



**What do
Scottish
Educators Need
to Teach for
Sustainability?**

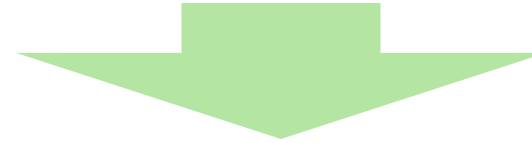
An Exploration on Approaches to
Education for Sustainability and Their
Implementation in the Scottish Context

By Paula Pastur

About Me and This Study

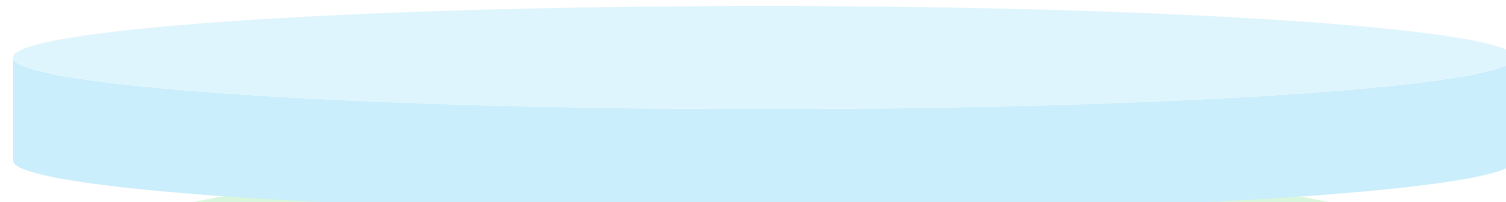


- ❖ Scientific background (Biochemistry)
- ❖ Lived in Scotland for 6 years
- ❖ Have always been interested the relationship between the arts and sciences
- ❖ Want to improve conversations around sustainability

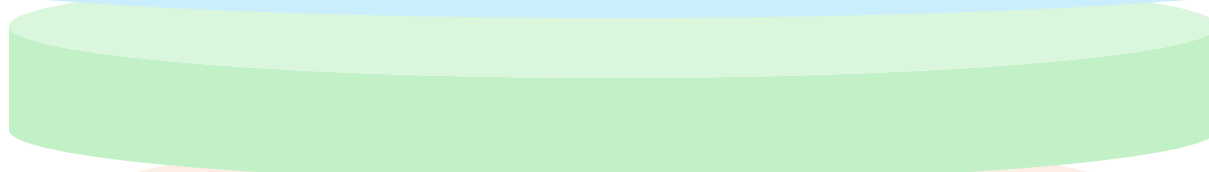


- ❖ I wanted to investigate how to improve the public's understanding of sustainability and build interest
- ❖ I believe in the potential in educational reform
- ❖ Scotland seemed like the perfect case study!

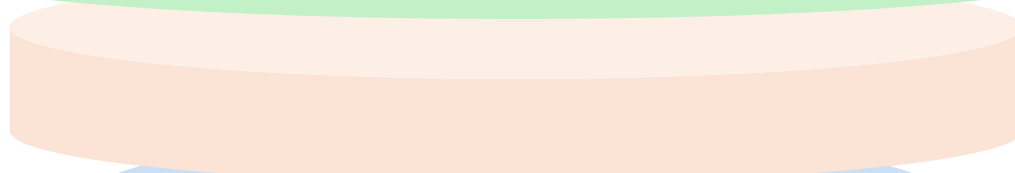
Structure



Background and Research Qs



Theoretical Underpinnings



Study Design and Data Collection

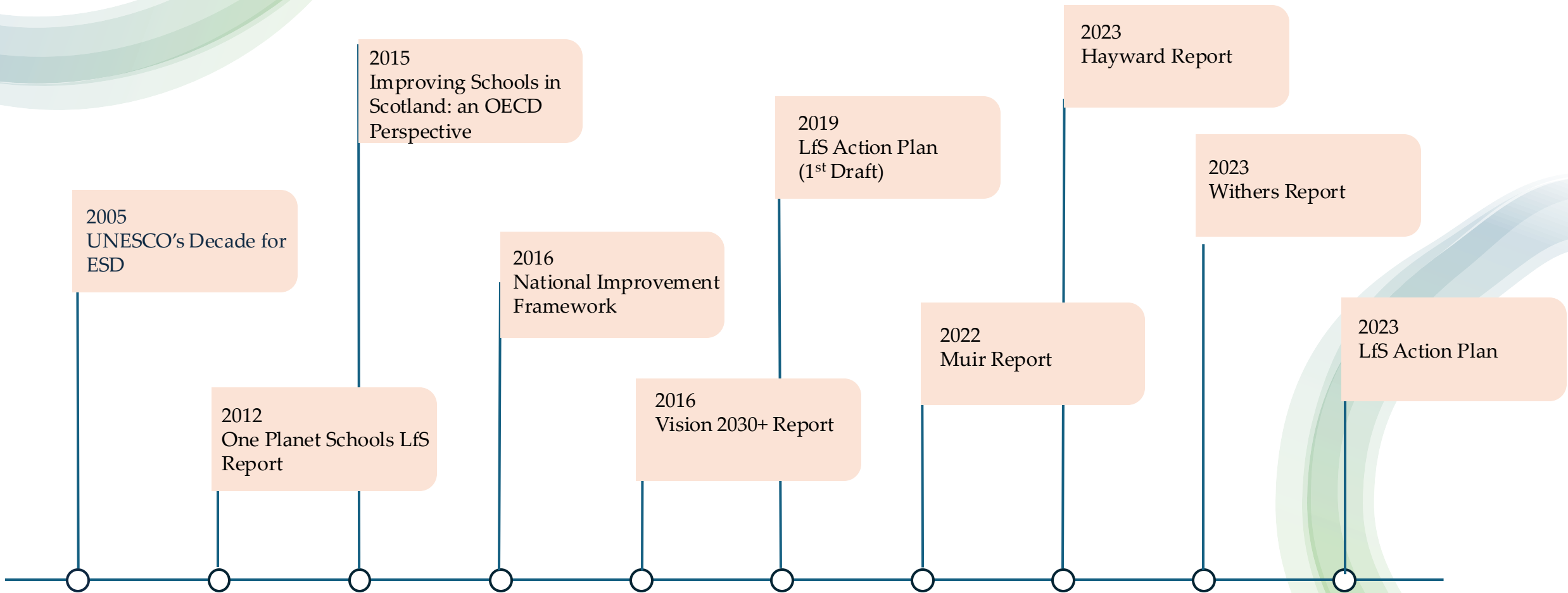


Findings and Results



Key Takeaways

Background and Policy Context



Research Questions:

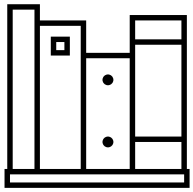
What do Scottish Educators Need to Teach for Sustainability?

What teaching methods are available?

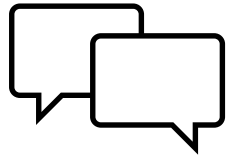
What do Scottish teachers think about LfS?

What might better teacher guidance look like?

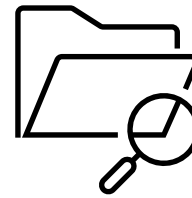
Methodology



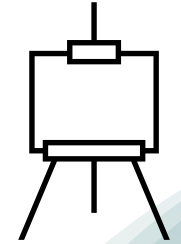
Literature
Review on
LfS
frameworks
and
methods



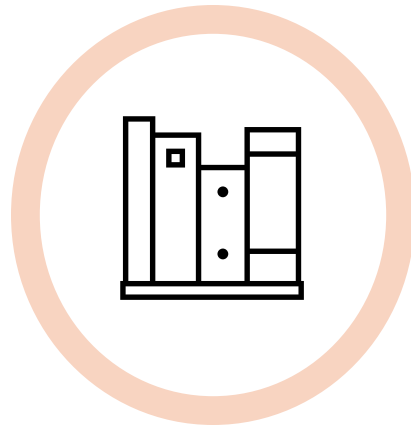
Interview
design and
delivery



Analysis
of
secondary
materials

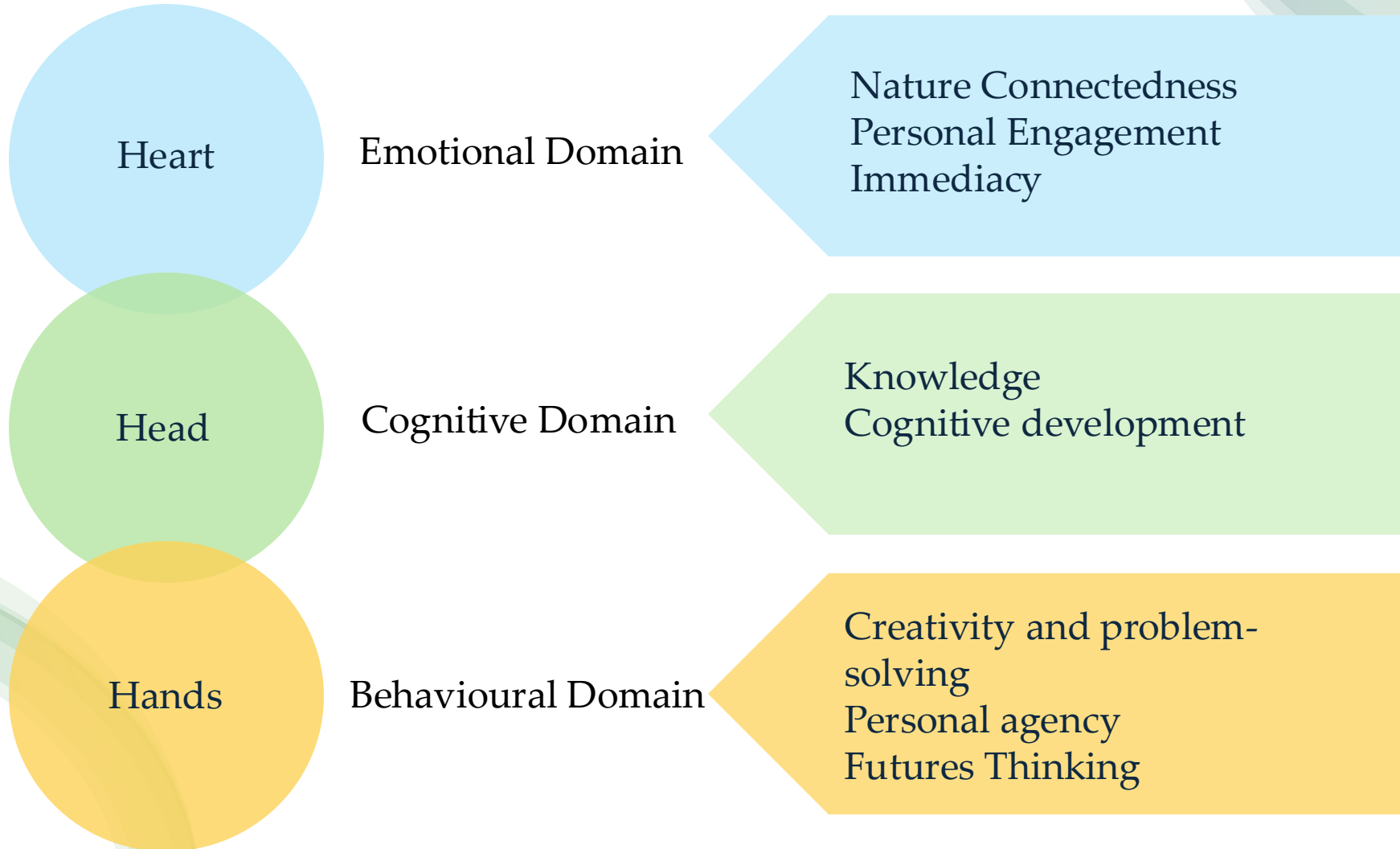


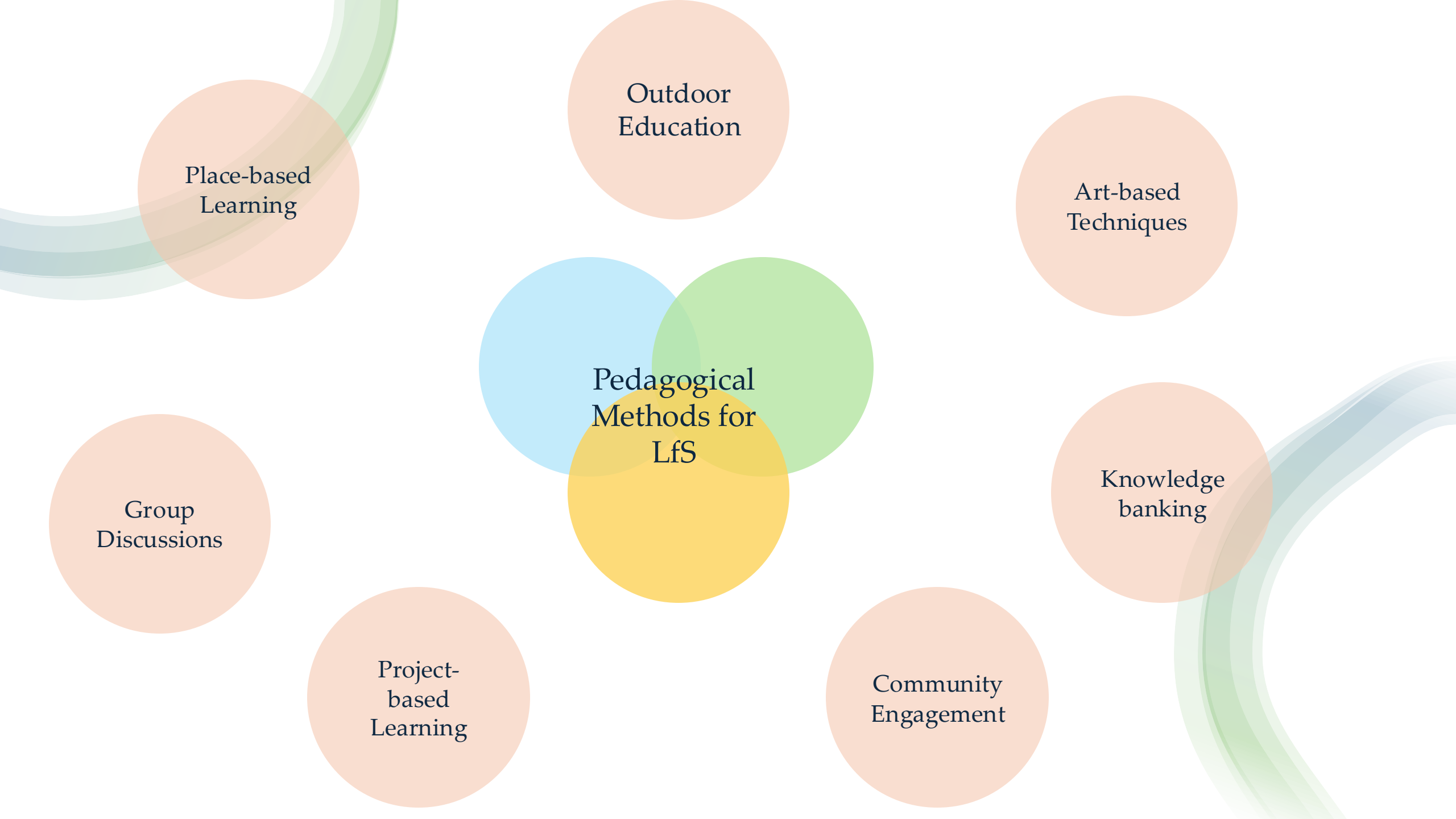
Design an
improved
educator
resource



Literature Review on LfS frameworks and methods

Heart-Head-Hands





Outdoor
Education

Place-based
Learning

Art-based
Techniques

Pedagogical
Methods for
LfS

Knowledge
banking

Group
Discussions

Community
Engagement

Project-
based
Learning



Data Collection and Analysis

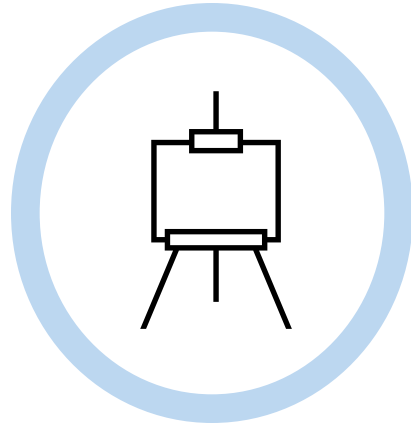
Educator Perspectives

Key Observations

- Major constraints for time
- Relatively poor understanding of LfS and what it means in practice, varied across schools
- Generally low confidence in educators from non-scientific areas about the connection of their subject to LfS
- Struggles to embed LfS at the curricular level
- Perceptions that embedding LfS in teaching would compete with curricular objectives

Proposed Solutions

- Demystifying the language used in teaching resources
- Explicit contextualization of LfS objectives within the CfE's Experiences and Outcomes
- Highlighting common ongoing practices that contribute to LfS
- Focus on LfS capabilities
- Provision of simple, readily applicable resources
- Facilitation of inter-school communication



Design an improved educator
resource

Examples of Good Practice in Educator Guidance

UNESCO ESD competencies



- Critical thinking competency (questioning practices, opinions, norms)
- Systems thinking competency (see & understand complex relations)
- Anticipatory competency (considering multiple outcomes, creating visions)
- Strategic competency (develop and implement actions)
- Learning from/working with others competency (learning from/working with others)
- Interdisciplinary approach competency (interdisciplinary approach)
- Reflecting on own values, role, action, desires competency (reflecting on own values, role, action, desires)
- Reflecting on norms, values, negotiating despite uncertainty competency (reflecting on norms, values, negotiating despite uncertainty)

Highlighting skills and competencies

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This topic should be used to introduce to pupils to what the Biosphere actually is, and to ignite passion about living in such an awe-inspiring place. The activities of this section are designed to excite, amaze and get pupils marvelling at what their Biosphere means to them.

- 1 Begin by using the Biosphere map to explain the size of the Biosphere and the variety of landscapes and locations within it. Discuss how special this place is!
- 2 In teams, thought shower what pupils' favourite aspects of the Biosphere are and represent them in a clay plaque about the size of a dinner plate. Once dried, painted and coated in PVA or varnish, they can be hung and admired in a school exhibition!

Employing varied approaches to engage more pupils

Can pupils work in teams to produce ethniques? This activity requires wool and through an online search. Individual ock sandwich bag; expect loads of atch the product of our local sheep iece of art for their exhibition!

han to see and smell it within our tural objects and simply fill with water and Biosphere and watch with delight as is it melts. Once melted, the items can be on and classification. Offering a tub from illiant way to discuss seasonal changes in jbs with items from a variety of habitats v the contents differ e.g. garden, beach ed, use them to create a piece of



LEARNING OUTCOMES CURRICULUM FOR EXCELLENCE LEARNING OUTCOMES 6 4 TOPICS.

TOPIC 1: MARINE LIFE

Learning Outcomes:

- Distinguish between the different coastal habitats of the Biosphere: saltmarsh, sandy beaches & rocky shores, seagrass meadows & kelp forests, sea cliffs, and deep marine.
- Identify and classify plants and animals associated with the coastal habitats of the Biosphere.
- Recognise how animals and plants have adapted to their coastal habitat.
- Describe the food chains in different coastal habitats in the Biosphere.
- Discover how marine animals communicate in the ocean.

Experiences & Outcomes:
SON 0-01a, SON 1-01a, SON 2-01a, SON 1-02a, SON 2-02a, SON 2-11a, SOC 1-07a, SOC 2-07a, EXA 1-17a, EXA 2-17a, EXA 1-03a, EXA 2-03a, MNU 2-11b, MNU 2-10c

TOPIC 2: COASTAL COMMUNITIES

Learning Outcomes:

- Recognise the coastal towns and villages of the Biosphere
- Learn how people use the coast for recreation
- Recount coastal heritage sites of the Biosphere
- Discover history stories and myths associated with the coast; castles, lighthouses, mermaids

Experiences & Outcomes:
SOC 1-03a, SOC 2-03a, SOC 1-04a, SOC 2-04a, SOC 2-10a, ENG 1-31a, ENG 2-31a, LIT 1-01a / LIT 2-01a

TOPIC 3: THE OCEAN AND US

Learning Outcomes:

- Recognise how plastic enters the marine environment and its impact on marine life.
- Discover how everyone can help to prevent plastic pollution in the marine environment.
- Discuss the impacts of climate change on coastal erosion and how marine ecosystems protect the land.

Experiences & Outcomes:
SON 1-04a, SON 2-04a, SON 20a6b, H 2-06a, H 2-06a, 38a,

TOPIC 4: ACROSS THE WORLD

Learning Outcomes:

- Discover other Biospheres across the world
- Describe how our Biosphere boundary meets other protected areas in the sea.
- Name different marine animals and habitats around the world
- Learn how climate change is impacting tropical marine ecosystems

Experiences & Outcomes:
SOC 1-12b, SOC 2-12a, SOC 1-13b, SOC 2-14a, SON 0-20a, SON 2-20a, SON 2-01a, SON 1-02a, SON 2-02a, ENG 1-31a, ENG 2-31a

Using effective legends

Referring to specific curricular objectives

	Method	LfS Areas Promoted			
	Outdoor Education	- Improves nature connectedness - Improves personal engagement - Increases cognitive development - Promotes creativity - Encourages agency			
	Art-based Techniques	- Promotes creativity - Improves nature connectedness - Improves personal engagement	✓		✓
	Place-based Learning	- Improves nature connectedness - Improves personal engagement	✓		✓
	Group Discussions	- Increases cognitive development - Promotes creativity - Encourages agency		✓	✓
	Knowledge Banking	- Increases cognitive development		✓	
	Project-based Learning	- Increases cognitive development - Promotes creativity - Encourages agency		✓	✓
	Community Engagement	- Improves personal engagement - Encourages agency	✓		✓

Future Work and Closing Thoughts

- ❖ New assessment models being designed by the SQA may ameliorate the curricular burdens faced by teachers
- ❖ Potential for community-based learning to develop from improved LfS at schools
- ❖ These observations can be applied to all sorts of LfS resources
- ❖ Improved teacher engagement throughout the LfS process is essential

Thank you so much for your time!

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Defining 'climate literacy'

Attitude

Self-efficacy

Willingness to Act

Locus of Control

Personal Concern

Values

Beliefs

Emotional relationship with climate change

Pro-Environmental Behaviour

Seeking out actions that minimize negative impacts on the natural world

Knowledge

Cognitive understanding of the crisis

Multiplicative Actions

Tendency to behave in ways that influence the climate literacy of one's community