Innovation and research on Educational Competency Development to Achieve the global Goals

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1. The Global Goals for People and Planet:

Agenda2030 the Sustainable Development Goals

In September 2015, all 193 member states of the United Nations adopted a plan for achieving a better future for all – laying out a path over the next 15 years to end extreme poverty, fight inequality and injustice, and protect our planet.

At the heart of “Agenda 2030” are the Sustainable Development Goals (SDGs) which clearly define the world we want – applying to all nations and leaving no one behind.

The new global goals result from a process that has been more inclusive than ever, with governments involving business, civil society and citizens from outsets.

We are all in agreement on where the world needs to go. Successful implementation will require all players to champion this agenda.

The 17 sustainable Development Goals (SDGs) and 169 related targets address the most important economic, social, environmental and governance challenges of our time.

Goal1. No Poverty : End poverty in all its forms everywhere.

Goal2. Zero Hunger: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Goal3. Good Health and Well-being: Ensure healthy lives and promote well-being for all at all ages.

Goal4. Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Goal5. Gender Equality: Achieve gender equality and empower all women and girls.

Goal6. Clean Water and Sanitations: Ensure availability and sustainable management of water and sanitation for all.

Goal7. Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all.

Goal8. Decent Work and Economic Growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Goal9. Industry, Innovation, and Infrastructure: Build resilient infrastructure promote inclusive and sustainable industrialization and foster innovation.

Goal10. Reduced Inequalities: Reduced Inequalities within and among countries.

Goal11. Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient and sustainable.

Goal12. Responsible Consumption and Production: Ensure sustainable consumption and production patterns.

Goal13. Climate Action: Take urgent action to combat climate change and its impacts.

Goal14. Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Goal15. Life and Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Goal16 Peace and Justice Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institution at all levels.

Goal17 Partnerships for the Goals: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

2. Key Success Factors

With the UN launching a ground-breaking set of global Sustainable Development Goals (SDGs) in 2015, business has a newly relevant framework to guide their strategic priorities and efforts towards society- representing a huge opportunity to drive sustainable business.

Business, investors and civil society are increasingly considered to be a positive force for sustainable development and are expected to play an important role in implementing the SDGs.

The 2030 Agenda for Sustainable Development recognizes that “education” is essential for the success of all sustainable development goals (SDGs).

3. Education for SDGs

We need paradigm-shift from

Education 1.0 (Transmission of knowledge),

Education 2.0 (E-learning), and

Education 3.0 (Knowledge producing)

to Education 4.0 [Innovation Producing and Creating Innovators]

Being innovative is about looking beyond what we currently do well, identifying the great ideas of tomorrow and putting them into practice.

Future education must be able to create innovators.

Tony wagner in his book “The Global Achievment Gap” described seven skills all students now need for careers, continuous learning and citizenship in the future world

1. Critical thinking and problem solving
2. Curiosity and imagination
3. Agility and adaptability
4. Collaboration across networks and leading by influence
5. Initiative and entrepreneurship
6. Accessing and analying information
7. Effective oral and written communication

According to wagner (2012)

There are two different kinds of innovation

1. incremental innovation is about significantly improving existing products, processes or services

2. disruptive or transformative Innovation is about creating a new or fundamentally different product or service that discrupt or change existing markets and displaces formerly dominant technologies.

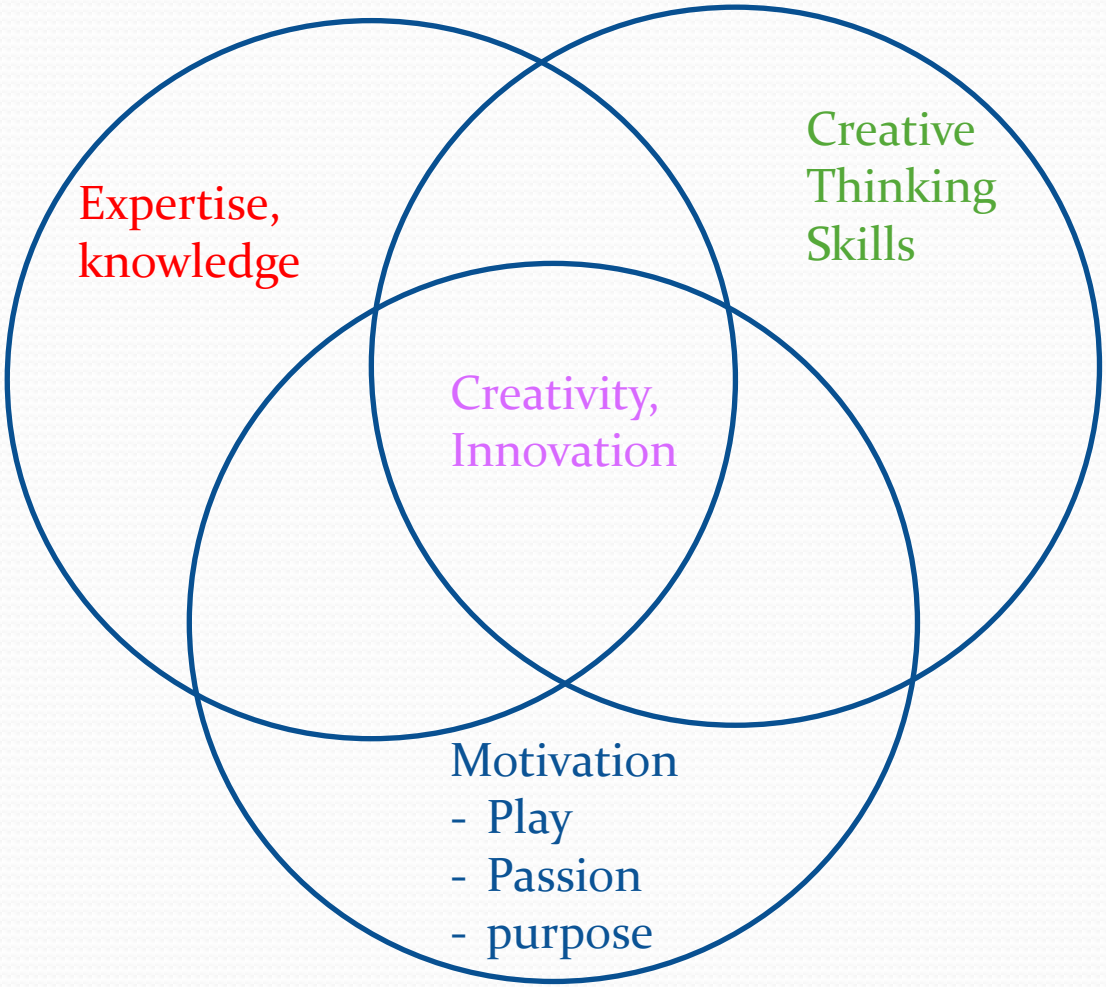
How to develop Innovators

According to Amabile(1998).

1. You must have knowledge
2. To produce innovations, knowledge is necessary but not sufficient you also need “creative thinking skills”
   - ➡ ask the right questions,
   - ➡ make connections,
   - ➡ observe, empathize,
   - ➡ collaborate, and experiment.

3. Finally, you need "motivation"

play, passion, and purpose



The most innovative countries

According to Bloomberg's 2015 ranking of the World's 50 most innovative countries Thailand was ranked 46, the first 15 countries were

1. South Korea
2. Japan
3. Germany
4. Finland
5. Israel
6. US
7. Sweden

8. Singapore

9. France

10. UK

11. Denmark

12. Canada

13. Australia

14. Russia

15. Norway

The Bloomberg Innovation Index (BII)

1. **R&D : R&D expenditure as a percentage of GDP**
2. **Manufacturing : Manufacturing value-added per capita**
3. **High-tech companies : Number of domestically domiciled high-tech public companies-such as aerospace and defense, biotechnology, hardware, software, semiconductors, internet software and services, and renewable energy companies-as a share of word's total high-tech public companies**

4. **postsecondary education : Number of secondary graduates enrolled in postsecondary institutions as a percentage of cohort; percentage of labor force with tertiary degrees; annual science and engineering graduates as a percentage of the labor force and as a percentage of total tertiary graduates.**

5. Research personnel : professionals including Ph.D. students engaged in R&D per 1 million population
6. Patents : Resident utility patent filings per 1 million population and per 1 million dollar of R&D spent; utility patents granted as a percentage of world total

4. Innovations for SDGs

(1) Green Innovations

(Environmentally friendly)

(2) Frugal Innovation

(Low cost)

(3) STEM Innovations

(4) Social Innovations

(5) Disruptive Innovations

5. How Disruptive Innovation Changes Education

Prof. Clayton M. Christensen who developed the theory of disruptive innovation, joins colleagues Michael B. Hohn and Curtis W. Johnson to advocate for ways in which ideas around innovation can spur much-needed improvements in public education.

A disruptive innovation usually is simpler and less expensive, does not sustain the current model, and benefits those who are not using the current model. In the beginning the disruptive innovation is not as good as the existing service or product. Over time though, the disruptive innovation improves and can overtake the old way of doing things. One example of disruptive innovation in education is online learning. Already in higher education online learning is beginning to disrupt the old way of doing things.

6. Research for Innovations

We need paradigm-shift from

Mode 1 Research (search for the truth) and

Mode 2 Research (search for application/how to solve the problem)

to Mode 3 Research: Search for Frugal Innovation

(how to solve the problem better) by using a market-focused, agile R&D model instead of a costly and rigid R&D model.

You can never solve a problem with the same kind of thinking that created the problem in the first place.

Albert Einstein

Mode 1 : Traditional Research

(1) Academic

(2) Investigator-initiated

(3) Discipline-based

(4) Search for the truth or new body of knowledge

What was, what is, what will be?

2.2 Mode 2 : New Production of Knowledge

(1) Context-driven/Context of application

(2) Problem –focused

3) Interdisciplinary

4) Search for the application of knowledge

What should be?

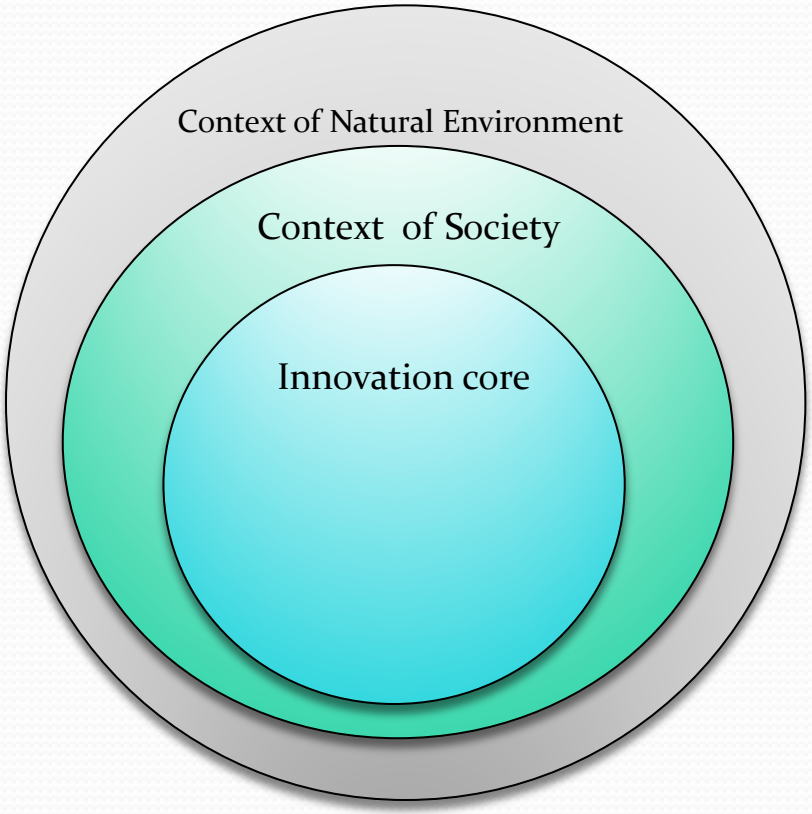
How to solve the problem?

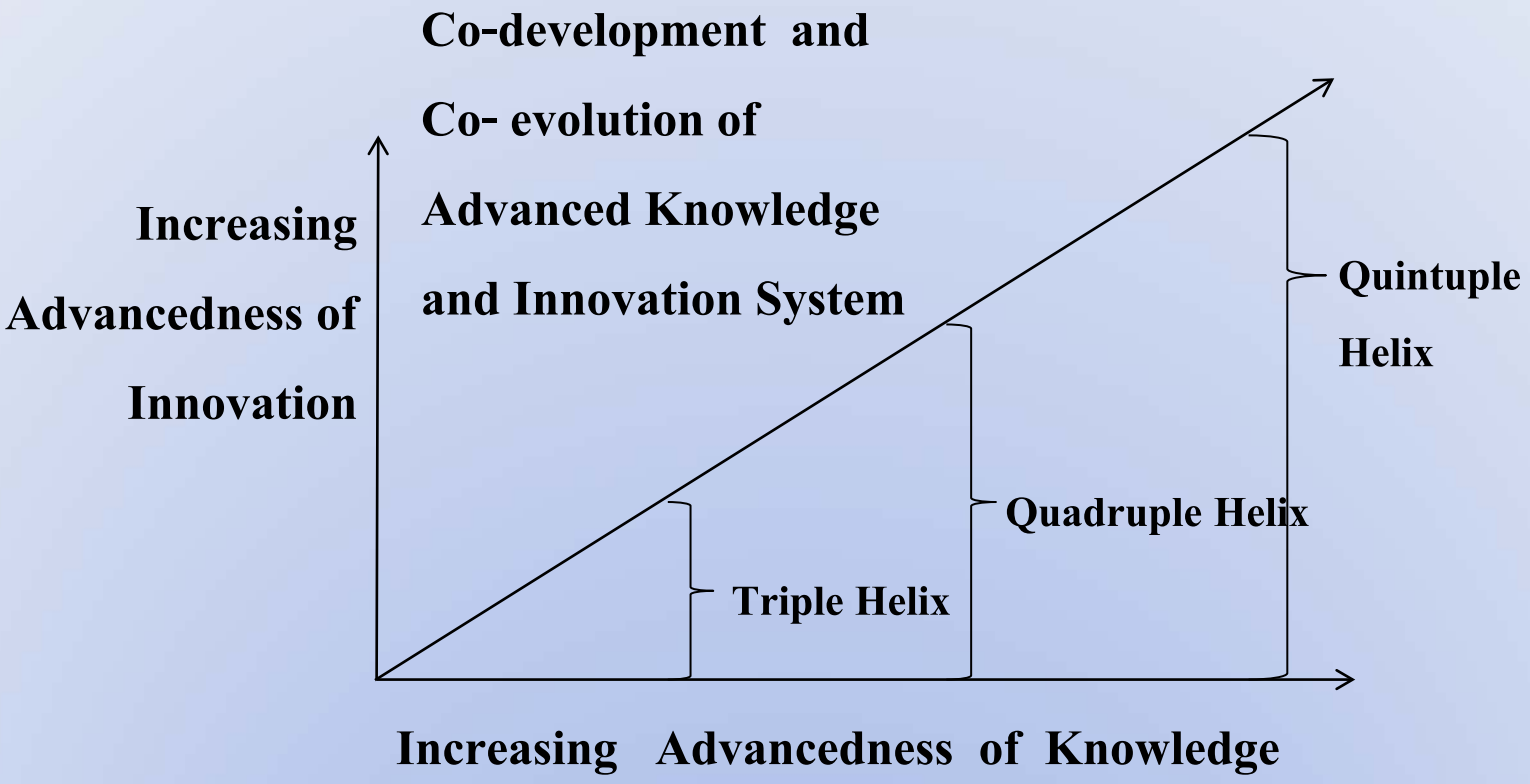
It involved multidisciplinary teams that work together for short periods of time on specific problem in the real world.

2.3 Mode 3 : Knowledge production in Quadruple Helix Innovation Systems

: Search for innovation

How to solve the problem better?





Triple Helix : University-industry-government relations (helix)

Quadruple Helix : Media-based, culture –based ,public and civil society (Fourth Helix)

Quintuple Helix : Natural environment , natural environments of society. (Fifth Helix)

THANK YOU

Q & A