Designing Horizontal Integration Teaching

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ความเชี่ยวชาญ:
PCK, TPACK, การพัฒนาวิชาชีพครู, การวิจัยเชิงคุณภาพ, การ
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Definition of Integration

- **Integration** views learning and teaching in a holistic way and reflects the real world, which is interactive.
- Disconnection breeds apathy while **integration** thrived on connections.
- An **integrated curriculum** helps raising students who will be able to apply their knowledge to their work and to their personal development.

Source: Atwa & Gouda. (2014). Curriculum integration in medical education: A theoretical review. *Intellectual Property Rights: Open Access.* 2(2), 1-7 doi:10.4172/2375-4519.1000113.

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Definition of Curriculum Integration

- **Curriculum integration** can generally be defined as a curriculum approach that purposefully draws together knowledge, skills, attitudes and values from within or across subject areas to develop a more powerful understanding of key ideas.
- **Curriculum integration** occurs when components of the curriculum are connected and related in meaningful ways by both the students and teachers

Source: Alberta Education Guide (2007) Primary Programs Framework-Curriculum Integration: Making Connections. Alberta Education, Alberta, Canada.

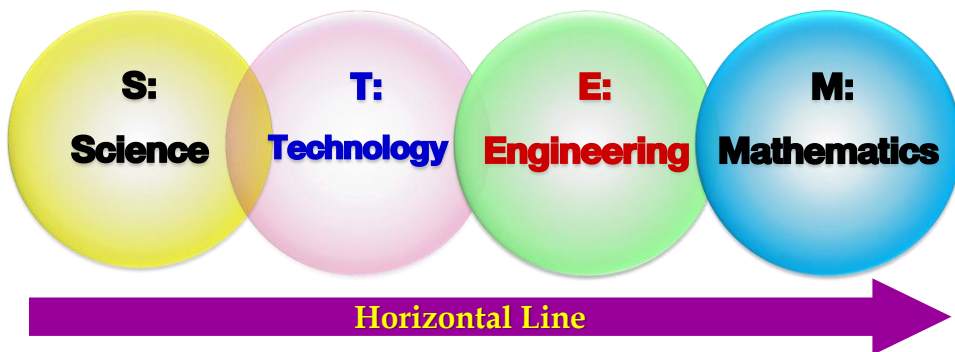®*Assoc. Prof. Dr. Khajornsak Buaraphan: Institute for Innovative Learning*

Horizontal Integration

- **Horizontal Integration (HI)** brings together the disciplines, topics, and subject.

- **HI** refers to the provision of learning within the structure where individual subject areas contribute to the development and delivery of learning a meaningful, holistic manner.

- An integrated Link of **HI** is made between different subject areas and that learning is enriched by the connections and interrelationships being made explicit.

Source: Alberta Education Guide (2007) Primary Programs Framework-Curriculum Integration: Making Connections. Alberta Education, Alberta, Canada.

Example: STEM Horizontal Integration

S:
Science

T:
Technology

E:
Engineering

M:
Mathematics

Horizontal Line

Targeted Content: Frictional force

Targeted Learners: Grade 5

Vertical Integration

- **Vertical Integration (VI)** is an integration between disciplines traditionally taught in different phases of the curriculum.

- For example, **VI** can occur throughout the curriculum with the basic medical and clinical sciences beginning together in the early years of the curriculum and continuing until the later years. In this way, the traditional divide between preclinical and clinical studies is broken down.

Source: Alberta Education Guide (2007) Primary Programs Framework-Curriculum Integration: Making Connections. Alberta Education, Alberta, Canada.
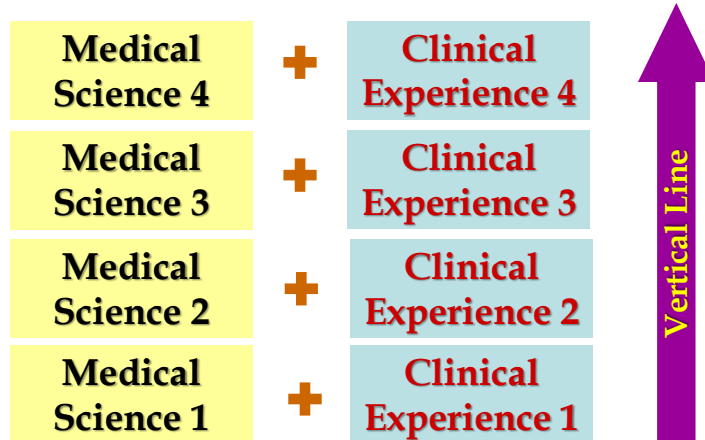
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Example: Non–Vertical Integration

Clinical Experience	Clinical studies
Medical Science 4	
Medical Science 3	
Medical Science 2	Pre-clinical studies
Medical Science 1	
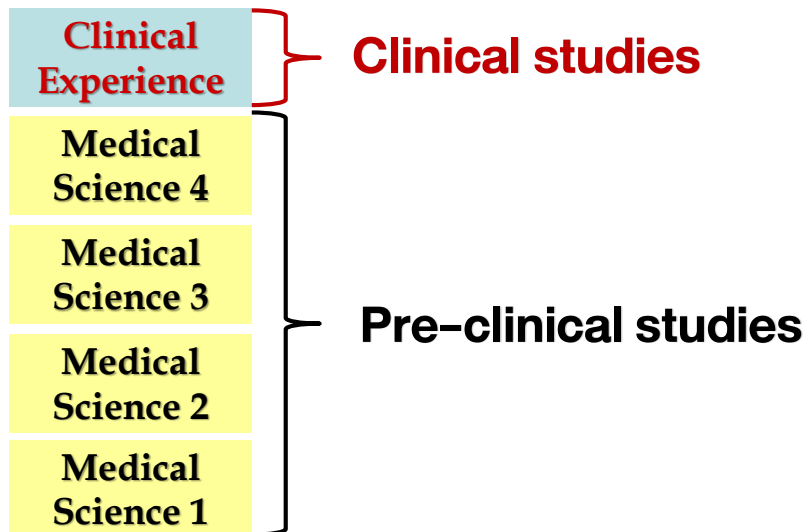
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Example: PBL Vertical Integration

Medical Science 4	**+**	Clinical Experience 4	
Medical Science 3	**+**	Clinical Experience 3	Vertical Line ↑
Medical Science 2	**+**	Clinical Experience 2	
Medical Science 1	**+**	Clinical Experience 1	

Benefits of Integration

Allowing for flexibility:

- Through curriculum integration, teachers can plan for the development of key skills and understandings that transcend individual strands and subjects.

Source: Alberta Education Guide (2007) Primary Programs Framework-Curriculum Integration: Making Connections. Alberta Education, Alberta, Canada.

Benefits of Integration

Building on prior knowledge and experiences:

- Choosing meaningful connections among subject areas helps students build on their diverse prior knowledge and experiences, supports their holistic view of the world and ensures more meaningful learning.

Source: Alberta Education Guide (2007) Primary Programs Framework-Curriculum Integration: Making Connections. Alberta Education, Alberta, Canada.

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Benefits of Integration

Unifying the students' learning:

- Curriculum integration enables students to develop a unified view of the curriculum to broaden the context of their learning beyond single subject areas.

Source: Alberta Education Guide (2007) Primary Programs Framework-Curriculum Integration: Making Connections. Alberta Education, Alberta, Canada.

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Benefits of Integration

Reflecting the real world:

- When curriculum is organized in a holistic way, it better reflects the real world and the way children learn at home and in the community.

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Benefits of Integration

Matching the way students think:

- Brain research supports the theory that younger students take in many things and process and organize them at one time. Teaching ideas holistically, rather than in fragmented pieces, better reflects how young students' brains process information.

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Requirements for Integration

Effective management of change:

- Shifting the curriculum from one state (fragmentation) to another (integration) is a major issue that needs careful management by the curriculum administrators and also needs full understanding and support by everyone in the institution.

Source: Bradley P, Mattick K (2008) Integration of basic and clinical sciences-AMEE, 2008.

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Requirements for Integration

In-depth review the curriculum:

- to be able to plan and implement a successful integration in the curriculum, every component of the curriculum and every curriculum area should be properly mapped and documented.

Source: Bradley P, Mattick K (2008) Integration of basic and clinical sciences-AMEE, 2008.

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Requirements for Integration

Agreed commitment:

- Commitment of faculty, departments, and individuals, and development of teams and structures to support planning and implementation.

Source: Bradley P, Mattick K (2008) Integration of basic and clinical sciences-AMEE, 2008.

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Requirements for Integration

Agreement on the degree and type (horizontal and vertical) of integration:

- Level of integration should be agreed upon by faculty, departments, and individuals based on the feasibility and resources available. Sometimes, partial integration is better adopted as a beginning and increase level gradually by time.
- In newly-established curriculum, a fully integrated curriculum may be planned from the beginning. Also, integration may be started as horizontal in the basic medical sciences as a prototype for further integration (horizontal between clinical sciences and vertical between basic and clinical sciences).

Source: Bradley P, Mattick K (2008) Integration of basic and clinical sciences-AMEE, 2008.

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Methodologies of Integration

Form One: Within a Single Discipline

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

Methodologies of Integration

Fragmented

Description:

Traditional curriculum design which separates topics and courses into distinct disciplines. In this model courses are separated into traditional areas of study. Each area is defined as an independent course of study.

Advantages:

Clear and discrete view of a discipline to the students.

Disadvantages:

Connections are not made clear for students; less transfer of learning.

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

Methodologies of Integration

Connected

Description:

Focuses on the details, subtleties, and interconnections within an individual discipline. It is this focus on making connections (i.e., one topic/ concept to another) which makes this methodology a simple form of integration. It is important to the concept of integration that this methodology directly relates ideas within a discipline.

Advantages:

Key concepts are connected leading to the review, reconceptualization, and assimilations of ideas within a discipline.

Disadvantages:

Disciplines are not related; contents focus remains within the discipline.

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

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Methodologies of Integration

Nested

Description:

Takes advantage of natural combinations. Integration is performed by overtly making connections or creating combinations.

Advantages:

Gives attention to several areas at once, leading to enriched and enhanced learning.

Disadvantages:

Students may be confused and lose sights of the main concepts of the activity or lesson.

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

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Methodologies of Integration

Form Two: Across the Disciplines

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

Methodologies of Integration

Sequenced

Description:

Topics and units are taught independently, but they are arranged and sequenced to provide a framework for related concepts. Teachers arrange topics so that similar units articulate.

Advantages:

Facilitates transfer of learning across content areas.

Disadvantages:

Requires ongoing collaboration and flexibility, as teachers have less autonomy in sequencing curricula.

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

Methodologies of Integration

Shared

Description:

The shared model brings two distinct disciplines together into a single focus. The shared methodology overlaps concepts as the organizer.

Advantages:

Shared instructional experiences; with two teachers on a team it is less difficult to collaborate.

Disadvantages:

requires time, flexibility, commitment and compromise.

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

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Methodologies of Integration

Nested

Description:

TakesWebbed

1. Description: Thematic teaching, using a theme as a base for instructions in many disciplines.

2. Advantages: Motivating for students; helps them see connections between ideas.

3. Disadvantages: Theme must be carefully and thoughtfully selected to be meaningful, with relevant and rigorous content.

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

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Methodologies of Integration

Threaded

Description:

is a metacurricular approach where big ideas are enlarged. This methodology threads thinking skills, social skills, study skills, graphic organizers, technology, and multiple intelligences approach to thinking throughout all disciplines. Using this approach, interdepartmental teams can focus on thinking skills to integrate with content information. The threaded approach takes learning to a synthesis level.

Advantages:

Students learn how they are learning, facilitating future transfer of learning.

Disadvantages:

Disciplines remain separate.

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

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Methodologies of Integration

Integrated

Description:

interdisciplinary topics are arranged around overlapping concepts and emergent patterns. This process blends the disciplines by finding overlapping skills, concepts, and attitudes found across the disciplines. Much like the shared methodology, integration is a result of shifting related ideas out of the subject matter content. An important process of the integrated methodology is that teachers work together on the topics or themes as commonalities emerge.

Advantages:

Encourage students to see interconnectedness and interrelationships among disciplines, students are motivated as they see these connections.

Disadvantages:

Requires interdepartmental teams with common planning and teaching times.

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Methodologies of Integration

Form Three: Within and Across

Learners

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

Methodologies of Integration

Immersed

Description:

focuses all curricular content on interest and expertise. With this methodology, integration takes place within the learners, with little or no outside intervention. This immersed study is often undertaken in a field of intense interest or passion.

Advantages:

Integration takes place within the learner.

Disadvantages:

May narrow the focus of the learner.

Source: Fogarty R (1991) Ten ways to integrate curriculum. Educational Leadership 49: 61-65.

Methodologies of Integration

Networked

Description:

creates multiple dimensions and directions of focus – like brainstorming. It professes that only the learner can direct the integration process. The methodology proposes that the learner knows their topic and can self-direct their focus on the necessary resources both within and across subject areas. Networks are created between the learner and various information systems, subject matter experts, and others who have an interest, experience or knowledge of the topic or theme.

Advantages:

Pro-active, with learner stimulated by new information, skills and concepts.

Disadvantages:

Learner can be spread too thin, efforts become ineffective.

Task 1: Identify Yourself

Outcome

Direction

Task 2: Designing Horizontal Integration Teaching

<u>Outcome</u>

<u>Direction</u>

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Q&A