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Theme 6. Integration of Interdisciplinary Topics and Coherence of Subjects

Webinar 2

17th February 2023

14.00 to 18.00

Jane Doughty and Jane English

Theme 6: Interdisciplinary Topics and Coherence

Purpose of theme 6:

- To review the rationale for ensuring interdisciplinary topics and coherence in the new curriculum
- To consider different approaches to creating interdisciplinary topics
- To learn from experience of other countries
- To look at how the three targets - cultural identity, social integration and sustainable development can be delivered by schools

Learning Outcomes

At the end of this webinar we will have:

- Reviewed relationship between curriculum coherence and student outcomes
- Considered use of curriculum mapping to achieve subject coherence and approaches to interdisciplinary topics
- Examined the concept of interdisciplinary learning by considering the OECD paper and some international examples
- Looked at cognitive skills that can be addressed in interdisciplinary learning

Curriculum Coherence: reflections from webinar 1

We are interesting to hear your reflections regarding webinar 1

What thoughts do you have about curriculum coherence – for example, what it means, what it looks like

What about your reflections on interdisciplinary topics?

A Reminder: Curriculum Coherence

Curriculum Coherence refers to the:

- connectedness
- integration and
- continuity

within the curriculum.

Coherence enables teachers to develop and make connections between ideas both within their own subjects and beyond and makes a difference in how approaches to teaching can be transformed.

Honig & Hatch, 2004; Newmann, Smith, Allensworth, & Bryk, 2001

Impact of Curriculum Coherence on Student Outcomes

Number of studies show:

- Coherent curriculum has a positive impact on student outcomes
- Student outcomes are adversely affected if curriculum is not perceived as coherent

Curriculum Coherence and Student Outcomes

Does curriculum coherence lead to improvements in learner attainment?

Internal curriculum coherence is a common characteristic of countries/regions whose learners score highly in international tests – evidence demonstrates it is a feature of high performing systems.

Schmidt et al compared intended and taught content in maths in 37 countries that took part in TIMSS.

They reviewed curriculum frameworks, examined textbooks' content and drew on TIMSS survey data about what was taught in classrooms.

The study showed that countries where learners gained high test scores had highly coherent curricula.

Cambridge Assessment Research Division, 2021

Curriculum Coherence and Student Outcomes

Newmann, et al studied learners aged 5-11 in Chicago (USA) - drawing on evidence (eg classroom observations; staff interviews) to rate each school on internal/external curriculum coherence.

Ratings analysed along with student reading and mathematics test results over 4 years.

Analysis showed strong positive relationship between the ratings and test results, suggesting strong association between higher learner attainment and internal/external curriculum coherence.

Many curricula had a large number of topics insufficiently linked to one another and content was repeated year on year without added depth. This poor curriculum coherence was a key driver of students' overall underperformance in TIMSS.

Cambridge Assessment Research Division, 2021

Curriculum Coherence: Scottish Experience

Tensions between local curriculum flexibility and the need for coherence to achieve system-wide objectives.

Curriculum for Excellence has:

- principle of local curriculum flexibility gives schools autonomy to design their own curriculum to best respond to students' needs.
- commitment to school empowerment in a system characterised by strong central policy leadership and assertive local governments.
- public concerns about whether variability that inevitably characterises schools' curricula effectively provides excellent education for all or increases educational inequalities.

Raises the issue of level and kind of support schools might need to design curricula of high quality

OECD, 2019

Curriculum Coherence: Finnish Experience

Curriculum coherence consists of three complementary components:

- ***consistency of the intended direction***;
- ***an integrative approach to teaching and learning***; ***and***
- ***alignment between objectives, content and assessments***.

Curriculum coherence contributes to the expected impact of the reform on the school level development.

Curriculum coherence is a central determinant of the reform taking root at the school level

Knowledge sharing by teachers promotes perceiving curriculum as coherent and impacts on school development— it also has a positive direct effect on perceived school impact

Sallamanna, et al, 2019

Breakout

Discuss the challenge of achieving coherence across subjects in Lithuanian schools:

- Identify the challenges schools face
- Suggest ways of tackling these challenges
- What about schools that have achieved coherence?

Identify two key learning points from these experiences.

Be ready to share key points with the main group.

Subject Coherence: Curriculum Mapping

Curriculum mapping is an essential process in achieving coherence across subjects – attendees for theme 4 will be familiar with these processes.

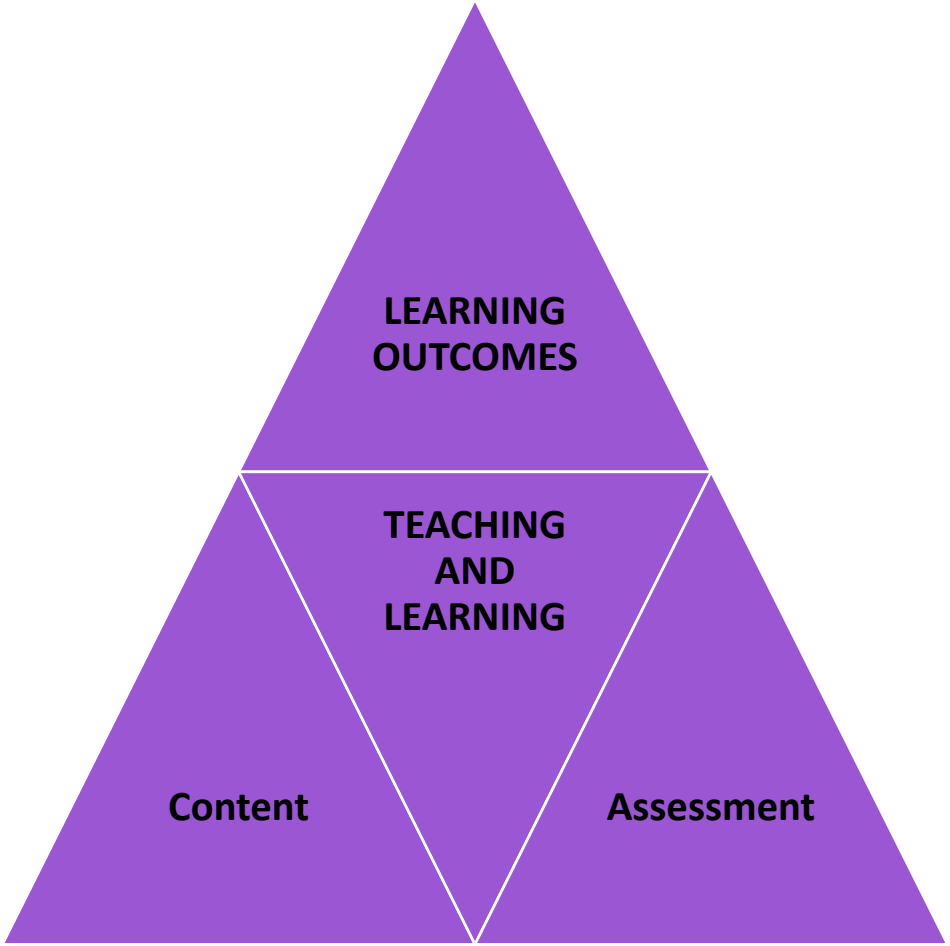
Please watch the video – Lithuanian sub-titles – and be ready to share one key point from the video.

https://www.youtube.com/watch?v=QaZcroSRaYw

Curriculum Mapping

COHERENCE ACROSS SUBJECTS: MAIN STRUCTURAL COMPONENTS

(adapted from Harden, 2001)



A Curriculum Map

An effective curriculum map will:

- ensure quality and equal access to education for all pupils
  have a unified, clear, coherent plan
  have a "map" – which is a guide to achieving the agreed goals
- have a common understanding of the concepts
- allow check for subject coherence
- identify where and how interdisciplinary topics can be addressed

Leading to higher student outcomes

The purpose of curriculum mapping for achieving subject coherence

1. To identify subject content, competencies and potential for delivery of interdisciplinary topics
2. To get a very good picture of what is being delivered in all subjects
   To get a good picture of how it is being delivered (teaching and learning) and assessed
3. To identify the quality of student outcomes

We then use the information we have gathered

4. To identify strength of coherence across subjects and any action that may be needed
5. To identify where and how interdisciplinary topics could be addressed
6. To identify the areas which require improvement to student outc

We use this information to help us
achieve subject coherence and plan interdisciplinary topics

Curriculum Mapping

- Is a very big job – though necessary to achieve coherence
- Time consuming and hard work
- Requires a team of people
- Requires leadership
- Doing a thorough and good job will allow you to strength coherence across subjects and identify how to deliver interdisciplinary topics

Curriculum Mapping

After mapping you have:

1. Well organized and coherent curriculum to facilitate effective learning and delivery of interdisciplinary topics
2. Clarity regarding how the competencies are being addressed
3. Defined objectives and goals
4. No academic gaps or unnecessary repetitions
5. Well-aligned and coherent across subject areas and grade levels

Using Curriculum Map to Achieve Coherence

A high quality curriculum map will allow you to:

- Identify any action needed to strengthen coherence across subjects
- Enable teachers to gain greater understanding of curriculum beyond their own subject areas
- Facilitate collaboration across subjects as teachers' knowledge and confidence increases
- Highlight how / where interdisciplinary topics can be taught

Break

We will now take a 30 minute break

– please return promptly

After the break we will have a discussion on curriculum mapping

Breakout Discussion

In your breakout groups share experiences of curriculum mapping – if you attended theme 4 share the action you have taken since December 2022.

Discuss how curriculum mapping can support the achievement of subject coherence and delivery of interdisciplinary topics.

Identify two key points to share in the main room and decide who will speak on behalf of the group.

Curriculum Mapping

Curriculum mapping supports interdisciplinary learning by:

- Making subject content and teaching processes more transparent
- Identifying where links across subject can be easily made
- Opportunities for interdisciplinary topics to be addressed
- Creating opportunities for teachers to initiate links

Interdisciplinary Learning: a reminder

Interdisciplinary teaching and learning is exactly what it sounds like: students combine learning from multiple disciplines to come up with new ways to think about issues and solve problems.

Compared to traditional approaches, an interdisciplinary approach expands ***what*** students learn by allowing them to tackle problems that don't fit neatly into one subject. It also changes ***how*** students learn by asking them to synthesize

Suderth, 2022

Specialist knowledge v interdisciplinary work

While strongly supporting the intention of Curriculum for Excellence to develop IDL, the SEEAG Report (2012) concluded that:

“Interdisciplinary working requires that all science subjects should continue to be founded on deep and coherent pillars of knowledge and understanding. Interdisciplinary understanding will lack rigour and utility if it is not part of a structure in which the disciplines are pillars with interdisciplinary work as lintels. Without the pillars, the lintels will fall”.

Royal Society of Scotland, 2022

Specialist knowledge and interdisciplinary work

In other words:

The delivery of interdisciplinary learning must provide substantial rigorous disciplinary knowledge and understanding that can be transferred into different contexts.

Teachers should take this into account when planning interdisciplinary work.

Breakout 2

A short paper from OECD was circulated before this webinar – can you please now access this.

Please discuss the paper in your group and identify two key points your group would like to make about the paper.

Can you also identify one “big idea” to share that could be used as an interdisciplinary topic – not already included in Lithuanian’s list

Interdisciplinary Learning: added value

The Science and Research Institute at Carleton College (SERC) identified four major cognitive skills that interdisciplinary learning teaches students, including the ability to:

- Recognizing biases
- Thinking critically
- Embracing ambiguity
- Analyzing ethical concerns

Sudarth, 2022

Recognising Bias

"Interdisciplinary learning challenges .. biases. It asks students to consider multiple perspectives and, in doing so, trains students to think more critically about their own identities. This approach engages students because it forces them to set aside preconceived notions, enabling them to:

- Learn more readily
- Get a deeper understanding of the material

Be open minded to new ideas, concepts, and ways of doing things"

Suderth 2022

e.g. Media Literacy

Thinking critically

Thinking critically an aspect of several competencies – e.g. cognitive, digital and creative competence. Thinking critically develops ability to:

- Be open-minded
- Use evidence and reasoning.
- Demonstrate scepticism
- Be clear and precise

e.g. financial planning and management

Embracing ambiguity

Embracing ambiguity – don't over-analyse or wait for direction, determine direction and lead – even if uncertain it is "right" way to do things.

- Stay curious
- Stay engaged
- Stay active
- Balance and patience
- Be honest

T. Brower, 2021

e.g. prevention of climate change

Analysing Ethical Concerns

Important that students have skills to analyze an ethical problem / situation in a fair and honest way, taking account of:

- Context
- Different viewpoints
- Moral perspectives

e.g. World without poverty and hunger

Breakout 3

In your groups select one of the four cognitive skills described on earlier slides - *Recognizing biases; Thinking critically; Embracing ambiguity or Analysing ethical concerns*

Discuss which interdisciplinary topic is appropriate for addressing the cognitive skill you have selected and agree how you would approach this topic with students.

Be ready to share your discussion with the main group.

Thank you

Thank you for all your contributions today – we look forward to seeing you at webinar 3

20th February 2023

14.00 to 18.00