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Educating Future Veterinarians for Viksit Bharat 2047: A Roadmap to Excellence, Innovation, and National Development

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Abstract:

India's vision of Viksit Bharat 2047 envisages becoming a developed nation by the centenary of independence through innovation, sustainability, technological advancement, and inclusive growth. Veterinary professionals will play a pivotal role in achieving this vision by ensuring livestock health and productivity, food safety, public health, environmental sustainability, and economic prosperity. However, rapidly evolving global challenges—including emerging infectious diseases, antimicrobial resistance, climate change, digital transformation, and changing expectations of livestock farmers—demand a new generation of veterinarians equipped with multidisciplinary knowledge and future-ready competencies. Traditional veterinary education must therefore evolve into an innovative, competency-based, learner-centric system aligned with the National Education Policy (NEP) 2020. This article highlights the need for transforming veterinary education through experiential learning, digital technologies, artificial intelligence, One Health integration, entrepreneurship, industry-academia collaboration, research excellence, and professional ethics. It proposes a practical roadmap for veterinary institutions to produce competent, compassionate, innovative, and globally competitive veterinarians capable of contributing to national development. Investing in veterinary education today will strengthen livestock production, safeguard public health, enhance food security, promote rural livelihoods, and accelerate India's journey towards Viksit Bharat 2047.

Keywords: Veterinary education, Viksit Bharat 2047, National Education Policy 2020, One Health, Competency-Based Education, Artificial Intelligence, Employability.

Introduction:

India possesses the world's largest livestock population and one of the fastest-growing dairy, poultry, aquaculture, and animal-based industries. Livestock contributes substantially to agricultural

Gross Value Added (GVA), supports millions of rural households, and plays a crucial role in food and nutritional security. Veterinarians are indispensable for improving animal health, increasing productivity, preventing zoonotic diseases, ensuring food safety, and supporting sustainable agriculture.

The expectations from veterinarians today extend far beyond treating sick animals. Modern veterinarians are expected to function as clinicians, researchers, educators, entrepreneurs, policy advisors, public health professionals, environmental stewards, and leaders in the One Health movement. Consequently, veterinary education must prepare graduates for these multifaceted responsibilities while nurturing innovation, ethical practice, adaptability, and lifelong learning.

Why Veterinary Education Needs Transformation:

Veterinary education in India has produced generations of competent professionals. Nevertheless, significant transformations in science, technology, and society necessitate continuous reforms. Emerging diseases such as avian influenza, lumpy skin disease, African swine fever, and antimicrobial resistance have demonstrated the need for stronger epidemiological, diagnostic, and public health competencies. Climate change is altering disease patterns, affecting livestock productivity, and increasing heat stress. Simultaneously, rapid advances in genomics, precision livestock farming, digital diagnostics, wearable sensors, artificial intelligence (AI), and telemedicine are reshaping veterinary practice. Graduates must therefore be equipped not only with sound scientific knowledge but also with digital literacy, critical thinking, communication skills, and entrepreneurial capabilities.

National Education Policy 2020: A Transformational Opportunity

The National Education Policy (NEP) 2020 provides a comprehensive framework for transforming higher education by promoting multidisciplinary learning, flexibility, competency-based curricula, innovation, research, digital education, and internationalization.

For veterinary education, NEP 2020 encourages:

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|--|-------------------------|
| * Student-centered teaching | * Industry partnerships |
| * Outcome-based learning | * Skill development |
| * Experiential and problem-based education | * Global collaborations |
| * Digital learning platforms | * Lifelong learning |
| * Research and innovation | |

The policy aligns well with the professional requirements of modern veterinary graduates and offers institutions an unprecedented opportunity to redesign curricula and teaching methodologies.

Competency-Based Veterinary Education:

Competency-Based Veterinary Education (CBVE) focuses on developing demonstrable professional competencies rather than merely completing prescribed courses. Students are trained to perform clinical procedures confidently, communicate effectively, solve problems independently and make ethical

decisions.

Competency development should encompass:

- * Clinical and surgical skills
- * Diagnostic reasoning
- * Preventive healthcare
- * Livestock production management
- * Communication and extension
- * Professional ethics
- * Leadership and teamwork
- * Evidence-based decision-making
- * Digital competencies

Simulation laboratories, clinical skill centres, Objective Structured Clinical Examinations (OSCEs), case-based discussions, and field immersion programmes should become integral components of veterinary education.

Digital Technologies and Artificial Intelligence:

Artificial Intelligence is revolutionizing veterinary science. AI-assisted imaging, automated disease surveillance, predictive analytics, wearable animal sensors, precision livestock farming, and decision-support systems are becoming increasingly common.

Veterinary colleges should integrate:

- * AI-assisted diagnostics
- * Virtual anatomy laboratories
- * 3D simulations
- * Virtual reality surgical training
- * Telemedicine
- * Learning Management Systems
- * Digital pathology
- * Electronic health records
- * Data analytics

Rather than replacing veterinarians, AI enhances clinical efficiency and supports evidence-based decision-making. Graduates must therefore understand both the opportunities and ethical considerations associated with AI applications.

One Health: The Future of Veterinary Practice

Nearly three-fourths of emerging infectious diseases originate from animals. Veterinarians therefore play an indispensable role in protecting human, animal, and environmental health.

One Health education should include:

- * Zoonotic disease surveillance
- * Food safety
- * Wildlife health
- * Environmental health
- * Ecosystem conservation
- * Antimicrobial stewardship
- * Disaster preparedness
- * Climate resilience

Interdisciplinary teaching involving medical, agricultural, environmental, and public health institutions will strengthen collaborative competencies among future professionals.

Entrepreneurship and Employability:

Today's graduates increasingly seek opportunities beyond government employment. Veterinary education should therefore promote entrepreneurial thinking and innovation.

Potential career avenues include:

- * Dairy consultancy
- * Poultry production
- * Pet practice
- * Precision livestock farming
- * Animal nutrition
- * Biotechnology
- * Vaccine production
- * Artificial insemination services
- * Digital veterinary services
- * Agri-tech startups
- * Livestock insurance
- * Animal welfare organizations

Structured incubation centres, innovation laboratories, entrepreneurship courses, industry internships, and placement cells can significantly enhance graduate employability and self-employment opportunities.

Industry-Academia Collaboration:

Strong partnerships between veterinary institutions and industry ensure that graduates acquire practical skills aligned with market needs.

Collaborative initiatives may include:

- * Student internships
- * Joint research projects
- * Faculty exchange programmes
- * Industry-supported laboratories
- * Skill certification programmes
- * Continuing veterinary education
- * Technology transfer
- * Collaborative innovation challenges

Such collaborations bridge the gap between classroom learning and professional practice while fostering innovation and commercialization.

Research, Leadership, and Professional Ethics:

Future veterinarians must become lifelong learners capable of generating new knowledge and leading multidisciplinary teams.

Veterinary institutions should nurture:

- * Undergraduate research
- * Scientific writing
- * Innovation competitions
- * Patent development
- * Leadership training
- * Communication skills
- * Ethical decision-making
- * Community engagement

Research culture not only improves scientific productivity but also develops analytical thinking and problem-solving abilities essential for modern professionals.

A Roadmap for Veterinary Institutions:

A future-ready veterinary education system should focus on the following strategic priorities:

1. Modernize curricula in accordance with NEP 2020 and competency-based education.
2. Strengthen experiential, clinical, and field-based learning.
3. Integrate AI, digital technologies, and simulation-based education.
4. Promote One Health and interdisciplinary collaboration.
5. Establish innovation and entrepreneurship centres.
6. Expand industry partnerships and internship opportunities.
7. Encourage undergraduate research and scientific communication.
8. Invest in faculty development and digital pedagogy.
9. Improve international collaborations and student mobility.
10. Develop robust quality assurance and continuous curriculum evaluation mechanisms.

Together, these initiatives will produce competent, confident, compassionate, and globally competitive veterinary professionals.

Conclusion:

Veterinary education stands at a defining moment in India's developmental journey. The nation's aspiration to become Viksit Bharat 2047 depends significantly on a healthy livestock sector, safe food systems, resilient rural livelihoods, and effective One Health preparedness. Achieving these goals requires veterinarians who are scientifically competent, technologically proficient, ethically grounded, innovative, and socially responsible.

Transforming veterinary education through competency-based learning, digital innovation, entrepreneurship, research excellence, industry collaboration, and interdisciplinary education is no longer optional—it is imperative. By embracing the principles of the National Education Policy 2020 and fostering a culture of continuous innovation, veterinary institutions can nurture future-ready professionals capable of addressing national and global challenges. Investing in veterinary education today is an investment in India's food security, public health, economic growth, environmental sustainability, and national development. The veterinarians graduating today will not only heal animals but also contribute meaningfully to building a healthier, more prosperous, and developed India by 2047.

Selected References (APA 7th Edition):

- Food and Agriculture Organization. (2023). The State of Food and Agriculture. <https://www.fao.org>
- Government of India. (2020). National Education Policy 2020. Ministry of Education.
- ICAR. (2021). Vision 2050. Indian Council of Agricultural Research.
- Ministry of Fisheries, Animal Husbandry and Dairying. (2025). Basic Animal Husbandry Statistics 2025.

OECD. (2023). Education at a Glance 2023. OECD Publishing.

University Grants Commission. (2023). Guidelines for Multiple Entry and Exit in Academic Programmes.

UNESCO. (2023). Global Education Monitoring Report. UNESCO.

Veterinary Council of India. (2016). Minimum Standards of Veterinary Education Regulations.

World Organisation for Animal Health (WOAH). (2024). Competency Guidelines for Veterinary Education.

One Health High-Level Expert Panel. (2022). One Health definition and guiding principles. The Lancet, 399, 1978-1979.