# Toolkit for discussion (Technology, Resources and Learning: Productive Classroom Practices and Effective Teacher Professional Development)

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## Section 1. Exactly how will technology use contribute to improved learning outcomes?

1. Is the technology provided to teachers simply as a resource without details of classroom use?

2. Is the (explicit or implicit) assumption that technology itself will transform learning ('technological determinism')?

3. Is there a credible theory of change, rooted in experience and education research outcomes, that suggests precisely how technology-related activities lead to better learning outcomes?

## Section 2. Is the proposed technology use (hardware, software and content) aligned with (a) the curriculum (including content, skills and overall goals) and (b) effective classroom practice?

4. Does the technology use promote students' dialogic skills, collaborative learning and metacognition?

5. Is the scenario one of individual e-learning (supervised by teachers) or is shared use envisaged (in conjunction with teaching practices such as dialogue and collaborative learning)?

6. Are the classroom scenarios detailed and credible (with appropriate, curriculum-linked resources)?

7. Is the assumption that teachers will create this alignment between the curriculum and practice themselves (without guidance); if not, how much guidance is provided?

## Section 3. Is the technology provided through a one-off intervention (without trialling)?

8. Or, does the intervention envisage iterative cycles of engagement with teachers, children and other stakeholders?

## Section 4. How will change over time be measured?

9. Where within SAMR is the intervention positioned?

10. How realistic is this positioning? To what extent is the positioning supported by the overall theory of change (based on research outcomes)?

11. What are the baseline levels of participating teachers' knowledge, skill and attitudes — and of student knowledge?

12. How will learning gains be measured and is there any comparison group? Can observed

a. change be attributed to the intervention?

## Section 5. What provision is made for effective teacher professional development (TPD)?

13. Does the initiative focus primarily on resources for the classroom (such as infrastructure, physical resources, books, computers, more classrooms, more teachers), or is provision for TPD also made?

14. What is the nature of the TPD?

15. Is there a credible approach to professional development (long-term; focussing on ICT-enabled subject pedagogy), or a simplistic ICT training for teachers (short, one-off workshops)?

16. How will enough time be made available for teachers to participate in a sustained way?

17. How motivated are they to do so?

18. Is there provision for certification?

## 6. Is the particular technology suitable for the purpose and the context?

19. For instance, is battery life adequate for deployment in rural areas with little power or connectivity, or have solar powered options been considered?

20. What assumptions are made about Internet connectivity?

21. Is the number of devices appropriate for the class size? Is shared use envisaged (in order to reach more students and classes)? Where technology resources are limited, has a rota been drawn up?

22. What is the setting in which the content is used (that is, formal vs. informal education or both)?

## 7. Does the technology use focus on equitable access to learning, or does it focus on "easy-to-reach first"?

23. How will the technology reach and support teachers and pupils in deep rural areas (without access to power, mobile internet or even mobile signal)?

24. How will the technology reach and support female teachers and female pupils?

25. Is provision made for the inclusion of all teachers and pupils, including those who have special learning needs?

26. How are the devices used (device–pupil ratio; 1:1 or shared use)?

# 8. How scalable and sustainable is the intervention?

27. Is all educational content published as Open Education Resources?

28. Is the software open source or are (paid or free) licences required?

29. Is all content and software easily downloadable? Or is access impeded by high bandwidth requirements, poor formatting and registration?

30. Are reports published regularly, offering rigorous insights and critical reflection?

| Version history | | |
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| - | 10.5281/zenodo.2626493 | DOI for series |
| 1.0 | 10.5281/zenodo.2626494 | First version |
| 1.1 | 10.5281/zenodo.2626545 | |
| 1.2 | 10.5281/zenodo.3596117 | Corrected copyright statement to Open Development & Education (this had erroneously be stated as 'Digital Impact Alliance'). Incremented version number and used series-DOI rather than individual DOI. |