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Targeted digital literacy teaching strategies for students with MDVI:

Combining teacher expertise
with research-based evidence

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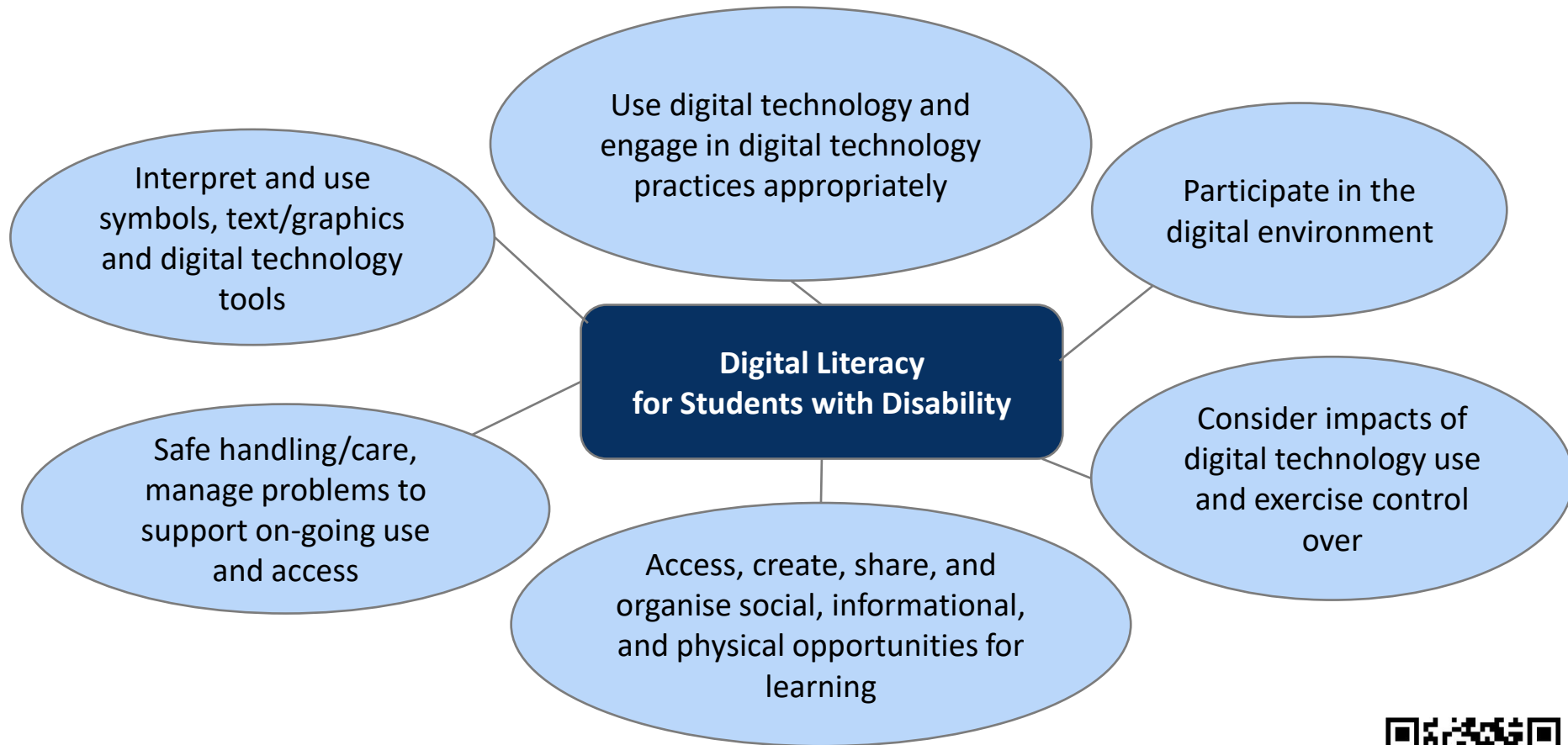


Digital literacy for students with MDVI

- MDVI: A diagnosed vision impairment in addition to one or more other disabilities, which **must** include intellectual disability*
- Use of digital technology to access learning, with or without any assistive technology required



Learn to use, use to learn



(Adapted from White, Woods, and Poed, 2017)





Learning progressions

Learning: a transformative process of acquiring an increasingly sophisticated skill or understanding, rather than a unit of content that must be taught (White, 2019)


Learning progression: A pathway of learning within a domain that occurs over an extended time period so to provide an understanding of how increased sophistication in thinking and skills can be expected to develop, with the support of a teacher (Heritage, 2008)

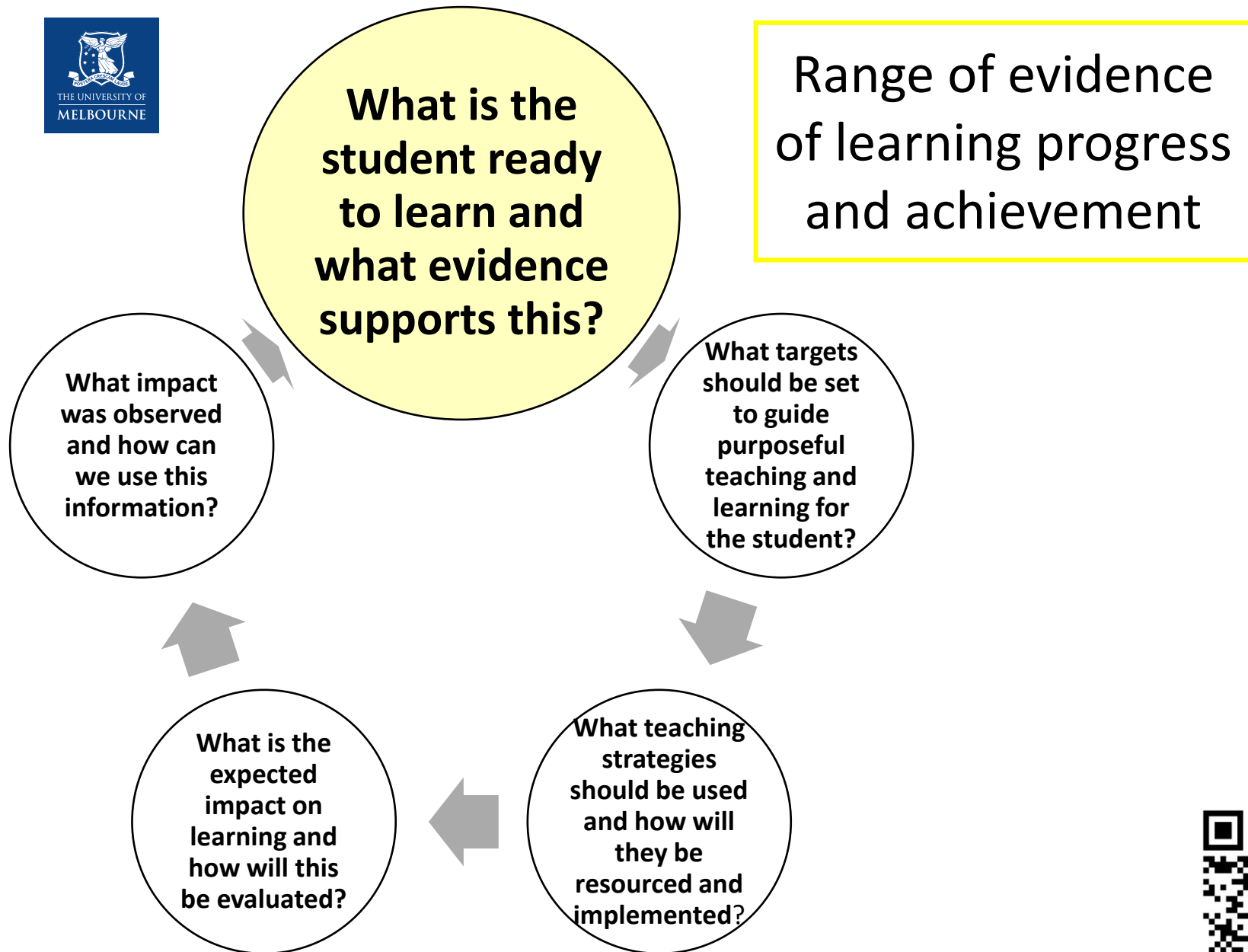


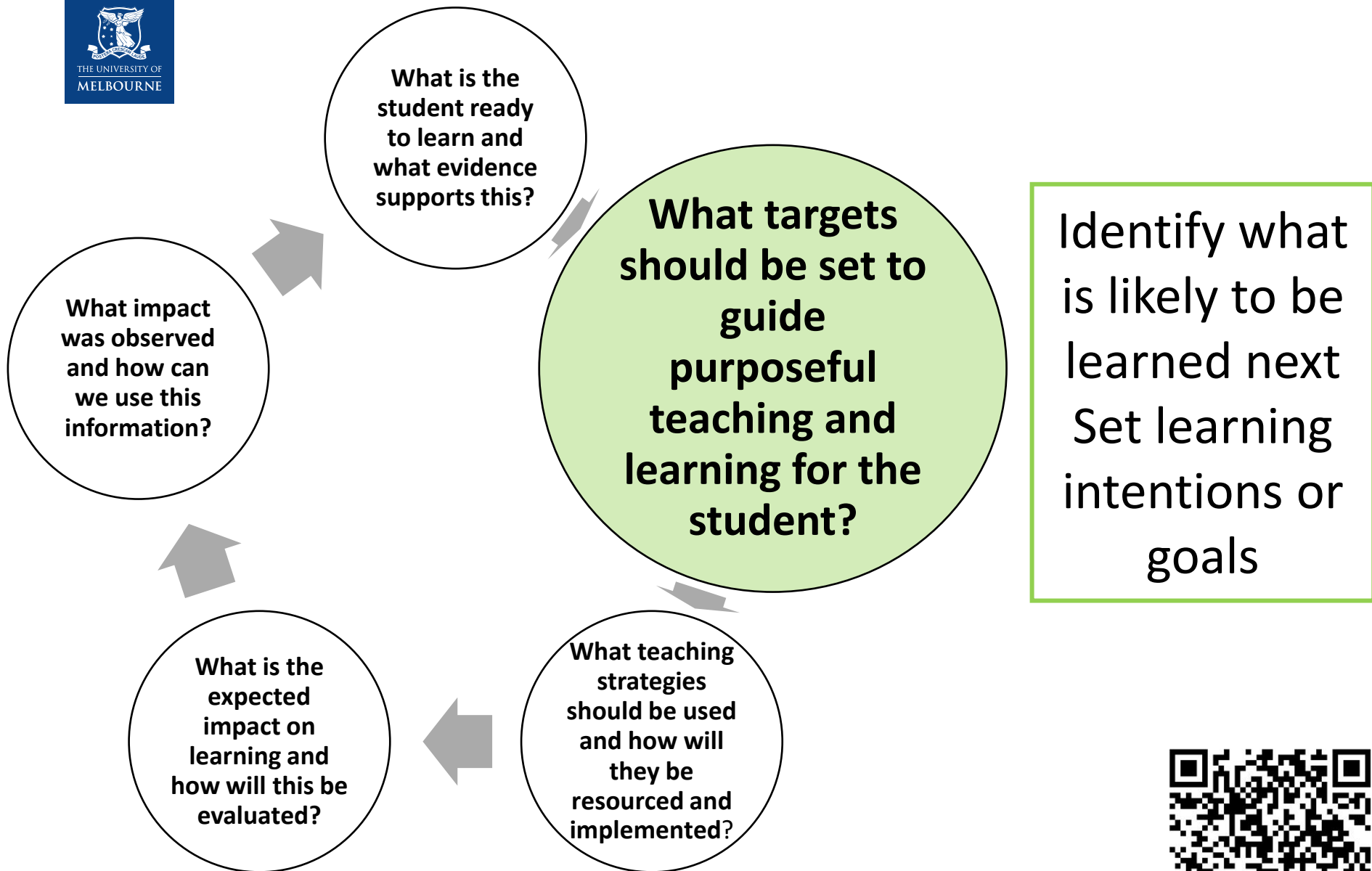


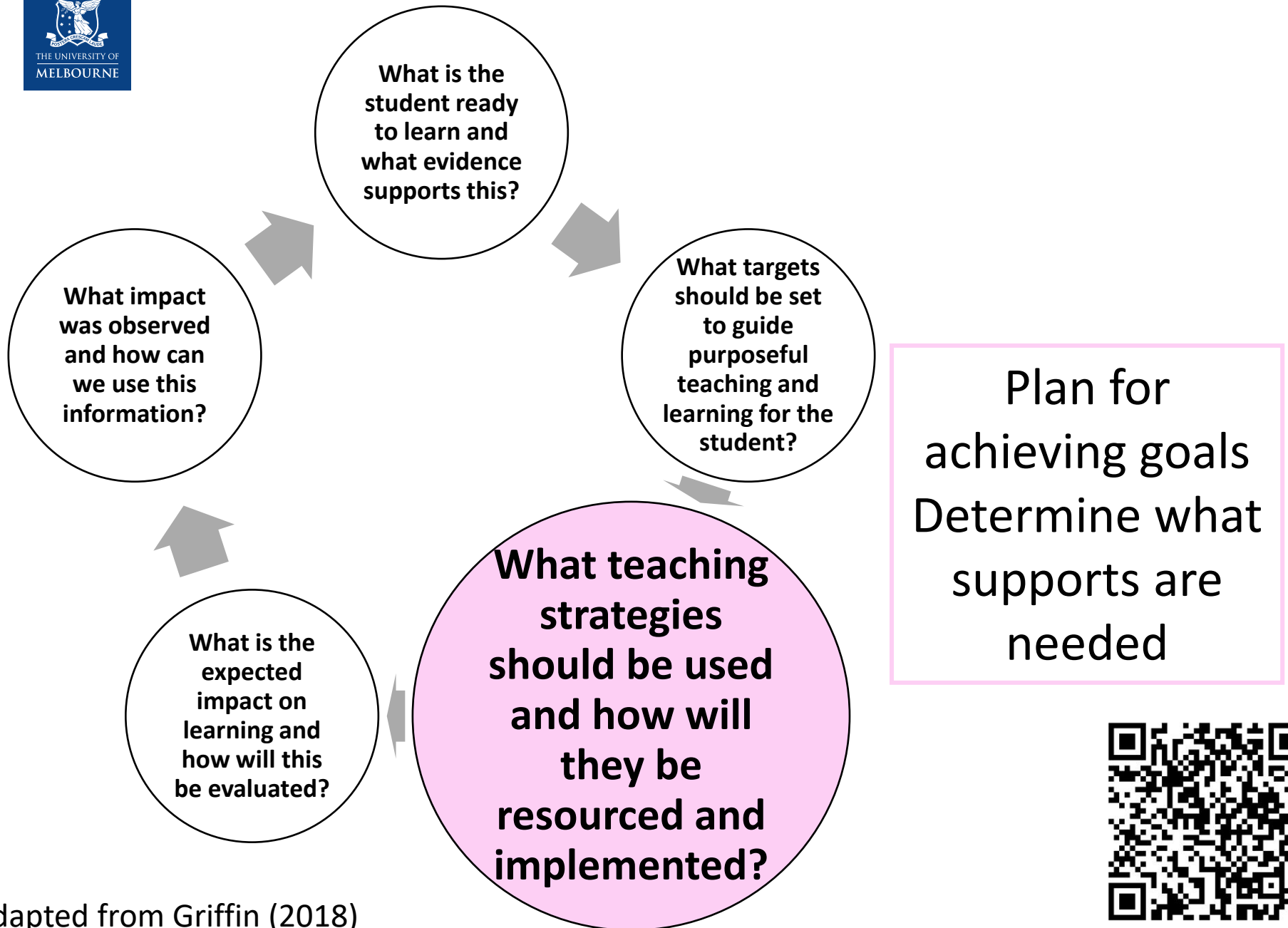
The digital literacy learning progression



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6. Taking control of DT through guidelines and organisation
 5. Applying strategies and guidelines to DT use
 4. Using prior experience and procedures to complete tasks with DT
 3. Engaging with DT and content to achieve own ends
 2. Making connections with DT through interaction with devices and programs/apps
 1. Reacting and responding to digital technology (DT) and content









Locating empirically-based teaching strategies

1. Review of empirical studies:
 - Students with disability and/or digital literacy
 - Practices/interventions that supported learning gains
2. Practices/interventions crafted into teaching strategies and advice statements
3. Allocated to learning progression levels (draft)





Applying teacher expertise

- Workshop: ten specialist teachers, four researchers, stakeholder representative
- Added, removed, and modified strategies/advice to support relevance for teachers and students
- Endorsed 113 strategies/advice statements as:
 - **Suitable** to support learning within assigned level
 - **Respectful** of students, regardless of age or nature/severity of disability
 - **Useful** for teachers, regardless of setting or experience





Refining for students with MDVI

- 113 strategies/advice statements panelled with three experts in VI and technology education who had substantial experience in teaching students with MDVI
- Feedback sought re suitability of strategies and advice for students with MDVI (keep, modify, add, remove)
- Scoring:
 - 2 = use often or with most students with MDVI
 - 1 = use sometimes or with some students with MDVI
 - 0 = would not use with students with MDVI



Piloting with representative users

- Sixteen specialist teachers from a specialist school
- Written feedback and scoring
- Feedback used to improve strategies and advice for ease of implementation by those without MDVI expertise/experience





Applying feedback

Two versions: Students with primarily intellectual disability and students with MDVI

Means from panelling and piloting groups' scoring:

- Most strategies/advice scored similarly
- Biggest difference = MDVI-specific
- Primacy given to scores from panelling group
- Strategies/advice scoring < 1.5 removed (2, 1, 0)
- Ordered by highest MDVI scores then piloting scores

101 strategies/advice statements endorsed for use with students with MDVI





Targeted strategies: Level 1

1. Reacting and responding to digital technology and content

- Position the student in an environment which is optimal for focusing on a device or program/app.
- Consider and address the impact of any visual, hearing, or physical needs of the student when using digital technology, such as whether s/he can see or hear the content, if screen magnification or headphones are needed, or how the student might interact with the device.





Targeted strategies: Level 2

2. Making connections with digital technology through interaction with devices and programs/ apps

- Consider the student's strengths, preferences, and interests, and how available technologies can be used to support his/her learning for a task at hand.
- If possible, incorporate familiar photos, images, symbols, or sounds into a familiar device or a program/app to increase the student's opportunities to respond to them.





Targeted strategies: Level 3

3. Engaging with digital technology and content to achieve own ends

- As far as possible, provide a calm and comfortable environment for learning to explore and use digital technology in order to minimise unnecessary distractions.
- Use a variety of content types, such as photos and audiobooks, and subject material to engage the student and help generalise his/her learning with digital technology.





Targeted strategies: Level 4

4. Using prior experience and procedures to complete tasks with digital technology

- Give specific praise and targeted feedback (e.g., "I like how fast you tapped the screen, now try with one finger"), connecting actions with the outcome (e.g., "You touched the close button, now the app is closed") to help the student know what s/he did well, what to work on next, and why a desired outcome did or did not happen.





Targeted strategies: Level 5

5. Applying strategies and guidelines to digital technology use

- Place visual, audio, and/or tactile supports for digital technology rules and guidelines where the student can easily access them to help him/her recall and follow expectations.
- Use pictures, symbols, and/or concrete objects to support the student's understanding of technical or difficult terms.





Targeted strategies: Level 6



6. Taking control of digital technology through guidelines and organisation

- Break a digital technology procedure, such as uploading a file, into small steps, then explicitly teach each step systematically with frequent repetition, to help the student understand and complete each step.
- Ask the student to explain the steps in a task to determine his/her understanding of the process. Provide step-by-step directions with screenshots, other visual or tactile images, or an audio recording of steps in a process, such as uploading a file.



Validity and next steps

Strong arguments for validity:

- Evidence-based approach
- Connections: strategies/advice and levels, and taxonomy (Dreyfus & Dreyfus, 1980)
- Two stages of panelling with subject matter experts
- Piloting with representative end users

Next steps:

- Panel with more MDVI experts and pilot in mainstream schools
- Impact on learning in students with MDVI
- Validity in international contexts



SWANs general capabilities (AC)



Literacy

Digital Literacy

Numeracy

Communication

Social Processes

Emotional Understanding

Learning Skills

Thinking Skills

Movement

Main Menu





Accessing the learning progression and more

- **Full suite of online teacher resources** (assessment, full learning progression, student reporting, matched teaching strategies): Contact Hilary at the Assessment Research Centre to organise access to the SWANs program (includes all nine general capabilities): **h.slater@unimelb.edu.au**
- **Summarised learning progression and all matched teaching strategies**: Download JSPEVI article “Strategies for teaching digital literacy to students with MDVI: Combining evidence with expertise” (White, in press)





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Thank you

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Assessment Research Centre/
Learning Intervention

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