The pedagogical design of a badged open course on the 'Scholarship of Teaching and Learning in STEM'

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The pedagogical design of a badged open course on the 'Scholarship of Teaching and Learning in STEM'

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Outline

- Introduction
  - Motivations for developing this Badged Open Course
  - Scholarship of Teaching and Learning (SoTL) and its role in academic practice
- The Badged Open Course (BOC) on SoTL in STEM
- Pedagogical design of the BOC
  - Principles and concepts of SoTL
  - A reflective framework for a planning a SoTL inquiry
  - An impact evaluation framework to facilitate the uptake of the SoTL findings
- Questions / discussion

Motivations for this BOC

- **Need**: for a resource that brings the entire process of planning, conducting and evaluating a SoTL inquiry together along with the underpinning principles, practices and frameworks

- **Stages of a SoTL inquiry**: Used to structure the BOC, providing a systematic and structured process of planning, conducting and evaluating SoTL (re-visited in the 'Conclusions' of the BOC)

- **Access**: to be able to access resources as and when required rather than wait for staff development sessions which may not be available at the time a colleague is looking for help

- **Self-directed**: instilling the motivation for SoTL; a consolidated resource that guides systematic and ethically-reasoned SoTL practice

Defining SoTL

- The Scholarship of Teaching and Learning (SoTL) involves educators moving beyond reflection upon their teaching strategies to an intentional, rigorous, systematic and ethically reasoned inquiry to investigate teaching practices and pedagogical strategies for student learning and engagement

- In the BOC, we define SoTL as
  - "The systematic and ethically reasoned investigation of aspects of teaching and student learning by applying disciplinary knowledge, resulting in reflections and outcomes that are publicly shared for peer-review and for others to build upon"

SoTL beginnings

- Hutchings and Shulman (1999) assert that SoTL is not synonymous with excellent teaching, but it is a condition for excellent teaching
  - "...the scholarship of teaching is a condition - as yet a mostly absent condition - for excellent teaching. It is the mechanism through which the profession of teaching itself advances, through which teaching can be something other than a seat-of-the-pants operation, with each of us out there making it up as we go. As such, the scholarship of teaching has the potential to serve all teachers and students.
  - ...a kind of "going meta" in which faculty frame and systematically investigate questions related to student learning – the conditions under which it occurs, what it looks like, how to deepen it, and so forth – and to do so with an eye not only to improving their own classroom but to advancing practice beyond it." (Hutchings and Shulman, 1999)

Key components of SoTL in STEM BOC

- Six sessions (24 hours of study)

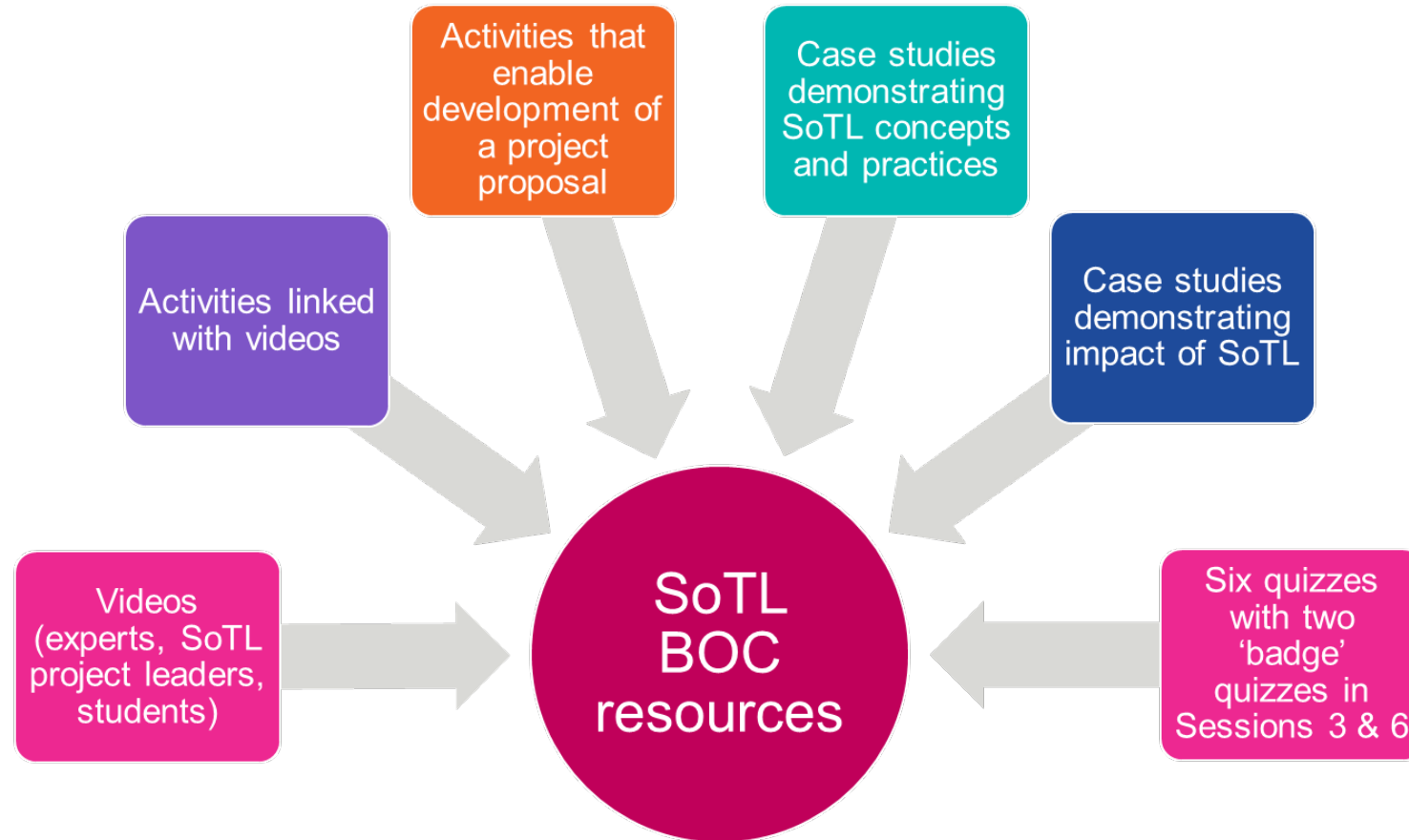|		
1. Engaging with SoTL	2. Getting started with SoTL	3. Formulating a SoTL inquiry
4. Students as partners and ethical considerations in SoTL research	5. Planning and conducting SoTL	6. Making SoTL public and impact evaluation of SoTL

SoTL in STEM BOC Resources

Activities that enable development of a project proposal

Case studies demonstrating SoTL concepts and practices

Activities linked with videos

Case studies demonstrating impact of SoTL

Videos (experts, SoTL project leaders, students)

SoTL BOC resources

Six quizzes with two 'badge' quizzes in Sessions 3 & 6

The Open University
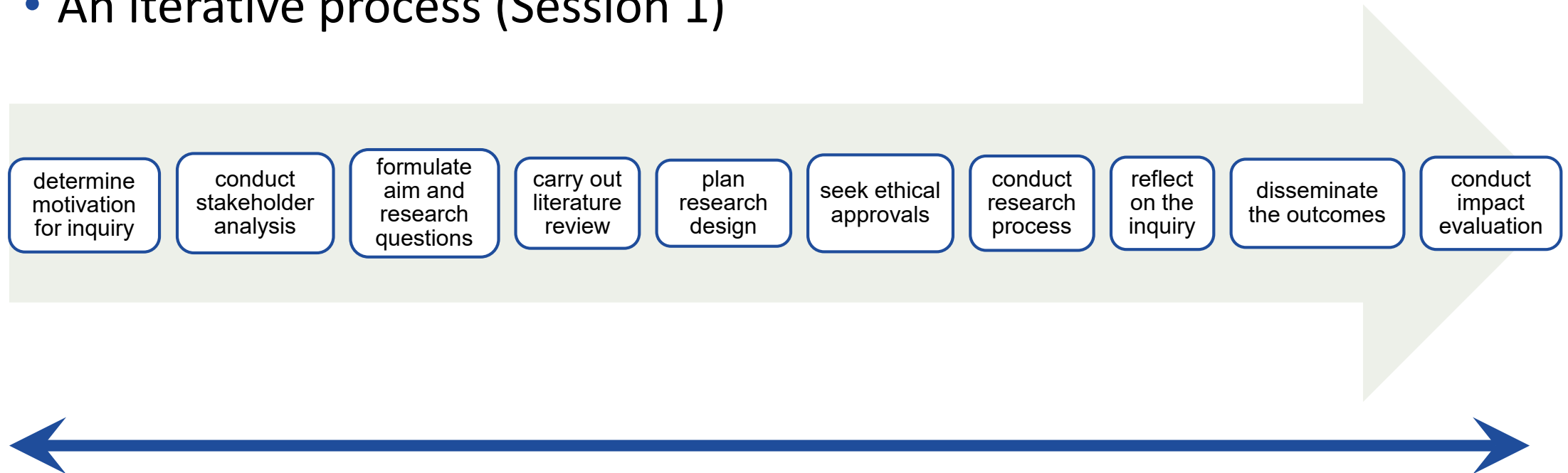
Principles and concepts of SoTL

- SoTL is <u>systematic</u> and <u>ethically reasoned</u> <u>investigation</u> of aspects of teaching and student learning by applying <u>disciplinary knowledge</u>, resulting in <u>reflections</u> and <u>outcomes</u> that are <u>publicly shared</u> for <u>peer-review</u> and <u>for others to build upon</u>.

Stages of a SoTL inquiry (a structured systematic process) (Session 1)	Ethical considerations of SoTL inquiry (throughout the BOC)	Principles of SoTL (Session 1)	Case studies of STEM disciplines (throughout the BOC)	Reflection, critical reflection and reflexivity (Session 1)

Planning for outputs and short-term outcomes (Session 3)	Writing for SoTL (Sessions 5 & 6)	Collaborative SoTL, mentoring, CoP (Session 2)	Uptake and long-term outcomes (impact) (Session 6)
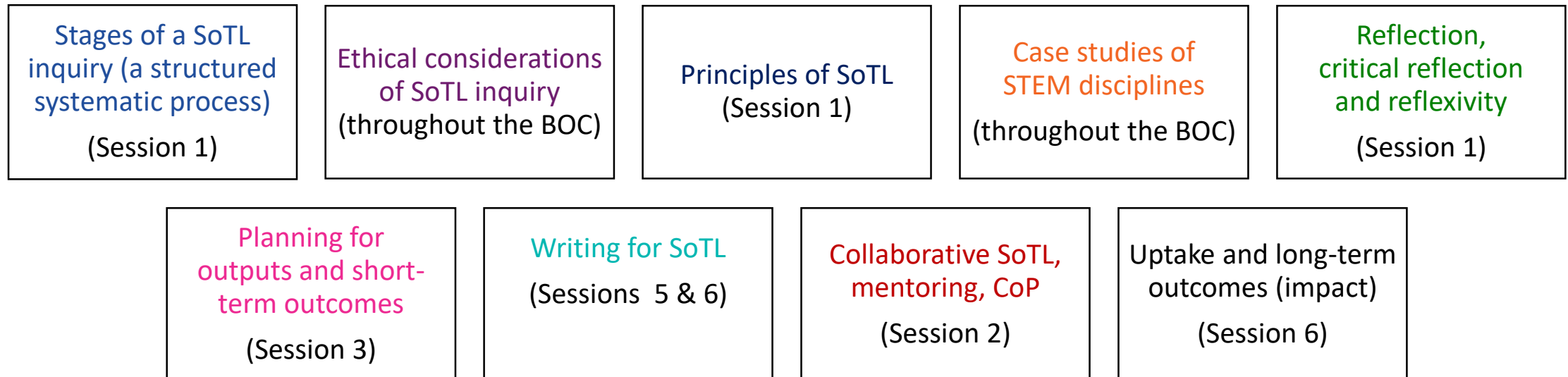
Stages of a SoTL inquiry

- An iterative process (Session 1)

determine motivation for inquiry

conduct stakeholder analysis

formulate aim and research questions

carry out literature review

plan research design

seek ethical approvals

conduct research process

reflect on the inquiry

disseminate the outcomes

conduct impact evaluation

Iteration(s) at each stage accompanied with continued reflection; moving back and forward through the stages, as per the requirements of the SoTL inquiry

Stages of a SoTL inquiry in Session 1 of the BOC, https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=109160&section=4

Principles of SoTL

1. Inquiry focused on student learning and engagement

2. Grounded in context

3. Rigorous and methodologically sound research design

4. Conducted in partnership with students

5. Appropriately public for evaluation and uptake by peers

6. Reflection, critical reflection and reflexivity

Principles of SoTL in Session 1 of the BOC
https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=109160&section=2

Instilling reflective practice

reflection	critical reflection	reflexivity

Reflection, critical reflection and reflexivity in Session 1 of the BOC
https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=109160&section=3

Seven-criteria to guide inquiry design

- Question-driven structured framework, Session 3
    1. Clear goals
    2. Adequate preparation
    3. Appropriate methods
    4. Significant results
    5. Effective communication
    6. Reflective critique
    7. Going public

Designing a SoTL inquiry in Session 3 of the BOC
https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=109157&section=4

Impact of SoTL

- Impact of a SoTL project implies demonstrable benefits to learning and teaching that are directly attributable to that project.

- Impact of SoTL activity is usually judged against two aspects, significance and reach: how significant are the benefits of the SoTL project and for whom?, and how far-reaching are the outcomes of the SoTL project?

- Evaluation for impact: evaluation of a SoTL project for impact will involve finding out who has benefited from SoTL and how, and to collect evidence related to significance and reach.

Making SoTL public in Session 6 of the BOC
https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=109326

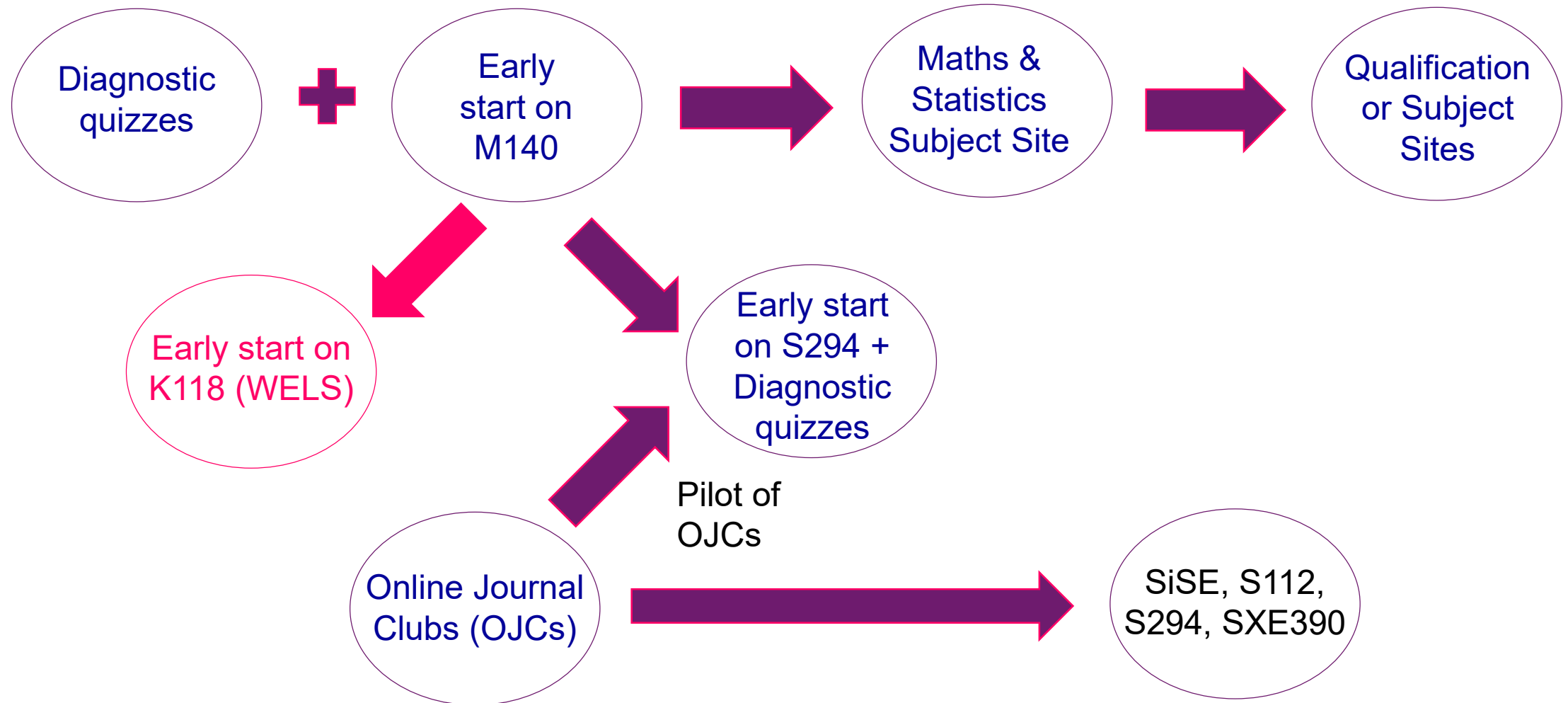# Impact Evaluation Framework for SoTL

- **Learning and teaching**
  - the impact on student experience?
  - the impact on student retention and progression?
  - evidence of excellence in teaching?

- **Transfer to others**
  - influence on discipline-based teaching, research and practice?
  - dissemination of the project's outcomes?
  - outcomes of the project adopted by other educators?

- **Stakeholder benefits**
  - enhanced mutual stakeholder understanding?
  - facilitated personal and professional development of project team and stakeholders?
  - led to recognition of project team members and other stakeholders?

- **Cultural and economic benefits**
  - helped to foster SoTL culture?
  - had any financial implications?
  - led to funding opportunities?

Evaluating for impact in Session 6 of the BOC
https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=109326&section=2.3

Evaluate, integrate and transfer

Diagnostic quizzes **+** Early start on M140 → Maths & Statistics Subject Site → Qualification or Subject Sites

Early start on K118 (WELS)

Early start on S294 + Diagnostic quizzes

Pilot of OJCs

Online Journal Clubs (OJCs) → SiSE, S112, S294, SXE390

Link and contacts

- Scholarship of Teaching and Learning in STEM
  - https://www.open.ac.uk/scholarship-of-teaching-and-learning-in-STEM

- Contacts
  - Presenters
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- Case studies and videos of SoTL projects
    - OU STEM colleagues

- Course image
    - Johnny Greig (Getty Images)

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