

# Annotated bibliography

## Engineering Digital Capabilities Descriptor

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### VCE Study Design Systems Engineering 2013-2018 Advice for Teachers Employability (P35):

“The nationally agreed employability skills\* are: Communication; Planning and organising; Teamwork; Problem solving; Self-management; Initiative and enterprise; Technology; and Learning”.

Assessment task	Employability skills: selected facets
Record of investigation, design, planning and production	Communication (reading independently; using numeracy). Problem solving (developing practical creative, innovative solutions; showing independence and initiative in identifying problems and solving them; applying a range of strategies to problem solving). Planning and organising (establishing clear project goals and deliverables; planning the use of resources including time management; collecting, analysing and organising information). Technology (having a range of basic IT skills).
Multimedia presentation	Communication (speaking clearly and directly; persuading effectively, sharing information; listening and understanding). Technology (having a range of basic IT skills; being willing to learn new IT skills; using IT to organise data).

Department of Education, Science, and Training. (2002). *Employability skills for the future*. DEST: Canberra:

(p 3) Skills: Skills are commonly understood to refer to the ability to perform a specific task

Employability skills are defined as “skills required not only to gain employment, but also to progress within an enterprise so as to achieve one’s potential and contribute successfully to enterprise strategic directions.”

(p7) The key skills identified in conjunction with the personal attributes to make up the Employability Skills Framework are:

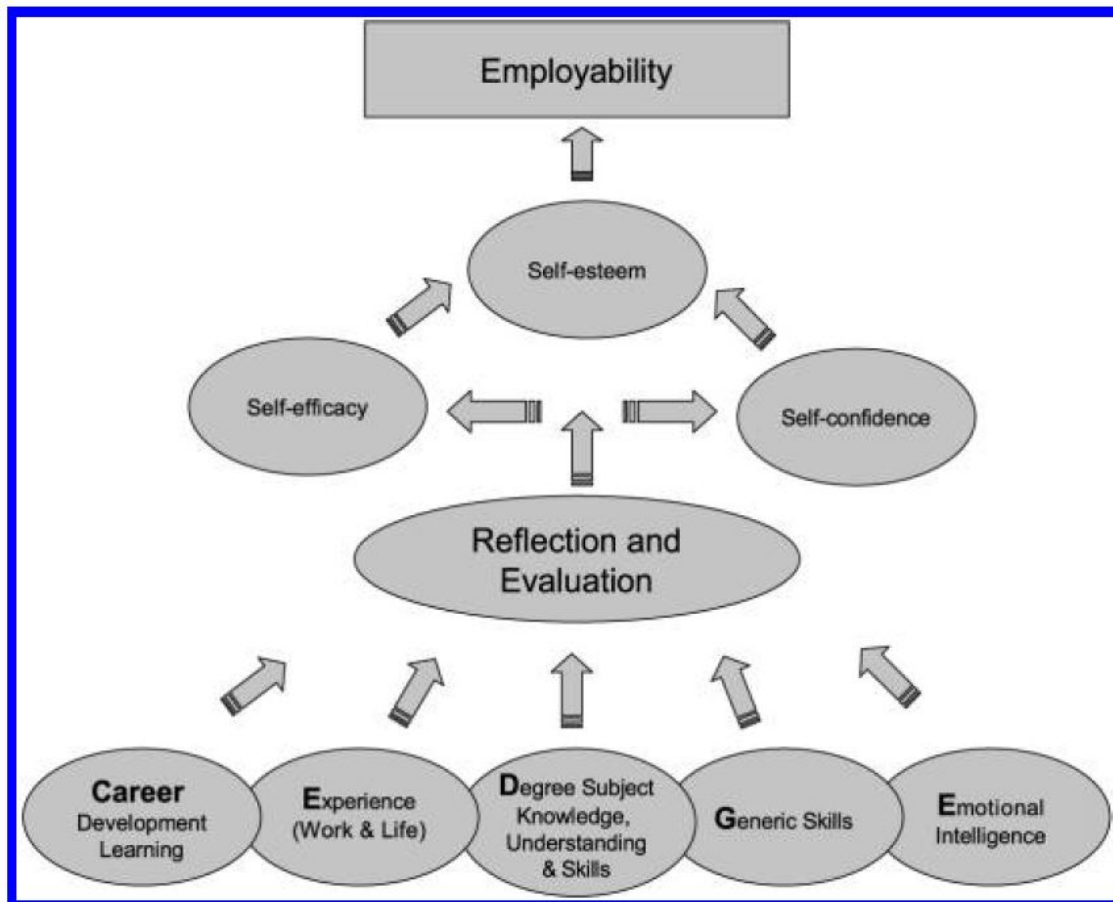
- communication skills that contribute to productive and harmonious relations between employees and customers;
- team work skills that contribute to productive working relationships and outcomes;
- **problem-solving skills that contribute to productive outcomes;**
- initiative and enterprise skills that contribute to innovative outcomes;
- planning and organising skills that contribute to long-term and short-term strategic planning;
- self-management skills that contribute to employee satisfaction and growth;
- learning skills that contribute to ongoing improvement and expansion in employee and company operations and outcomes; and
- technology skills that contribute to effective execution of tasks.

**Employability framework (pp 8-9):**

Skill	Element (facets of the skill that employers identified as important, noting that the mix and priority of these facets would vary from job to job)
<p>Communication that contributes to productive and harmonious relations between employees and customers</p>	<p>Listening and understanding            Speaking clearly and directly            Writing to the needs of the audience            Negotiating responsively            Reading independently            Empathising            Using numeracy effectively            Understanding the needs of internal and external customers            Persuading effectively            Establishing and using networks            Being assertive            Sharing information            Speaking and writing in languages other than English</p>

<p>Teamwork that contributes to productive working relationships and outcomes</p>	<p>Working with people of different ages, gender, race, religion or political persuasion Working as an individual and as a member of a team Knowing how to define a role as part of a team Applying teamwork skills to a range of situations, e.g. futures planning, crisis problem solving Identifying the strengths of team members Coaching, mentoring and giving feedback</p>
<p>Planning and organising that contribute to long-term and short-term strategic planning</p>	<p>Managing time and priorities – setting timelines, coordinating tasks for self and with others Being resourceful Taking initiative and making decisions Adapting resource allocations to cope with contingencies Establishing clear project goals and deliverables Allocating people and other resources to tasks Planning the use of resources including time management Participating in continuous improvement and planning processes Developing a vision and a proactive plan to accompany it Predicting – weighing up risk, evaluating alternatives and applying evaluation criteria Collecting, analysing and organising information Understanding basic business systems and their relationships</p>
<p>Technology that contributes to effective execution of tasks</p>	<p>Having a range of basic IT skills Applying IT as a management tool Using IT to organise data Being willing to learn new IT skills Having the occupational health and safety knowledge to apply technology Having the appropriate physical capacity</p>

Dacre Pool, L., & Sewell, P. (2007). The key to employability: developing a practical model of graduate employability. *Education+ Training*, 49(4), 277-289. Fig 1 (p.280)



Ithaca Group (Firm) (2011). Employability skills and attributes framework: background paper. (report for DEEWR)

(p.5) It is widely accepted that employability skills are context-dependent and best developed in real work contexts

**(p.8) Figure 4. Example descriptors of performance: Skill Area: Manage yourself in the world of work: Element of Focus: Understand and work with workplace protocols**

	Pre-employment	Novice		Competent		Expert
<b>Skill</b>	<b>Follows simple directions regarding protocols in a familiar context (e.g. classroom, sports activity)</b>			<b>Manages time and behaviour to meet a range of written and unwritten protocols Explains/clarifies protocols and processes to newcomers</b>		<b>Recognises when it is appropriate to adapt protocols in order to meet organisational goals and needs. Recognises that some protocols may no longer be effective and may develop new approaches.</b>

Oliver, B., Hunt, L., Jones, S., Pearce, A., Hammer, S., Jones, S., & Whelan, B. (2010). The Graduate Employability Indicators: capturing broader stakeholder perspectives on the achievement and importance of employability attributes. *Quality in Uncertain Times: Proceedings of AuQF2010*, 89-97.

Table 1: Similarities and differences between the Graduate Employability Indicators and the national surveys from which they are derived (p.92)

Capabilities	<ul style="list-style-type: none"> <li>Acquiring work-related knowledge and skills</li> <li>Writing clearly and effectively</li> <li>Speaking clearly and effectively</li> <li>Thinking critically and analytically</li> <li>Analyzing quantitative problems</li> <li>Using computing and information technology</li> <li>Working effectively with others</li> <li>Learning effectively on your own</li> <li>Understanding people of other racial and ethnic backgrounds</li> <li>Solving complex real-world problems</li> <li>Developing a personal code of values and ethics</li> <li>Contributing to the welfare of your community</li> </ul>
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Employability Framework Griffith University  
<https://app.secure.griffith.edu.au/explore/entry/3325/view>

Career focused. No digital skills.

Green, R., Marsh, I., & Pitelis, C. (2015). Future skills, industry policy and a new social contract, Australia's future workforce.

*CEDA Committee for Economic Development of Australia*

1.2 The impact of emerging technologies in the workforce of the future Professor Hugh Bradlow (p.43)

#### Access to work

Traditionally, proximity of workers to customers was required to deliver service, particularly for high touch, complex or persuasive interactions that usually require face-to-face interaction (consider for example, a customer discussing a complex investment strategy with a banker). However, the widespread access to the new immersive communications, which facilitates telepresence discussions with the same range of visual and non-audio cues as in a face-to-face conversation, may break the nexus between the location of the customer and service personnel. Workers will be able to choose their location for work-life balance reasons and compete for even highly skilled jobs with people in other geographies (notwithstanding the limitations of time zone, culture and language). It may also assist workers faced with physical or ambulatory disabilities to participate in the workforce more equally. **The ability to understand and empathise with customer issues and design suitable solutions to their problems will be a key determinant of employment success.** Providing our education system delivers the skills to enable employees to craft solutions to business problems from complex technologies, this bodes well for the Australian workforce as our workers are exposed to leading-edge problems due to the sophistication of the Australian economy.