## Digital Skill Development (DSD) Framework

A conceptual framework for the explicit, incremental development of contemporary digital skills and practices for collaborating, learning, researching, working, and functioning in society.

### Digital Skill Facets

<table>
<thead>
<tr>
<th>Scope for Student Autonomy</th>
<th>Digital Skill Development (DSD) Framework</th>
<th>Prescribed (Follow)</th>
<th>Bounded</th>
<th>Scaffolded (improve)</th>
<th>Open-ended</th>
<th>Unbounded (transform)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply social and ethical protocols for e-safety and well-being of self and others, taking account of digital profile, footprint and impact.</td>
<td></td>
<td>Highly structured directions and modelling from the educator prompt the learner(s) to …</td>
<td>Boundaries set by the educator channel the learner(s) to …</td>
<td>Scaffolds placed by the educator enable the learner(s) to independently …</td>
<td>Learners instinctively initiate engagement with digital technology that may be guided by the educator to …</td>
<td>Learners normalise digital practices in accordance with context to …</td>
</tr>
<tr>
<td>Explore and Clarify</td>
<td>What is my/our purpose?</td>
<td>Determine the purpose for using digital technology taking into account digital practices, i.e. e-safety, digital wellbeing, digital profile and footprint.</td>
<td>Explore digital technology for a specific task or purpose, following prescribed protocols for digital practices.</td>
<td>Explore a range of recommended digital technologies. Follows established protocols for digital practices.</td>
<td>Explore a range of familiar digital technologies based on provided criteria. Consider protocols for digital practices.</td>
<td>Determine own approach to exploring familiar and unfamiliar digital technologies within structured guidelines. Addresses issues related to protocols for digital practices.</td>
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<tr>
<td>Curious</td>
<td></td>
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<tr>
<td>Select and Use</td>
<td>What will I/we use?</td>
<td>Choose the appropriate digital technology to use for the purpose.</td>
<td>Use prescribed digital technology following prescribed protocols for a specific purpose.</td>
<td>Use familiar digital technology and apply to a defined context with targeted support when needed.</td>
<td>Choose a range of suitable digital technologies and applies to fulfill a specified purpose. Exploits risk-taking in the form of tinkering.</td>
<td>Display the confidence and adeptness to experiment with familiar and unfamiliar digital technologies for diverse purposes. Demonstrates and understands the link between actions and consequences, tolerates uncertainty.</td>
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<tr>
<td>Experimental</td>
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<tr>
<td>Evaluate and Reflect</td>
<td>Will this suit my/our purpose and how will I/we know?</td>
<td>Critically assess and reflect on the suitability of digital technology and practices in a changing digital environment.</td>
<td>Reflect on the suitability of digital technology and practices by following prescribed criteria. Reflect on learning in a digital context.</td>
<td>Appraise the suitability of digital environments and tools for learning, working, and social interaction from a range of specified criteria; reflects with conceptual guidance.</td>
<td>Evaluate and reflect purposefully to make informed decisions regarding the significance and benefits of tools for learning, working, and social interaction using self or co-constructed criteria.</td>
<td>Insightfully apply self-determined criteria drawn from the expertise of others for learning, working, and social interaction. Self regulates to consider implications of digital practices.</td>
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<tr>
<td>Discerning</td>
<td></td>
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<tr>
<td>Organise and Manage</td>
<td>How will I/we plan my approach?</td>
<td>Organise and manage processes, self and team function using provided digital techniques according to prescribed guidelines.</td>
<td>Organise and manage processes, self and teams choosing from a range of recommended digital systems in accordance with online protocols.</td>
<td>Organise and manage processes, self and teams by recalling and selecting from familiar digital strategies and systems in accordance with online protocols.</td>
<td>Manipulate and customise familiar and unfamiliar digital technologies and systems to organise self and team requirements. Explore new parameters and online protocols.</td>
<td>Embrace and encourage digital practices for organising and managing processes, self and others. Identity and manipulate the affordances and functionality of unfamiliar digital technology and systems to meet new purposes.</td>
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<tr>
<td>Harmonising</td>
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<tr>
<td>Synthesise and Create</td>
<td>What can I/we create?</td>
<td>Create using specific digital techniques keeping to prescribed formats.</td>
<td>Combine specified digital techniques keeping to given formats. Identifies problems and seeks guidance.</td>
<td>Enable new understandings using an array of digital tools to analyse, synthesise and contextualise; troubleshoots to create solutions to known problems.</td>
<td>Synthesise and create using complex digital techniques involving visual, sensory, kinaesthetic and psychomotor to enable individual and team solutions according to context and parameters set. Considers implications.</td>
<td>Create innovative solutions for complex problems in diverse contexts by combining digital practices that include the visual, sensory, kinaesthetic and psychomotor. Transcends known parameters, embraces disruption and explores implications.</td>
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<tr>
<td>Creative</td>
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</table>
Overview of the Digital Skill Development (DSD) framework

The Digital Skill Development (DSD) framework was developed through a library-led partnership of professional librarians and educators at Monash University. The aim of the framework is to facilitate the conceptualisation of what it means for students to be digitally literate in a range of learning contexts. The DSD framework provides educators with pedagogical guidance in recognising, identifying, enabling and expanding the repertoire of digital skills required by students to meet the demands of learning, living and working in contemporary society. This includes consuming digital data, collaborating and creating with digital tools, whilst taking into account digital identity, wellbeing and e-safety. The DSD framework can be applied to scaffold and make explicit the incremental developmental progression of students’ digital skills in existing or new curricula by guiding educators to plan and set learning goals, frame learning tasks, activities and assessments that improve student digital skills.

The DSD framework consists of:

- **Skill Facets**: The vertical axis of the DSD framework describes a range of higher order cognitive skills, processes and dispositions required in digital contexts. Each skill facet is represented as a complementary verb pair (e.g. Select and Use). This verb pairing is intended to capture the breadth of skills involved in that facet and illustrate the way skills develop in tandem. It is worth noting that whilst the skill facets are presented as a sequence they should not be interpreted as a linear process. When contextualised, the skills do not sit in isolation; rather, they are multi-faceted, overlapping and share elements of each other.

- **Scope for Student Autonomy**: The horizontal axis of the DSD framework captures the ‘Scope for Learner Autonomy’ scaffolded within a learning continuum. The continuum articulates a developmental view of learning by describing the degree of structure and guidance required for optimal learning rather than representing learning as a hierarchy of competence. This is based on context, purpose and learner characteristics. It is also fluid in that within a single task a student may shift through varying levels of recognition and developing abilities and dispositions for learning. Incorporating affective skills, attitudes and dispositions shifts the view of learning from an educator centred one to a student-centred one, painting a picture of deeper learning.

**Characteristics of the DSD framework**

The DSD framework is part of the suite of digital skill development frameworks known as MELT (Models of Engaged Learning and Teaching) https://www.adelaide.edu.au/rsd/. These include the Research Skill Development (RSD) framework (Willison & O’Regan, 2006, 2018) and the Work Skill Development (WSD) framework (Bandaranaike & Willison, 2009, 2018; revised by Monash University Library, 2019) https://www.monash.edu/library/skills/rsd. The DSD framework shares the same parameters and characteristics as the MELT frameworks and can be used in conjunction with them when digital skills require emphasis. Below are the characteristics common to all MELT frameworks.

- **They are...**
  - Conceptual models
  - Pedagogical tools
  - A learning continuum
  - A tool to inform assessment and curriculum design
  - Flexible, adaptable, dependent on context
  - Applicable to a range of curricula and learning contexts
  - A common language amongst educators
  - In synergy with educational strategies

- **They are not intended to be...**
  - An assessment rubric
  - Prescriptive and inflexible
  - Lock step

The last word on skill development

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References:


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**Explore and Clarify**

- **What am I using this tech for?**
  - You were told your purpose is to make a mobile app, but you don’t feel confident to explore on your own. You don’t really understand or wonder why you are doing this activity.

**Select and Use**

- **What tech will I use?**
  - You needed someone to give you step instructions on how to search for resources using the library database.

**Evaluate and Reflect**

- **How do I know if this suits my purpose?**
  - After being asked to create a game in Scratch in your tutorial, you and your partner were told where to start. You waited to be told what the first step was.

**Organise and Manage**

- **How will I plan my approach?**
  - In the tutorial, you designed and created a game in Scratch using Pacman using Makey Makey. You controlled it yourself and communicated your level of achievement.

**Collaborate and Communicate**

- **How can I use this to communicate?**
  - You were able to join a Zoom meeting with your tutor and other students. You explained what the activity you have done was, and why you liked it. You were aware of the different technology you had used.

**Prescribed**

- You were told your purpose is to make a mobile app, but you don’t feel confident to explore on your own. You don’t really understand or wonder why you are doing this activity.

**Bounded**

- You were told you were going to use a given app on your computer. You were directed to the correct app and have been given basic instructions but you feel confident enough to vary them. You can imagine how this could be used for different purposes.

**Scaffolded**

- You were asked to create a website using any tool you wish. You play with a few web hosting sites you’ve used before to decide which is right for this task.

**Open-ended**

- You were asked to do an oral presentation but you were not told which one. You play with a few presentation programs that you like and try the different technology you have used.

**Unbounded**

- You identified some technology you had encountered before and you didn’t need to ask about it. You thought it looked interesting and started to play with it and explore its functions. You considered what purposes this technology might be suitable for and compared it to other similar technologies.

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**An example of applying the DSD framework for assessment**

- **Assumptions about student digital competence mean there is little explicit instruction of digital skill development in environments where students are required to develop digital skills (e.g. critical and creative thinking skills). Consider the skills involved in a group presentation assignment where students need to find and access credible academic resources (library website, other search sites), communicate with their group (messaging apps, collaborative online documents), and use presentation software (open response quiz, presentation software). For this example, the DSD framework helps highlight assumptions, encourage evaluation of student digital skills and inform unit content.**

(McLeod, A. 2019)