the hidden depths of academic inquiry.

May this issue inspire you to question deeply, engage fully, and act purposefully.

Warmly,
The Editor-in-Chief

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Designing and Implementing Curricula for Higher Education:

General Introduction

K P Mohanan and Tara Mohanan

Does Higher Education matter? If our answer is yes, then the next question is: why does it matter? What desirable outcomes does the Institution of higher education bring to the human species, outcomes that would be absent if the institution had not come to exist in human history?

This **series of articles** begins with the axiom that:
the ultimate purpose of education is to help members of the human species become truly educated (as distinct from doing well in exams and receiving degrees and certificates), such that they can work towards their own well-being and the well-being of others (including other life forms on the earth) along the physical, emotional, intellectual, societal, aesthetic, ethical, and spiritual dimensions of life.

Within that purpose, we assume that:
the function of Higher Education is to help learners develop what we call Academic Cognition, which NEP 2020 calls Higher Order Cognition, whose strands include the capacities for self-directed, independent, lifelong learning; critical reading and critical thinking; independent inquiry and integration of knowledge, all of them developed through the pursuit of Academic Knowledge.

If the institution of higher education were to be erased from the history of the human species, the well-being of the human species and other life forms on the earth would be compromised. That is why higher education matters.
With that answer, this series of articles seeks to explore issues in the design and implementation of curricula for higher education that aim to help learners develop the capacity for Academic Cognition.

Knowledge and Knowledge Systems

K P Mohanan and **Tara Mohanan**

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1. Education and Educatedness

Education is the process of helping learners — those who seek to learn — become educated. Educatedness is not a matter of receiving certificates and degrees. It is a quality of mind. A person who never obtained a Bachelor's degree can still be a highly educated individual, and one who has a Doctorate might be considered a poorly educated one. The primary function of institutionalised Higher Education would ideally be to help learners develop the quality of mind that we expect from highly educated individuals, and not just that of providing credentials.

To this end, it is imperative that the designers of curricula in a Higher Educational environment have a deep understanding of the nature of academic knowledge, and the nature of the knowledge systems that shape the construction and critical evaluation of knowledge. Such curricula can support students in developing a set of capacities specifically associated with the knowledge they acquire, and knowledge field they learn within.

It is, however, equally important that the students also obtain a rudimentary understanding of the nature of knowledge and systems of knowledge, and develop the capacity of Higher Order Cognition as stated in NEP 2020. This calls for students to understand how different kinds of academics think — mathematicians, scientists, philosophers, historians, literary critics, as well as engineers, doctors, lawyers, and so on — and what ways of thinking are shared across the systems of knowledge.

Bearing in mind the goal of education suggested above, this article is a preliminary attempt to share with stakeholders of higher education our answers to two questions:

- What is knowledge?
- What is a knowledge system?

2. What is Knowledge?

Imagine that you are walking along a path in a forest. You experience a particular fragrance. If you have lived in a village in India, chances are that you would be able to identify that fragrance as coming from a particular category of flowers, say, the flowers of a jasmine plant. A few meters further, you get a whiff of another fragrance, perhaps coming from the flowers of a champaka plant *(Magnolia Champaca)*. Someone who has never had the prior *experience* of the fragrance of jasmine flowers and champaka flowers would not be able to do what you did. That person does not have the *knowledge* of the flower fragrances that you have.

Given this, it would be reasonable for you to say, "I know what jasmine and champaka flowers smell like."

Now consider the following dialogue:

Zeno: Which of these propositions is true?
Proposition 1: The Earth revolves around the Sun.
Proposition 2: The Sun revolves around the Earth.
Plato: The first one.
Zeno: So it would be reasonable to say that you *know* that the earth revolves around the Sun?
Plato: Definitely.

Knowing that the Earth revolves around the Sun is an example of textbook knowledge that communicates the findings of academics. We may use the term ACADEMIC knowledge to denote this kind of knowledge. EXPERIENTIAL knowledge, on the other hand, is the kind of knowledge you have about the fragrance of jasmine and champaka, and is not the same as Academic knowledge.

However, they are both valid forms of knowledge and share the same framework:

x knows that y

where x is the individual human knower, and y is a statement that the knower knows.

There is another dimension to knowledge that we may call "know how-to" knowledge, as distinct from the "know that" knowledge. For instance, knowing *how to ride* a bicycle is not the same as *knowing that* bicycles have two wheels. In this article, our primary attention would be on the *know-that* form of knowledge.

3. Types of Knowledge

One way of categorising knowledge is in terms of its subject matter. Astronomy, physics, materials science, chemistry, biology, anatomy, physiology, psychology, sociology, economics, and history are examples of disciplines that differ in subject matter.

Another way of classifying knowledge is in terms of what it is based on or where it is derived from. In the previous section, we suggested that we can say that x knows that y only if x believes y to be true. With this in mind how do we determine something to be true? Consider the following examples:

~Knowledge based on the testimony of an authority

Zeno: Do you believe that the Earth revolves around the Sun?
Plato: Yes, indeed.
Zeno: Why do you believe that?
Plato: Huh? Because it's true.
Zeno: I'm asking you why you think it is true. Why do you think that the statement that the Sun revolves around the Earth is false?
Plato: Well, that is what the textbooks say.

Now compare that with the following ones:

~Knowledge Based on Experience

Zeno: Do you believe that a stubbed toe is more painful than a pin prick?
Plato: Yes, indeed.
Zeno: Why do you believe that?
Plato: Because that has been my experience.

~ ***Knowledge based on Observation and Reasoning***

Zeno: Do you believe that Socrates is taller than Aristotle?
Plato: Yes.
Zeno: Have you seen them standing side by side or measured their heights?
Plato: No. I haven't. But I have seen Socrates standing next to Dogenes. Socrates is taller than Diogenes. And I have seen Diogenes standing next to Aristotle. Diognes is taller than Aristotle. So it is legitimate to conclude that Socrates is taller than Aristotle.

~***Knowledge based on Prior Knowledge and Reasoning***

Zeno: Do you believe that all ants have compound eyes?
Plato: Yes.
Zeno: Have you looked at every ant to check if it has compound eyes?
Plato: No, I haven't.
Zeno: Why then do you believe that that statement is true?
Plato: Well, I know that all insects have compound eyes. I also believe that ants are insects. It follows therefore that all ants have compound eyes. If the first two statements are true, then the third statement must be true.

~***Knowledge based on Feeling***

Zeno: Do you believe that Athena loves you?
Plato: Yes, indeed.
Zeno: Why do you believe it is true?
Plato: I have a strong feeling that is it true. There is no other reason. Closely related to the concept of Knowledge based on Feeling are the concepts of Experiential Knowledge and Personal Knowledge. Suppose someone called Mino says: "On 21st December 2024, I dreamt that I was an insect."

Mino's statement is part of his PERSONAL knowledge, not ACADEMIC knowledge; it is what an individual believes to be true, and is knowledge that only that person has access to, such as dreams. This is not only an example of PERSONAL but EXPERIENTIAL knowledge as well, showing how many of the categories intersect or overlap.

Our intention is not to defend the postulation of any of these categories, but to give the readers a sense of the variety of categories based on different reasons for believing that something is true.

4. Knowledge, Knowing, Cognition, and Cogniser

The term *cognition* comes from the proto-Indo European root *gno-* from which the English words *cognise* and *know* are derived (see https://www.etymonline.com/word/cognition). The Sanskrit word *jnana* 'knowledge' is also derived from the same root (see https://en.wikipedia.org/wiki/jnana).

Cognising is knowing, and hence we may use the term *cogniser* to mean 'knower', which in our terminology, includes not only individual human beings who know something, but also communities of knowers who share a certain knowledge. In this sense, we can say that physicists know that electrons are negatively charged, and that those who have a university degree know that the Earth revolves around the Sun. It would also be legitimate to say that the ancient knowledge seekers 'knew' that the Sun revolves around the Earth.

What does it mean to say that a cogniser x knows that y? We propose the following answer:

For us to say that
x knows that y,
the minimal condition is that x believes y to be true.

Earlier, we made a distinction between *know-that* knowledge and *know-how-to* knowledge. The issue of truth does not apply to *know-how-to* knowledge.

5 . What is Academic Knowledge?

In the previous sections, we took it for granted that the category of knowledge that Higher Education is concerned with is that of ACADEMIC. We also discussed examples that implied a distinction between ACADEMIC knowledge and other types of knowledge such as EXPERIENTIAL knowledge and PERSONAL knowledge. But we did not answer the question: What do we mean by the term 'academic knowledge?'

We might begin by saying that academic knowledge is *a body of statements that are accepted as true by the community of academics*. And we define academics as *those who are professionally committed to the pursuit of truth*.

Another way of characterising the concept of academic knowledge is to consider it as the sum total of knowledge in all of the disciplines in the structure of a University: mathematics, astronomy, physics, biology, sociology, history, philosophy, and so on.

Yet another way of defining academic knowledge is as the knowledge transmitted through institutions of Higher Education. Knowledge of theory construction in Mathematics, the physical-biological-human sciences, and the humanities, such as art history, are examples of academic knowledge. A course in anthropology that explores courting patterns in different cultures might find a place in a university, while a course that provides training in the the art and craft of flirting, or in how to engage in effective gossip, may not be appropriate in a university.

6. Characteristics of Academic Knowledge

Academic knowledge is one of the bodies of rational knowledge. What do we mean by that? As a starting point, we may say that being rational requires adherence to two guiding principles of rationality:

Accepting Logical Consequences

If we accept a set of premises, we must also accept the conclusions that logically follow from them.

If we accept the statements that all humans are primates, all primates are mammals, all mammals are vertebrates, and all vertebrates are animals, then we must also accept the conclusion that all humans are animals.

Rejecting of Logical Contradictions

Combinations of propositions that are logically contradictory must be rejected as false.

The compound proposition that the earth is flat and the earth is not flat constitutes a logical contradiction. Hence we must not accept it as part of our knowledge.

Logical consistency is the absence of logical contradictions, hence we may alternatively formulate this principle as: "A body of knowledge must be logically consistent."

We are by no means suggesting that academic knowledge is superior to or more valuable than any of the other forms of knowledge. Nor are we saying that Academic Knowledge is the only form of rational knowledge.

Rational considerations are equally important for other forms of knowledge. For instance, fishermen use their geo-centric Ethnic knowledge of the sky and the stars, the seasons, and the ocean, to reason and decide when and where to fish. This decision is certainly based upon rational thinking. For some forms of illnesses, homemade plant remedies based upon one's ethnic knowledge may be more effective cures than pharmaceutical products offered by modern mainstream medicine, while for other illnesses, the medications of modern mainstream medicine may be more effective. These decisions too involve rational thinking.

In the context of Higher Education, the term *ethnic knowledge* is often contrasted with *universal knowledge*, with the implication that academic knowledge is universal. Let us take a close look at this distinction.

What does the term *universal* mean in the claim that Academic Knowledge is universal? Suppose we say that what it takes as true applies to the whole universe, and is not restricted to a specific part of the universe such as a specific individual community, a region on the earth, or even the earth itself. How tenable is this distinction?

The so-called universal law of gravitation that says that every material body in the universe attracts every other material body is indeed universal. However, the statement creates a problem for Galileo's law of falling bodies. If we drop a stone from a height, its downward acceleration is 32 feet per second. This is not universal because while it may be true for the earth, it is not true for some other planet or for any of the moons. If we take Galileo's law as universal, then we must reject our definition of universality.

To solve this problem of terminology, can we say that Academic Knowledge is universal in the sense that it holds true on all of the earth? In this sense, Galileo's law of falling bodies might appear to be universal at the first blush, but on closer examination, difficulties arise. If we drop a rock from a height of, say, a kilometre above the earth, it would obey law of 32 feet per second acceleration. But what if it is from a height of a little more than half the distance between the earth and the moon? Would it still obey that law?

Suppose we were able to build a tube, say, with a radius of 5 meters from one side of the earth through the molten metal at the center to the other side, would the acceleration be the same at the center? If not, does Galileo's law apply to all regions of the earth? Is it a universal law?

How about the statement that water boils at 100^0 C. It is true on the earth at sea level, but not true at higher altitudes on the earth.

The knowledge of the effectiveness of the glutathione molecule (C10H17N3O6S) in healing cellular dysfunctions is part of our academic knowledge, not ethnic knowledge, because it has no geo-cultural restrictions. Glutathione is a constituent molecule of the *tulsi* plant *(Ocimum tenuiflorum)* which is found in Asia, Australia, and the Western Pacific. There is a belief that tea made from the combination of fresh tulsi leaves and ginger root can cure a common cold. Is this belief part of Academic Knowledge or Ethnic Knowledge? We leave the question open for you to gnaw on.

However, bear in mind that there are different varieties of what we call tulsi and ginger and within these varieties the properties may vary depending on the environment such as the soil or the climate. And in addition, the processes of making the tea can vary depending on many factors as well.

What we have done in this section is to outline some of the characteristics of Academic Knowledge which it may or may not share with other forms of knowledge. We have also raised questions about some of its alleged characteristics.

7. What is a Knowledge System?

Having provided a number of examples of different types of knowledge, we are now ready to answer the question, "What is a knowledge system?" As the first step, we begin with the question,

"What is a system?"
A system is *a set of interrelated components that perform a given function or a set of functions*. In this sense, the respiratory system, the circulatory system, the neural system, the digestive system, and other systems in a human body are prototypical examples of systems. So are economic systems, legal systems, and systems of medical practice in human society.

Given this concept of system, we may define the concept of 'knowledge system' as follows:

> A KNOWLEDGE SYSTEM is a set of interrelated components that together have the function of constructing knowledge and evaluating knowledge claims.

The components of knowledge systems include:

- ways of looking for answers to questions that need investigating (methodology);
- ways of arriving at conclusions from premises (modes of reasoning); and
- ways of justifying or refuting the claims (the norms for establishing knowledge claims as true or false);

Readers who are familiar with the history and philosophy of science would immediately see that the concept of knowledge system is a generalisation of the concept of paradigm in Thomas Kuhn's 1962 book, *The Structure of Scientific Revolutions*. In our judgment, the best definition of the concept of paradigm appears in S Dasgupta's 1992 article, "Understanding design: Artificial intellligence as an explanatory paradigm":

> "In essence, a Kuhnian Paradigm is a network of generalised theories, metaphysical assumptions, metaphorical and heuristic models, methodological commitments, values and exemplars that are shared by, or are common to, a given scientific community. A paradigm provides the framework within which members of that community recognise and solve problems."

If we replace the concept of scientific communities with academic communities, then Dasgupta's definition of paradigms is the same as systems of academic knowledge. And if we generalise further by removing the specification 'academic', then it means the same as what we mean by 'Knowledge Systems'.

As far as Academic Knowledge is concerned, a central component of the knowledge system is ***reasoning***, the study of which is ***logic***. To illustrate, let us look at the differences between proofs in mathematics and experimental proofs in science.

Mathematical proofs are arguments in support of knowledge claims called CONJECTURES. The premise propositions for mathematical arguments are the ***axioms and definitions of a theory***, which we will call ***postulates***. Once a conjecture has been proved to establish it as a theorem, then that theorem can in turn be used as a premise. The form of reasoning used in mathematical proofs is that of ***classical deductive reasoning***, found in most standard textbooks on logic.

In experimental proofs, the premises are the outcomes of the experiment, a sample of ***data points***. In this domain, the counterpart of a conjecture is called a ***hypothesis***. Once established as true, hypotheses become ***observational generalisations*** on a population. The mode of reasoning from data points to observational generalisations is that of ***inductive reasoning***.

We urge the readers to reflect on how legal proofs in the criminal court are different from both mathematical proofs and experimental proofs.

Central to the differences between knowledge systems is the concept denoted by the English word, ***argument***. We use the term as synonymous with ***proof*** and ***rational justification***. But the reader must be warned that not everyone uses that word with the same meaning. Examples of different meanings include sentences like: "Don't you dare argue with me;" or "The couple were arguing throughout the night;" where it refers to disagreeing (with each other). In "I argue that AI is a wonderful gift to mankind," it probably refers to providing an extended exposition of an assertion, not providing reasons for the assertion.

The English words *know* and *knowledge* are also multiply ambiguous. Clarity in the understanding of the concepts denoted by these terms is central to the study of knowledge and knowledge systems.

Given our limited space, we do not expect all readers to fully understand the concepts we have given in bold italics. All that we have tried to do in this article is to outline the bare skeleton of the concepts of knowledge and knowledge systems, all of which need to be fleshed out.

Seeing the skeleton of an animal is hardly sufficient for anyone to understand its anatomy and physiology, let alone behaviour. What we have in this article is such a skeleton, as a starting point for further exploration.

8. Evolution of Knowledge and Knowledge Systems

Whether the cognizer is an individual, a community, or the human species, knowledge keeps evolving. So do knowledge systems.

Suppose we assume that *the rational knowledge created and transmitted in a University is Academic Knowledge.* Suppose we also define a University as *a place where novice learners and experienced learners are engaged in the pursuit of knowledge.* If so, we may say that the earliest Universities in the recorded human history were those of Takshashila, also known of Taxila, established around 1000 BCE.
(https://en.wikipedia.org/wiki/Taxila)
Scholars like Paanini and Caraka were products of Takshashila, and Paanini's Ashtaadhyaayi and Charaka's Charakasamhita were examples of the academic knowledge of the Ancient times. Plato's Academy, established around 400 BCE came next. Then came the ancient University of Nalanda, established around 400 CE.
(https://en.wikipedia.org/wiki/Nalanda_mahavihara)

Many propositions believed to be true two thousand years ago are now considered to be false, and vice versa. Examples are not hard to find in mathematics (e.g., axioms being self-evident), astronomy (e.g., geocentric and heliocentric theories), physics (theories of motion and gravity), chemistry (e.g., matter being infinitely divisible vs. indivisibility of atomic units of matter, water and air being elements), biology (e.g. evolution from unicellular ancestors), and psychology (e.g., mind being an emergent property of the body).

What is less well known, perhaps, is that knowledge systems also keep evolving. This includes our preconceptions of the nature of reality (called ontology), and the ways of establishing a proposition as true (called epistemology, logic being one its components.)

An important matter of debate in Ancient Knowledge Systems centered around the nature of ultimate Reality. The philosophical school called Sankhya, for instance, subscribed to dualism (*dvaita*), holding that the diversity of phenomenal reality is the result of the interaction between *Purusha* and *Prakriti*. The philosophical school called *advaita* subscribed to monism, holding that the diversity of phenomenal reality is a manifestation of a single ultimate reality called Brahman. In the West, the concept of the world being created by a Deity subscribes to dualism, while modern Cosmology lends itself to monism.

The very concept of rationality has been evolving. The logic of the ancient and medieval Western World was two-valued: every proposition was taken to be either true or false. In medieval Buddhist logic, logicians like Nagarjuna propounded a four-valued logic called *catushkoti* (tetralemma). Three-valued logic and multi-valued logics entered the western world in the early twentieth century. And four-valued logics emerged with quantum theory (quantum logic).

Is it rational to believe that a given proposition is neither true nor false? The Aristotelean system of two-valued logic tells us that it is not. It also tells us that it is not rational to believe that a given proposition is both true and false.

An important factor that distinguishes one knowledge system from another is the set of ways of knowing that they adopt, and the criteria they use to judge the reliability of knowledge. Another factor leading to their diversity is the historical circumstances in which they evolved.

9. The Series

In forthcoming articles in this series, we will explore in depth each of the concepts discussed in this one. At the heart of these concepts are the following characteristics exemplified in the best of academic knowledge and inquiry, though not necessarily by every academic or every 'discipline'.

- A) Doubting and questioning what one already believes to be true. (For a brief glimpse of this, watch what Hepatia, the heroine of the movie, says in the three minute YouTube clip: "Question your beliefs – Agora." https://www.youtube.com/watch?v=4N8EFH-qYJ4)
- B) Doubting and questioning candidates for belief. (Such candidates may come from others, or from one's own introspection.)
- C) Taking steps to minimise the doubts in (A) and (B), while avoiding complete certainty of belief.

Central to (C) is:

- (D) Reasoning.

We will show how an understanding of different systems of academic knowledge in terms of (A)-(D) is essential for all stakeholders of Higher Education, whether to acquire or to transmit academic knowledge in a meaningful way.

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next issue: "From Experience to Knowledge"

ThinkQ, founded by K. P. Mohanan and Tara Mohanan, is an educational initiative that nurtures higher-order thinking through inquiry, questioning, and integration across disciplines. It empowers learners to critically evaluate knowledge, cultivate intellectual curiosity, and engage in reflective learning, fostering independent, creative, and responsible thinkers for complex real-world challenges.

K-REAP:

Kerala's Digital Leap in Higher Education

K-REAP is Kerala's pioneering digital platform for higher education, integrating university governance, administration, and learning. Cloud-based, secure, and scalable, it streamlines admissions, academics, and student life. With an advanced LMS and mobile tools, it enhances teaching, learning, and transparency, **benefiting 30,000+ students across multiple universities free of cost.**

Sudheendran K

The Kerala Resources for Educational Administration and Planning, better known as K-REAP, is emerging as one of the most ambitious higher education digital reforms in the country. Initiated by the Kerala State Higher Education Council (KSHEC) under the Department of Higher Education, and implemented in partnership with ASAP Kerala and their technology partner, K-REAP is envisioned as a next-generation university governance and academic administration platform. It has been designed to meet the complex and diverse functional needs of universities and affiliated colleges across the state, symbolizing Kerala's commitment to digital transformation in higher education.

Unlike traditional fragmented legacy systems, K-REAP offers a holistic, cloud-based solution that integrates every aspect of academic and administrative life. The platform is delivered in a Software-as-a-Service (SaaS) model, which ensures scalability, centralized updates, and ease of deployment. Each university in Kerala receives a dedicated instance of the software, thereby safeguarding institutional autonomy while maintaining strict data segregation. At the same time, the system operates on Yotta Cloud, a MEITY-empanelled Tier IV data center, which guarantees data localization and 99.995 percent uptime. Robust physical and digital security features—including biometric access controls, encrypted storage, and round-the-clock monitoring—reinforce the reliability of this infrastructure.

Data security and ownership remain guiding principles of the platform. All information collected through K-REAP belongs to the implementing universities or colleges alone. While the system is seamlessly integrated with the Academic Bank of Credits (ABC) and the national APAAR ID framework, the use of Aadhaar is strictly optional and, when provided, remains securely masked. Encryption protocols such as SSL/TLS 1.2 for data in transit and AES-256 for data at rest ensure the highest standards of privacy, while every change made in the system is logged with a timestamp, offering an auditable trail that strengthens institutional governance.

K-REAP Kerala Resources for Education Administration and Planning

**Each university in Kerala receives a dedicated instance of the software, thereby safeguarding institutional autonomy while maintaining strict data segregation.
Robust physical and digital security features—including biometric access controls, encrypted storage, and round-the-clock monitoring—reinforce the reliability of this infrastructure.**

Functionally, K-REAP addresses the entire lifecycle of academic and administrative operations. Universities can now manage admissions, course registration, fee collection, examination processes, mark entry, result publication, and transcript generation from within a single integrated platform. The system also supports programme and course management, student lifecycle operations, and institutional administration. By integrating these processes, K-REAP eliminates duplication, enhances efficiency, and fosters transparency in governance.

In terms of adoption, the platform has already made significant headway. Over the past year, Kannur University has been using K-REAP for the Four-Year Undergraduate Programme (FYUGP) across its teaching departments and affiliated colleges. Thunchath Ezhuthachan Malayalam University and Sree Sankaracharya University of Sanskrit have also implemented it for their FYUGP programmes. The University of Calicut has adopted the system for its postgraduate courses, covering both regular and distance education streams, while Maharaja's College, Ernakulam, joined the group of early adopters this year. As of now, more than 30,000 students from five universities in Kerala are benefiting from this digital infrastructure, provided entirely free of cost by the Department of Higher Education.

The reform is not limited to backend governance alone. K-REAP has also rolled out digital tools aimed at enriching the teaching and learning experience. The Student Life Cycle Management System, Programme Life Cycle Management, and the University Management System have already been deployed, while a mobile application for students has improved accessibility and engagement. An administrative dashboard allows real-time monitoring of university activities, giving policymakers and institutional heads a clear picture of progress and performance.

At the heart of K-REAP lies its most powerful feature—the Learning Management System (LMS) for colleges. This state-of-the-art platform brings together teachers, students, and administrators into a common digital space for teaching, learning, and assessment. For teachers, it provides the ability to create, distribute, and teach curriculum-based content while automating non-academic tasks such as attendance records and reporting. It enables innovation in pedagogy, integrates smoothly with online conferencing tools for live classes, and supports comprehensive and continuous evaluation.

For students, the LMS promises a joyful and engaging learning environment. Courses, assignments, and resources are made available through user-friendly dashboards, while performance reports and progress tracking ensure continuous academic support. The system is fully aligned with the Outcome-Based Education model mandated under the FYUGP, helping institutions to deliver education that is both structured and flexible. Administrators, meanwhile, benefit from role-based dashboards and centralized access to institutional data, ensuring that governance is transparent, efficient, and data-driven.

The introduction of this LMS under K-REAP will transform the classrooms into hybrid digital spaces where technology complements human teaching. The fact that this sophisticated platform is being made available at no cost to students and institutions underscores Kerala's commitment to equity and inclusion in education. By bridging the digital divide and providing cutting-edge resources to every corner of the state, K-REAP is ensuring that no college or university is left behind in the digital age.

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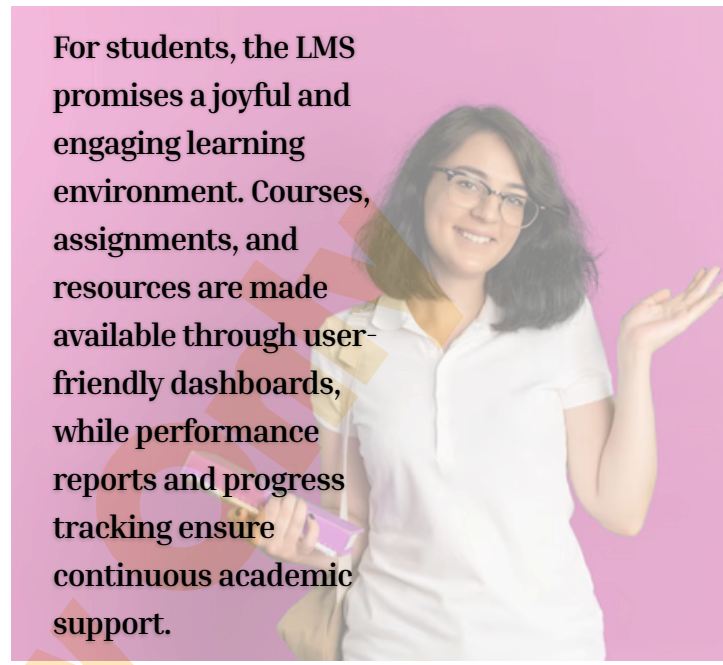

The significance of K-REAP extends beyond Kerala's borders. By integrating university governance, academic administration, and learning processes into one unified platform, the state has set a new benchmark for higher education reforms in India. Its architecture, which blends security, scalability, and compliance with national digital initiatives like ABC and APAAR, makes it a model that other states may seek to replicate.

K-REAP is not merely a software system; it is the digital backbone of Kerala's higher education reforms. It has already redefined how universities function, how students engage with learning, and how administrators govern institutions. As more universities and colleges adopt the platform, its impact will deepen, positioning Kerala as a leader in educational innovation and digital empowerment. In the coming years, K-REAP has the potential to transform higher education in the state into a system that is inclusive, efficient, globally benchmarked, and fully prepared for the challenges of the twenty-first century.

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AISHE 2024-25

Last Date: 30-9-2025

The Kerala State Higher Education Council (KSHEC) serves as the State Nodal Agency for the All-India Survey on Higher Education (AISHE), a nationwide annual web-based initiative conducted by the Ministry of Education, Government of India. The survey plays a vital role in collecting comprehensive data on the status and functioning of higher education institutions throughout the country. In its capacity as the nodal agency, KSHEC is responsible for coordinating, monitoring, and facilitating the participation of all eligible institutions in Kerala.

In the past, KSHEC has achieved a commendable level of institutional participation, reflecting the state's dedication to transparency, accountability, and evidence-based educational planning. It was highlighted that 100% of universities and university-level institutions in the state took part in the survey, ensuring full representation at the university level. Moreover, KSHEC mentioned that 88% of colleges and 82% of stand-alone institutions including teacher training institutes, nursing colleges, and polytechnics that had successfully submitted their data.

The Council attributed this high participation rate in the previous years due to its effective engagement strategies and ongoing efforts to raise awareness among institutions about the importance of AISHE. The data collected through the survey contributes significantly to national education policy formulation, strategic decision-making, resource allocation, and the overall enhancement of higher education governance in the state.

Data Submission Drive for Higher Education Institutions in Kerala

All Higher Education Institutions (HEIs) in Kerala are hereby requested to proactively participate in the All India Survey on Higher Education (AISHE) for the academic years 2024-25 and 2025-26. The Ministry of Education, Government of India, is conducting this web-based annual survey to comprehensively capture the status of higher education across the country.

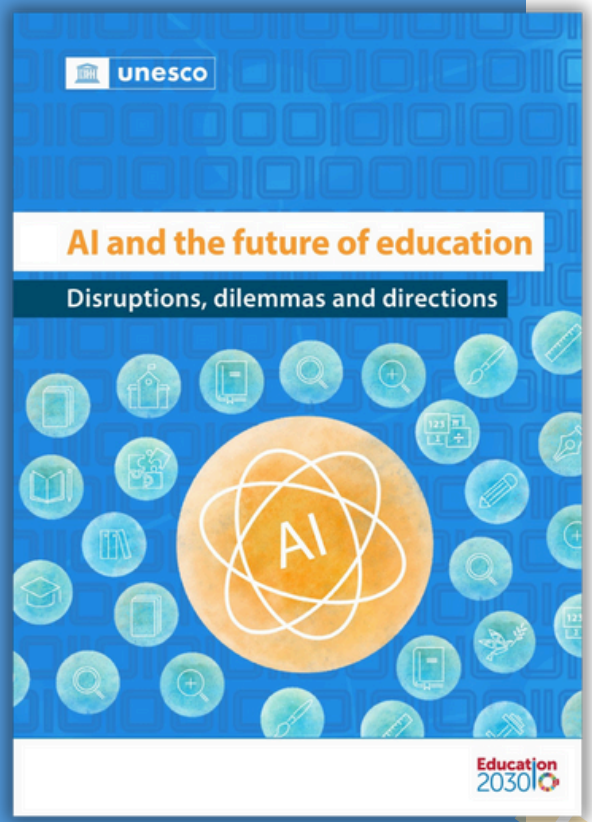
The last date for submission is 30th September 2025, and timely participation is essential for maintaining accurate and updated national education statistics that inform policy and planning.

In Kerala, the Kerala State Higher Education Council (KSHEC) has been designated as the State Nodal Agency to coordinate and facilitate the AISHE data collection process. A dedicated team at KSHEC is fully committed to supporting all institutions and will provide guidance, clarification, and technical assistance as needed throughout the process.

All institutions are urged to begin the registration and data entry process without delay to ensure completion well within the deadline.

For any queries or assistance, please contact the KSHEC AISHE support team. Let us work together towards strengthening the higher education ecosystem in Kerala and India.

https://aishe.gov.in



AI and the future of education: Disruptions, dilemmas and directions

unesco publication

AI and the Future of Education: Disruptions, Dilemmas and Directions is a landmark 2025 publication by UNESCO (United Nations Educational, Scientific and Cultural Organization), serving as a global thought leadership document on the implications of artificial intelligence in education. Bringing together 21 think pieces from leading international scholars, practitioners, and policy experts, the volume explores the philosophical, pedagogical, ethical, and governance challenges posed by AI. Published under the framework of the Education 2030 Agenda, it aims to foster inclusive, equitable, and human-centred approaches to AI in education through global dialogue and collective sense-making.

UNESCO's AI and the Future of Education is a timely, profound, and multi-perspectival contribution to one of the most pressing global debates: how artificial intelligence is transforming the future of education. Unlike policy-heavy, technocentric documents, this report embraces ambiguity, contradiction, and imagination. It provides a polyphonic collection of 21 think pieces by philosophers, educators, AI experts, and policy researchers across the world. Together, they challenge dominant techno-optimistic narratives and propose pathways rooted in equity, care, and ethical reflexivity.

The volume successfully avoids techno-determinism, inviting the reader instead to reimagine educational futures in ways that centre human agency, relational pedagogies, and ecological sensibility. The writing is both critical and hopeful, academic yet poetic. It is a must-read for education leaders, policymakers, technologists, and educators, offering a rare space to reflect, unlearn, and collectively rethink what kind of AI-integrated education futures we want and for whom.

The chapters collectively examine AI's transformative impact on education, addressing opportunities, risks, ethics, and equity. They present global perspectives, challenge dominant narratives, and propose inclusive, human-centered strategies for shaping sustainable educational futures

Chapter 1: Introduction – Reclaiming Education's Public Purpose

This chapter sets the tone for the entire book, framing AI not as an inevitable tool of progress, but as a contested actor shaping and being shaped by education systems already marked by inequality. UNESCO emphasizes education as a public good rooted in dignity, solidarity, and justice. It warns against technocratic solutions and calls for dialogue across diverse geographies, epistemologies, and experiences.

Chapter 2: AI Futures in Education – Philosophical Provocations

The opening essays offer deeply philosophical insights, beginning with Báyò Akómoláfé's call to "listen to the cracks" those spaces where traditional educational paradigms fracture under AI's influence. Bing Song proposes a relational and harmonious worldview, while Mary Rice and Joaquín Argüello de Jesús use water as a metaphor for AI's complex entanglements with learning. These pieces question the very foundations of what it means to learn and be human in the age of intelligent machines.

Chapter 3: Debating the Powers and Perils of AI

This section presents contrasting views on AI's role in education. Andreas Horn promotes pragmatic integration with guardrails and teacher training, whereas Emily Bender warns of corporate colonization of education through overhyped AI narratives. Markus Deimann and Robert Farrow advocate reclaiming educational values like justice, sustainability, and inclusion amid the noise of AGI futurism.

Chapter 4: AI Pedagogies, Assessment and Emerging Educational Futures

Here, contributors like Abeba Birhane argue that education is an ethical and relational process, not reducible to algorithms. Carla Aerts and Paul Prinsloo warn against hyper-personalization, while Mike Perkins and Jasper Roe critique traditional assessments in the GenAI era. In contrast, Bill Cope and colleagues imagine AI-enhanced, formative assessment grounded in teacher design and student feedback. This section calls for a complete rethink of pedagogy and assessment models.

Chapter 5: Revaluing and Recentring Human Teachers

With AI stepping into roles once reserved for humans, this chapter defends the irreplaceable value of teachers. Ching Sing Chai et al. offer a multidimensional analysis of the teacher's role, while Arafeh Karimi proposes "Compassion by Design", a framework where AI systems are co-designed with educators to embed care, ethics, and equity at every level. The emphasis is on pedagogical dignity and human flourishing.

Chapter 6: Ethical and Governance Imperatives

Ethical AI cannot be retrofitted; it must be embedded from the start. Kaśka Porayska-Pomsta and Isak Nti Asare push for participatory design grounded in real-world classroom realities. Kalervo Gulson and Sam Sellar raise deeper concerns about "synthetic governance", warning that data-driven automation can erode democratic participation. Together, these essays stress that governance must prioritize inclusion, transparency, and human rights.

Chapter 7. Confronting Coded Inequalities

Case studies highlight AI's risks of reinforcing gender, linguistic, and disability-based exclusions. Authors propose participatory, context-driven approaches in Africa, young women's education, and deaf/hard-of-hearing learners' inclusion

Chapter 8: Reimagining AI in Education Policy

George Siemens draws attention to the geopolitics of AI, likening AI investment to military and economic power. Ilkka Tuomi critiques evidence-based policy dogma, proposing instead collective sense-making and policy-as-learning. Both authors emphasize that AI in education policy must be deliberate, evidence-informed, and globally just, rather than reactionary or industry-driven.

Chapter 9: Conclusion – Open-ended Futures

The report closes by reaffirming that AI in education is not a story of inevitable outcomes, but of choices, values, and imagination. It reminds us that inclusive, ethical, and sustainable education futures are still being written and that educators, learners, and communities must co-author these futures with courage, care, and clarity.

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