Smart Education Strategies for Teaching and Learning

A Framework

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- Smart education collaborative project
- The Approach
- Case Studies
- Framework for Smart Education
Collaboration

A multi-stakeholder project
Objectives of the Project #2

- provide a platform for global conversations and debate about responsible, equitable, socially just, humanistic, safe and ethical smart education policies and strategies;
- bring up the most salient smart education themes for public policy and national strategy consideration;
- situate the policy themes as responsive to problem contexts within their respective national, regional and global settings;
- highlight the tensions and contradictions within each of the themes that policy development will need to navigate; and
- consider policy implementation mechanisms to support the practice and enactment of policy as well as the feedback loops provided by ongoing evidence-based research, monitoring and evaluation.
The Approach

- Review of literature
- Analysis of policies and strategies
- 10 Country case studies: China, Egypt, India, Mauritius, Russia, Singapore, South Africa, South Korea, United Kingdom, and United States of America.

Figure 1: PRISMA protocol applied to systematic review
Conceptual Framework

- Socio-cultural contexts
- Critical policy analysis
  - Policy design
  - Policy implementation
  - Continuous learning system
What is Smart Education?

- enjoyable, leading to the retention and transfer of knowledge to long-term memory;
- engaging, with innovative application of technologies;
- efficient, in terms of just-in-time learning and availability for right resources;
- effective, in leading to the earning livelihoods and development of responsible citizenship; and
- ethical, to address issues of privacy, cybersecurity and equity.

(Kanwar, 2021)
Smart Education Policy Framework

VISION
Leadership in a 4IR-driven, AI-driven, globally competitive world based on a socially-included, humane ethical society by 2030 as per the UN-SDGs

PRINCIPLES & VALUES
Equitable, inclusive, gender-responsive, non-discriminatory, humane, ethical, auditable

POLICY THEMES
- INFRASTRUCTURE
  - Digital, 4IR & AI infrastructure to enable smart education systems, technology framework for smart learning
- CURRICULUM & PEDAGOGY
  - Transforming curriculum, Datification of pedagogy & assessment, STEM Education & Smart education subjects & courseware
- DIGITAL EDUCATION RESOURCES & PLATFORMS
  - OER & Open Education Practices, 4IR & AI-enabled Platforms and courseware
- SKILLS & COMPETENCES
  - AI & 4IR-capable workforce, AI competencies for all, AI talent management, Microcredentials
- GOVERNANCE
  - AI ethics, Data Privacy, Protection & Security, Responsible AI and Digital Citizenship
- MANAGEMENT & ADMINISTRATION
  - Education Management & Information Systems, Data, driving education institutions
- RESEARCH, INNOVATIONS & EVALUATION
  - Monitoring & Evaluation, AI Research and Research Institutes

IMPLEMENTATION MECHANISMS
- PARTNERSHIPS, FINANCE & RESOURCE MOBILISATION
  - Finance & Funding, Resource Mobilisation, Partnerships
- LEADERSHIP, SYSTEM CAPACITY & CHANGE MANAGEMENT
  - Institutional arrangements & System Capacity for Policy Implementation

POLICY TRANSITIONS, TENSIONS & TRAJECTORIES

Figure 2: A critical analytical framework for smart education policy
Five Levels of Smart Education policy implementation

1. Global smart education and AI in education frameworks
2. Geopolitical/Regional level
3. National transversal level
4. Dedicated smart education policies/strategies
5. Ministerial level taskforce
How are policies situated?

• Human capital development
• Learning loss
• Systemic inequalities
• COVID-19 challenges
• Emerging technological trends
• EdTech global market
• Cyber security and ethical challenges
Policy Theme 1: Infrastructure

- Sustainable energy/power solutions for education institutions;
- Low-cost affordable, safe, ubiquitous and meaningful connectivity;
- Home internet access for staff and students;
- Sustainable access to and use of appropriate connected devices where specifications for learning, teaching, administration, equity and inclusion are considered;
- Access to zero-rated platform ecosystems;
- Smart classrooms and campuses that use technologies;
- Technical support, upgrades and maintenance;
- Carbon emission management of technology adoption for learning and teaching;
- Managing responsible disposal of e-waste from educational technology investments; and
- Promoting responsible, safe use of digital infrastructure to support learning.
Policy Theme 2: Curriculum and pedagogy

• Shift towards competency-based curricula
• Shift due to the impact of COVID-19
• Datafication of teaching and learning practices
• Lifelong learning implications
• Impact of Artificial Intelligence
Policy Theme 3: Digital Education Resources

- Open educational resources and practices
- Learning management systems and digital platforms for education
Policy Theme 4: Skills and competencies

• 4th Industrial Revolution
• Digital Education Skills
• Teachers’ capacities
• Preparing students for the future
• Focus on STEM, especially for girls
• Recognition of microcredentials
Policy Theme 5: Governance

- Cybersecurity
- Personal data protection
- Funding models
- Blockchain
Policy Theme 6: Administration and management

- Big data and EMIS
- Quality assurance
- Planning and implementation
- Digitization
Advice for Smart Education

Template for policy development

Monitoring and evaluation questions
Thank You