Chapter 15
Baseline Skills—Scaffolding Soft Skills Development Within the Curriculum

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Abstract To enable Computer Science students to develop employability and 'work-ready' skills it is important to consider both the technical skills aligned to their discipline and the soft skills desired by employers. Research has identified that students in Computer Science would benefit from further support to develop the latter. This chapter considers how these skills can be developed through a variety of work experience opportunities including work-based learning and work-related learning; in class activities and alternative teaching approaches such as project, inquiry and problem-based learning; and through scaffolding both soft skills development and reflective practice, how students can become more confident in articulating these skills when applying for graduate work.

Keywords Employability · Soft skills · Problem based learning · Reflective practice

15.1 Introduction

Over recent years there have been numerous accounts in the news proclaiming that graduates are not work ready as they don't possess the baseline soft skills required by employers. Despite the growth in Computer Science and IT-related degrees and their subsequent graduates, unemployment was running at just over 10% (Shadbolt 2015). As a result the 'Shadbolt Review of Computer Sciences Degree Accreditation and Graduate Employability' was commissioned and the research published in 2016.

This chapter will consider the recommendations made within the Shadbolt Review and other research to highlight:

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- what elusive soft skills employers are looking for;
- provide guidance and recommendations on how soft skills development can be integrated effectively within the curriculum; and
- how students can go on to apply and showcase these skills confidently and effectively through a professional online presence.

15.2 Employability

Over two decades ago Dearing (1997: 133) recommended that higher education focus on key skills which were the 'key to the future success of graduates whatever they intend to do in later life' (p. 133). Skills identified included: communication skills, numeracy, information technology, learning how to learn/personal development planning, problem solving and team-working. Leckey and McGuigan (1997) lamented on the allegations of a gap between the generic skills fostered by higher education, and those that the labour market need. Whilst subject specific knowledge and skills are strong, the transferable knowledge, skills and attitudes essential for the world of work are weak. They go on to cite the European Commission (1991: 44) who argue "One feature of current skills shortage is the widespread lack of important generic skills and social skills such as quality assurance skills, problem-solving skills, learning efficiency, flexibility and communication skills".

To understand what makes individuals employable Knight and Yorke (2004: 5) defined employability as "A set of achievements—skills, understandings and personal attributes—that make individuals more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy". Cole and Tibby (2013: 5) add that employability is about "supporting students to develop a range of knowledge, skills, behaviours, attributes and attitudes which will enable them to be successful not just in employment but in life".

In 2016 the Shadbolt Review was commissioned by Ministers from the Department for Business, Innovation and Skills (BIS), where one of the key strategic priorities was to support and develop science and engineering talent coming through the education system and ensure that the UK has access to 'the skills and knowledge that it needs to drive economic growth and the development of a more innovative, productive and information-driven economy'. (Shadbolt 2016: 13). To realise this ambition, it is vital to align the skills graduates have with those required by employers. In order to do this and prepare work ready graduates, a recommendation for employers and higher education providers to work more closely together was made.

The Shadbolt Review (2016: 52) highlighted the following as the main issues impacting on graduate employability:

- Graduates lacking 'softer skills'
- Graduates lacking specific knowledge
- Graduates lacking computer programming skills of specific programming languages
- Graduates lacking business/commercial awareness
- Graduates lacking work experience.

15.3 Skills

The terminology used to describe skills most frequently refers to soft and hard skills. Generally speaking hard skills tend to be those that have been or can be tested; may be recognised with a professional, technical or academic qualification; and are quantifiable. Soft skills are personal life skills and tend to be more subjective. However there are variations as can be seen in Fig. 15.1.

In 2004 the Pedagogy for Employability Group (p. 5) as cited by Dacre-Pool and Sewell (2007) collated the following skills, advocating that these were the skills that employers expect graduates to have:

- imagination/creativity
- adaptability/flexibility
- willingness to learn
- independent working/autonomy
- working in a team
- ability to manage others
- ability to work under pressure
- good oral communication
- communication in writing for varied purposes/audiences

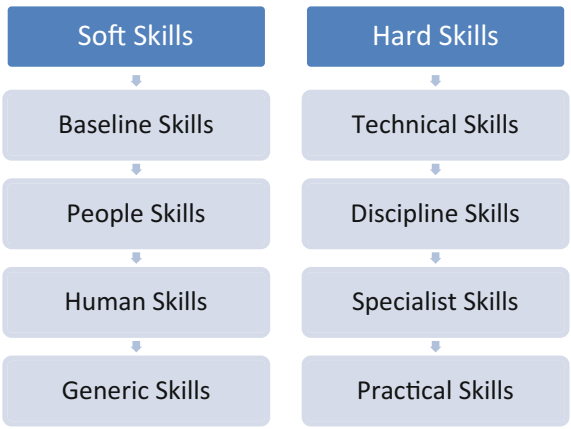

Fig. 15.1 Alternative names for soft and hard skills

- numeracy
- attention to detail
- time management
- assumption of responsibility and for making decisions
- planning, coordinating and organising ability.

A series of scoping interviews with employers carried out by Lowden et al. (2011: 12) recognised the need for skills and knowledge for specific roles (which would include technical skills); however all agreed the following *transferable* skills were considered most relevant:

- team working
- problem solving
- self-management
- knowledge of the business
- literacy and numeracy relevant to the post
- ICT knowledge
- good interpersonal and communication skills
- ability to use initiative but also to follow instruction.

The UK Commission for Employment and Skills (UKCES) a publicly funded, industry-led organisation provides leadership on skills and employment issues across the UK. UKCES carry out an Employer Skills Survey at regular intervals, the last conducted in 2015. Within this report it states that skills can be defined within two groups and named these: 'people and personal skills' and 'technical and practical skills' (UKCES 2015a: 44).

Hawkins (1999) splits soft skills into three groups: people skills, self-reliance skills, and generalist skills; then includes a fourth group as technical skills. People skills include team working, leadership, interpersonal skills, and customer orientation. Self reliance skills include self awareness, confidence, self-promotion, initiative, proactivity, networking, willing to learn and action planning. Generalist skills include problem solving, IT/computer literacy, flexibility, numeracy, business acumen and commitment (Hawkins 1999: 12).

Kaplan (Pedley-Smith 2014) published a white paper on graduate recruitment, learning and development in which a survey compiled a list of competencies. These were grouped as Knowledge (e.g. numeracy, literacy, technical knowledge), Skills (e.g. effective communication, analytical, problem solving) and Attitude (e.g. team player, confidence, positive mental attitude). Thurner et al. (2012) consulted software companies (potential employers of graduates) to identify desired skills and these are grouped as Self-Competencies (e.g. openness to constructive criticism, striving for life-long learning), Practical and Cognitive Competencies (e.g. analytical thinking, diligent and accurate work style) and Social Competencies (e.g. empathy and understanding of others, ability to work and cooperate in a team).

The World Economic Forum (WEF) report (2016: 21) categorises core work-related skills as abilities, basic skills, and cross-functional skills. Within these groupings there are subgroups:

- Abilities: cognitive abilities and physical abilities
- Basic Skills: content skills and process skills
- Cross Functional Skills: social skills, systems skills, complex problem solving skills, resource management skills and technical skills.

An area of concern is the ability for students and graduates to recognise and evidence vital soft skills. Being able to articulate transferable skills such as problem solving with clear examples requires the students to catalogue a collection of examples and to develop the confidence to sell themselves (Shadbolt 2016). One of the issues that students and graduates appear to struggle with is being able to provide clear examples of when and how a given skill has been applied in an authentic situation. However given the complexity of how skills are referred to, it should not come as a surprise that students and educators trying are struggling to know what skills they should focus on and the language to use to describe them.

15.4 Skills Gaps

A crucial problem faced is gaining a clear understanding about *what* key skills employers are looking for. The Council for Industry and Higher Education (CIHE 2010) are cited by UKCES (2015b: 48) stating "the importance of individuals possessing a 'fusion' of technology, business, creative and interpersonal skills". The Association for Computing Machinery (ACM) states that each computing discipline must "articulate its own identity, recognize the identities of the other disciplines, and contribute to the shared identity of computing" (Association for Computing Machinery 2005:8). In addition to having foundational knowledge in Computer Science, the Burgess Report (2007: 70) also highlights the significance of 'soft' or 'work readiness' skills. CBI's report (2017) refers to work-related attitudes, with communication, teamworking and a positive attitude to work being critical to attaining career opening.

It is therefore important for students to not only build and develop soft skills, but to be applying these skills and knowledge gained in a professional and business context. The Office of Students (2018) an independent regulator of higher education in England states within its strategy that as an outcome of the higher education experience, students will be able to progress into employment or further study. Universities UK (2016: 30) argue that "while a degree may be a baseline requirement for attaining a job, an applicant's ability to demonstrate skills and competencies that they can bring to the workplace will allow them to stand out from their graduate counterparts".

The UKCES Employer Skills Survey (2015a: 45) acknowledging there is a need to understand what skills are in poor supply, looks to identify skills lacking in the labour market. Employers taking part in the survey selected from a list of skill descriptors presented within the two aforementioned groups:

1. people and personal skills
2. technical and practical skills

To some extent these groupings could be seen to complicate matters. For example making speeches or presentations are under people and personal skills and yet basic numerical skills and writing instructions, reports etc. are placed within technical and practical skills. There is an overlap here if communication skills were used to describe a typical soft skill. That aside it still provides an indication of skills gaps and areas to focus on.

The 2017 Tenth CBI Education and Skills Survey (run in partnership with Pearson) received responses from 340 UK organisations. Within this research a similar set of skills were identified. Areas of particular weakness included international cultural awareness (39%), business and customer awareness (40%), and attitudes/behaviours e.g. resilience and self-management (32%) (CBI 2017: 93). Furthermore being able to demonstrate personal qualities such as resilience, attitude and confidence is inextricably linked to soft skills, and therefore also of importance (Fincher and Finlay 2016).

Looking to the future the anticipated skills needs are even harder to predict. On average, by 2020, more than a third of the desired core skill sets of most occupations will be comprised of skills that are not yet considered crucial to the job today (World Economic Forum 2016: 20).

In the Council of Professors and Heads of Computing (CPHC/HEA 2015) report on Computing Graduate Employability, it refers to an employer invited to speak to students about expectations, and is cited as stating that those students graduating with a first or 2:1 demonstrate the aptitude to learn so any additional technical skills required can be taught. However what they cannot teach is the soft skills.

The employers consulted during the Shadbolt Review indicated that whilst a range of soft skills were desired, the top two were **communication** and **project management skills**, stating that these were "crucial for working in teams, developing successful working relationships and contributing positively to an employer's strategic vision" (Shadbolt 2016: 55). Interestingly similar to the findings two decades prior by Leckey and McGuigan (1997: 368) who refer to the importance of 'personal transferable skills' and categorise these as communication skills, problem analysis and solving, interactional skills, initiative and efficiency.

Overall there is evidence that students benefit from authentic work experiences, ideally in an organisation that provides them with the opportunities to develop these soft skills and of particular importance communication as this is a fundamental overarching skill that will enable students to articulate the range of skills and experience they have in subsequent job interviews. Being able to communicate is clearly a vital skill, but to do so confidently needs development, practice and ongoing feedback.

15.5 Work Experience

One of the key recommendations from the Shadbolt Report (2016) is to extend and promote work experience. Placements and internships can provide rich opportunities to apply knowledge and current skills, as well as developing new skills. Such authentic work experience can provide a context for learning (Pegg et al. 2012). The report also suggests that the National Centre for Universities and Business (NCUB), the Council for Professors and Heads of Computing (CPHC), and the National Union of Students (NUS) should work closely to try to identify what barriers Computer Sciences students are facing when trying to gain work experience.

There is a correlation between those that have undertaken a placement (or other work experience) and being employed once graduated. It is therefore very important to prepare and encourage students to ensure they are in the best possible position to apply for posts. However 'work awareness' is also valued. This is where employers have an expectation that new employees will have "a useful awareness of the world of work … a feel for the market, and what's going on in the world" (Bennet et al. 2000: 101).

Work experience can be referred to as work-based learning (in the workplace) or work-related learning (workplace and learning space, and also simulated space). Work-based learning (WBL) is the term used to describe a class of university programmes that brings together universities and work organisations to create new learning opportunities in workplaces (Strachan et al. 2011: 134). The Department for Children, Schools and Families (DCSF 2009) define work-related learning as: "Planned activity that uses the context of work to develop knowledge, skills and understanding useful in work, including learning through the experience of work, learning about work and working practices, and learning the skills for work". This is further described as:

- learning ***for*** work by developing skills for enterprise and employability (e.g. problem-solving activities, work simulations and mock interviews
- learning ***about*** work by providing opportunities to develop knowledge and understanding of work and enterprise (e.g. careers education)
- learning ***through*** work by providing opportunities for young people to learn from direct experiences of work (e.g. work experience or enterprise activities).

Work experience can be both paid and unpaid. Opportunities to work within an organisation closely related to the subject discipline can provide access to develop

Table 15.1 Skills development opportunities

Examples of where skills can be developed	
Sandwich placement	year-long industry placements typically in the third or final year
Semester placement	short internships could be as little as a day a week or in a block
Work shadowing	an opportunity to get a feel for the working environment
Summer internships	taken over the summer break and include working abroad
Part-time work	typically unrelated to subject discipline
Course and university initiatives	hackathons and competitions, student led conferences, students as researchers projects
Volunteering	charities, computer clubs, peer assisted learning schemes, course rep and other university committees
Extra-curricular activities	clubs, societies, special interest groups

the broadest set of skills. However much can be gained through engaging with part-time work, volunteering and extra-curricular activities as important transferable soft skills can be developed and evidenced. Wilson (2012: 37) stated that in addition to the course/programme studied, personal skills are developed as "a consequence of social and family background, the environment within which study is undertaken and the extracurricular activities of the student". This might include voluntary work, community work, or part-time work unrelated to the degree subject (Table 15.1).

Cross-discipline work-related learning opportunities can provide two way learning. For example an institution led initiative provided an IT service desk to nursing students. The Nursing students gained IT skills and the Computing students were given feedback on their communication skills. Peer assisted learning (PAL) schemes help to develop leadership, communication and mentoring skills, whereby students mentor students in the year(s) below them.

15.6 Developing Opportunities for Work Experience

The development of an Industrial Advisory Board linking Computer Science academics with industry professional can open up a forum to discuss both work experience prospects and the preparation needed to apply for such posts; as well as forging links for graduate jobs (Universities UK and UKCES 2014, UKCES 2015b). Partnerships with businesses can also provide opportunities for guest lectures, industry visits and projects. Students on placement often go on to focus their final year project or dissertation on a topic related to the organisation they worked at. Employer engagement can include inviting employers to provide information, advice and guidance;

or to contribute case studies or work-based scenarios to the curriculum (University Alliance 2015).

Cole and Tibby's (2013: 10) paper 'Defining and developing your approach to employability' is a useful planning tool and comes with an action plan for course teams. It considers four stages:

1. Discussion and reflection—creating and defining a shared point of reference.
2. Review/mapping—what are we doing/not doing?
3. Action—how do we share and enhance existing practice? How do we address gaps in provision?
4. Evaluate—What does success look like and how is it measured? How can we enhance practice further?

There is much to be gained through academic cross-institutional visits, developing communities of practice between institutions to discuss and share good practice about employability and skills development. A CPHC-funded (Council of Professors and Heads of Computing) initiative focussed on employability took place during 2016/17 called 'GECCO Building a Graduate Employability Community in Computing'. A series of three events took place in London, Manchester and Edinburgh. The evaluation report (CPHC 2017) shared that participants valued:

- Time and space share/discuss practice.
- Discussions between practitioners for ideas and reflection.
- Networking (mentioned three times).
- Exchanging ideas/establishing new contacts.
- Contacts. Ratification that we are not alone!!
- New contacts at other institutions.
- The networking opportunities.
- Talking to colleagues about employability across the sector.

Maintaining alumni networks is key, as when students graduate and maintain connections with their alma mater, they are more likely to let past Tutors know about job offerings and placements opportunities in their workplace. Equally it enables the academics to stay in touch and invite graduates back to give talks to inspire students to take a placement year, undertake extracurricular activities and explain how these develop the skills employers are seeking. Utilising LinkedIn, (regarded as 'professional' networking) to create course alumni groups, provides a useful way to keep in touch with graduates and follow their progression. Encouraging students to also join industry groups and follow Company pages can give an insight into the culture and specialisms within organisations.

15.7 Approaches to Teaching Soft Skills

Teaching soft skills can be challenging. Some computing programmes have specific stand-alone soft skills modules which focus solely on professionalism and communication. Whilst often aligned to the skills identified by employers as important, students do not always value the module. For some it is seen as a stand-alone bolted on addition to the course, containing activities the students feel they are already competent in. Criticism of this approach suggests that activities are not sufficiently contextualised in the computing specialism students are taking.

Knight and Yorke (2004: 199) note the following ways to include employability skills development in the curricula:

- employability through the whole curriculum
- employability in the core curriculum
- work-based learning or work-related learning incorporated as one or more components within the curriculum
- employability-related module(s) within the curriculum
- work-based or work-related learning in parallel with the curriculum.

The British Computer Society's (BCS) best practice model considers the legal, social, ethical and professional issues in computing (LSEPI). Healey (2014) argues that providing opportunities to work through ethical issues can help students to develop critical thinking skills. Connecting current examples of these issues that align with specific computing specialisms are more likely to engage students than providing generic examples. An inquiry-based learning approach can provide students to research exemplars and then link the activity with an exercise to identify the skills they have gained as a result. There is further scope for BCS to collate Computer Science case studies of best practice implementing effective approaches to embed LSEPI in the curriculum; and to liaise with Association of Graduate Recruiters (AGR) and the Association of Graduate Careers Advisory Services (AGCAS) to develop a model for accrediting careers advice provision within the curriculum (Shadbolt 2016).

The capstone or service learning module is an alternative approach whereby students engage in project based learning and key skills are purposefully integrated. For example, written and verbal communication, teamwork and organisation skills (Carter 2011). Mock data and role play where students play the role of the Client set the scene for the project (Vogler et al. 2017). In some instances, real businesses are involved and provide a valuable work-related learning experience. The application of communication skills are demonstrated through meetings with the Client face to face, online, by phone, via email and through presentations and a final report; along with a vast array of other skills needed to undertake and complete the project. When working with a real business, students will experience client management, meeting client expectations and potentially conflict management (González-Morales et al. 2011). Jackson (2014) refers to work-integrated learning and opportunities for service learning where students apply their professional skills through participating in an authentic activity that benefits the community. There are also opportunities to

cross disciplinary boundaries, involving students from other courses. Hazzan and Har-Shai (2014) ask students to reflect on one stage in the lifecycle of a company, stage of a project or specific department, and describe the skills required. Yu and Adaikkalavan (2016) expound upon the value of problem-based learning where time is given to coach students and evaluate performance.

Another approach is involving students in the planning of the curriculum in relation to soft skills development. This can be done by asking the students what skills they would like to develop on the course and to suggest or contribute to the design of activities to develop these. Using a card sort exercise, students can engage in an activity to rank skills. For example:

- group activity—identity the ones they feel employers most value
- individual activity—identify the skills they are most/least confident in
- group activity—design activities to develop skills
- Individual activity—articulate what soft skills are and why they are of value.

Innovative approaches take a constructionist approach (Papert and Harel 1991) and use Lego Serious Play to engage students in discussions around topics such as barriers and enablers of effective teams, and skills development. Students use the bricks to build metaphorical representations and share stories based on these. It provides an effective way for students to express themselves in a non-threatening way and to learn from each other (Peabody and Noyes 2017).

Key to all of these activities is helping students identify and then articulate the skills they are developing. Often what can be missing is a portfolio that is owned and valued by the student to capture this information.

15.8 Personal Development Planning (PDP)

The integration of personal development planning (PDP) can be an effective way to engage in reflective practice. PDP is defined by the QAA (2009: 2) as a "structured and supported process undertaken by a learner to reflect upon their own learning, performance and/or achievement and to plan for their personal, educational and career development". Furthermore the QAA states PDP supports the idea that learning is a lifelong and life-wide activity. To achieve skills enhancement requires self-awareness of strengths and weaknesses from personal skills profiles (Wilson 2012).

The 2004 Burgess report 'Measuring and Recording Student Achievement' concluded that whilst advocating the use of personal development planning, further work should be supported to ensure research extended knowledge of the most effective strategies and evaluation of impact. This was followed in 2007 by the Burgess Group Final Report 'Beyond the honours degree classification' which introduced the Higher Education Achievement Report (HEAR). The HEAR (2008) is described as being "designed to encourage a more sophisticated approach to recording student achieve-

ment, which acknowledges fully the range of opportunities that higher education institutions in the UK offer to their students".

The recommendation was that students evidence additional skills attained at university which is intended to provide employers with an additional report to their transcript of academic results, providing a more comprehensive record of achievement. For example the HEAR (2008) can capture:

- additional awards—accredited performance in non-academic contexts and individual units/modules studies in addition to the main degree programme
- additional recognised activities—roles and activities undertaken by students which demonstrate achievement but for which no recognition is given in terms of academic credit e.g. volunteering, student union representative roles, representation at national level sport or training course run internally
- university, professional and departmental prizes.

Another way of capturing attainment is through 'Progress Files'. These can provide a way for students to record, reflect and review the skills and experience gained from the curriculum, work related learning, work-based learning as well as casual and voluntary work. In doing so they will develop the confidence to articulate and evidence their skills and knowledge (QAA 2001). In Pegg et al. (2012: 27) a case study by Waldock advocates the use of weekly e-Progress files throughout their time at university, whereby students develop a culture of engagement, value supported learning through regular feedback, and provides staff with regular ongoing feedback on their teaching.

PDP is seen both as a set of process and through a portfolio a valuable product in its own right. Within the portfolio, students are expected to review achievements, identify learning needs, plan how to address these needs, and present achievements (Knight and Yorke 2004). However for this to be achieved it is important that guidance and support is given to students (Beard 2018). It should also be acknowledged that reflection takes practice and encouragement. To move from surface reflection and acceptant thinking to deep reflection and question thinking, students need to learn how to effectively undertake self-analysis and achieve self-awareness. They need to value the process and the outcomes (Carter 2011). When a motivated, there is a risk that they will just go through the motions. Fung (2017) advocates the integration of research and enquiry-based pedagogies, where activities and skills develop over time.

Dacre-Pool and Sewell (2007: 280) created the 'The Key to Employability' a metaphorical model. The CareerEDGE Employability Development Plan aims to develop increased levels of self-efficacy, self-confidence and self-esteem through reflection and evaluation. CareerEDGE is a mnemonic for the five components of the model.

1. **Career** Development Learning
2. **Experience** (work and life)
3. **Degree** Subject Knowledge, Understanding and Skills
4. **Generic** Skills
5. **Emotional** intelligence.

The Centre for Recording Achievement (nd) is a national network organisation and a registered charity which seeks to "promote the awareness of recording achievement and action planning process as an important element to improving learning and progression throughout the world of education training and employment". It provides a useful collection of case studies and CPD opportunities.

15.9 Scaffolding Reflective Practice

Learning how to reflect on experiences and developing a habit of doing so is an important life skill. It can have a profound impact on learning. Boud et al. (1985) consider the journey of turning experience into learning in three stages: What? (experience), So what? (reflection) and Now what? (learning). Developing reflective skills can in itself help individuals with the art of knowing how to learn (Helyer 2015).

The concept and pedagogy supporting the use of PDP has been written about extensively. As practioners we know ourselves it is valuable as part of our own CPD. However it is clear that reflecting effectively for many does not come easily. One of the barriers is finding the language to articulate what needs to be said. 'Blank canvas syndrome' is rife, with students declaring "I don't know what to write!"

There is a tendency to simply write about the 'what I did' but not expand upon what might be done differently, what was learned, what areas of development are needed and a recognition of skills that have been developed. It is therefore helpful to scaffold the process of reflection. This can be done by first of all explaining what reflection is and providing examples of how reflective practice is used outside of academia.

For example reflection is common practice in sport, where after a game the players will review their performance. Reflective practice in sport appraises what was on form and what can be learned from mistakes made. In the military After-Action Reviews (AARs) are conducted during or immediately after each event. They use open ended questions, determine strengths and weaknesses, and link performance to training. These consider: what did we set out to do, what actually happened, why did it happen and what will we do next time.

Then in the context of computing the use of Scrum has been used since the 1990s. Schwaber and Sutherland (2017) define Scrum as "a framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value". Scrum prescribes four formal events for inspection and adaptation:

1. **Sprint Planning**—The work to be performed in the Sprint is planned at the Sprint Planning. This plan is created by the collaborative work of the entire Scrum Team.
2. **Daily Scrum**—This is a 15 min time-boxed event for the Development Team and is held every day of the Sprint. At it, the Development Team plans work for the next 24 h.
3. **Sprint Review**—This is an informal meeting, not a status meeting, and the presentation of the Increment is intended to elicit feedback and foster collaboration.
4. **Sprint Retrospective**—This is an opportunity for the Scrum Team to inspect itself and create a plan for improvements to be enacted during the next Sprint.

Whilst the language used is different the concept of teams 'inspecting itself', can be aligned with reflection. It can be valuable to invite professionals into describe how Scrum is used in the context of their own organisation.

When it comes to capturing reflective practice, rather than asking students to go away and write 200–300 reflective words, providing aide-mémoires to guide students can be a very helpful and supportive approach. Building on the work of Gibb's (1988) reflective cycle which commences with a description of what happened and then considers feelings, evaluation, analysis, a conclusion and an action plan; it can be helpful provide suggestive prompts for each of the six stages of reflection. These can be presented in the form of a check list to encourage students to reflect beyond *the doing* and reach a point where they can start to identify skills they are developing and those that need further attention. Furthermore they can contextualise them in authentic scenarios, providing examples of how they have been able to apply the skills.

1. **Description: What happened?**
   Begin by describing in detail the activity you are going to reflect upon. Think about including who you were with, where you were, what did you do/read/see; what were your responsibilities and what did you contribute, what others contributed; what were the outcomes.
2. **Feelings: What were you thinking and feeling?**
   Now consider what you were thinking about. Capture what you were feeling at the beginning of the activity. What did you feel when you completed and how do you feel now? Did your feelings change? Consider how others made you feel.
3. **Evaluation: What was good and bad about the experience?**
   The next step is to evaluate your experience. Think about what went well and what didn't go as well as expected. Record both the positive and negative aspects of each stage of the experience. Were there any difficulties? What/who was helpful/unhelpful?

4. **Analysis: What sense can you make out of the situation?**
   Look more closely at why you think aspects went well or didn't go so well. What contributed to things going well? Where things went badly think about how this might have happened. Think about your contribution and how others contributed. How does it compare to other experiences?
5. **Conclusion: What else could you have done?**
   Now you need to consider what you have learned from your experience. It is important to be honest with yourself and think about how you could have done anything in a different way. Have you learned anything from other people's approaches or behaviours?
6. **Action plan: If it rose again what would you do?**
   Finally if you were to find yourself doing this or a similar activity again, how would you approach it? What would you differently? Think about the skills you may need to develop to ensure it went better next time. Plan how and when you will undertake any skills development.

A further consideration is encouraging the students to explore a variety of approaches to capture their reflections. For example multimedia reflective blogs can contain text, but also photos, audio and video, sketch notes and mind maps. For example students learning in groups to programme a Lego Mindstorm in preparation for a race, could capture maths calculations as a photo, and a video of the robot in action. The visuals can aid recall and provide a focal point for reflection on the activity.

15.10 Scaffolding the Articulation of Soft Skills

It is important that student value the broad range of opportunities experienced whilst at university (Knight and Yorke 2004)and learn how to reflect confidently on the skills that they are developing; become able to articulate these; and also realise where their skills development is weak and understand how to develop an action plan to overcome any weaknesses.

As with reflective writing it can be challenging finding the right words to demonstrate skills. Hawkins (1999: 12) presents a 'Skills Portfolio' which captures a useful collection of adjectives for each of the skills listed. Providing students with such a list can act as a prompt as they identify and build their own portfolio of skills. For example: team working: supportive, facilitator, organised, co-ordinator, deliverer, imaginative, delegator, open-minded or willing to learn: motivated, adaptable, enthusiastic, active, keen learner, inquisitive, continual improver (Hawkins 1999: 12).

This could also be developed into a group activity where students in groups are tasked to identify relevant adjectives to describe a skill and the class shares and critiques the outputs. These can then be compared to Hawkin's Skills Portfolio.

15.11 Peer Support

Students can learn about skills development and the value from their peers through peer assisted learning and mentoring schemes. Students as mentors develop leadership, communication and mentoring skills and students as mentees can develop a range skills influenced by the activities they are able to engage with (Pegg et al. 2012).

Another useful approach is either inviting students currently on placement, final years returning from placement or graduates who have experienced placements, to be involved in group or individual speed dating conversations or poster presentations to highlight the skills required for placements and the skills developed whilst out on placement.

15.12 Careers Support

Many universities have a Careers unit within the university. Those working in this area can provide students with one to one personal support or as group activities to further help them prepare for placements and graduate jobs. For example:

- Job applications
  - Skills
  - Competencies
  - Attributes
- CVs and cover letters
  - Skills and STAR statements
  - Technical skills
- Interviews
  - Phone interview
  - Skype video interview
  - Face to Face interview
- Assessment Centres
  - Group exercises
  - Role play
  - Logic tests
- Tests
  - Psychometric testing
  - Numerical testing
  - In tray test (task organisation).

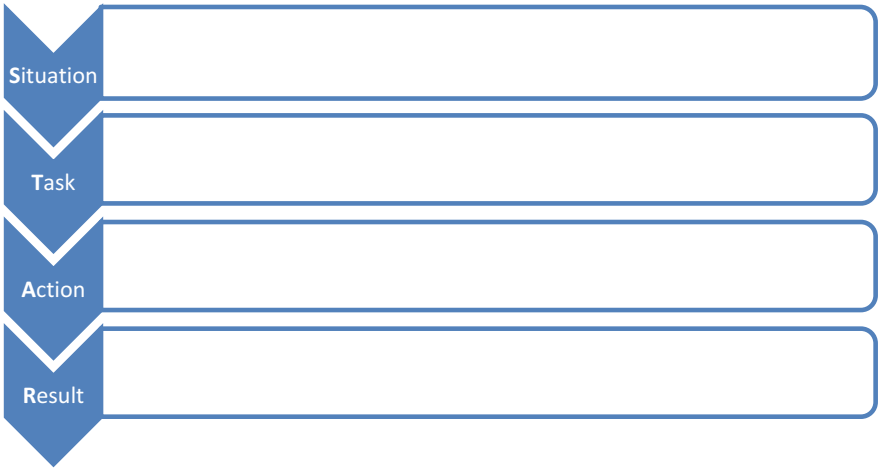

Fig. 15.2 Template for a STAR statement

By engaging in these mock activities, students can practice articulating the skills they have and demonstrate these to receive feedback. This can be further enhanced where there is support through mentoring schemes, Academic Advisors, Personal Tutors, Employability Advisors and PAL (peer assisted learning) schemes.

Other class activities can support the development of presentation skills. This might include the use of PowerPoint (or similar), infographic posters or interactive digital poster, or screencasts.

15.13 Recording Skills

A useful approach to describe any skill is to develop a S.T.A.R. statement for each, whereby a scenario considers each of the four elements: situation, task, action, and result. Using the template in Fig. 15.2 a specific skill is chosen and then evidenced by considering an example of where it was applied. This allows for reflection on examples where things went well and also where they didn't. By considering the result there is an opportunity to further reflect on what was learned from a situation and what might be done differently next time. An interview question for example might be 'Describe a situation where you were working in a team and things didn't go as planned'.

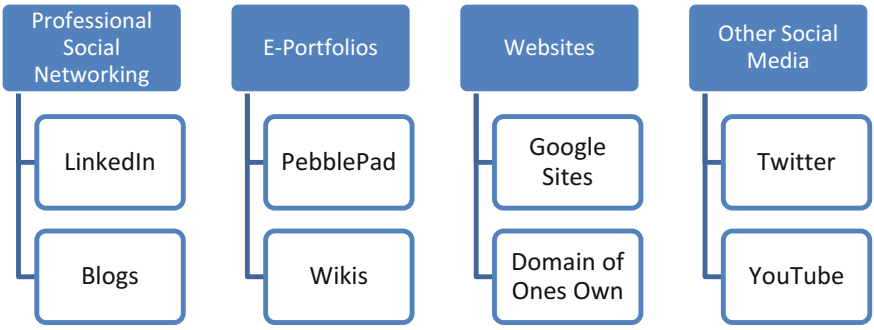

Fig. 15.3 Examples of tools to capture reflect on and showcase learning

Hawkins (1999: 14–15) developed an exercise to record tasks undertaken and skills gained in any type of work experience. The examples given include full-time work, voluntary work, part-time work and community work. The objective is to list all relevant tasks undertaken in the selected role and then for each task consider what skills were developed. To further aid the process skills are to be considered under the following four headings: working with data and information, working with people, working with practical things, or working with ideas. The exercise can be repeated for each role an individual has had. The outcome demonstrating the broad range of skills an individual has when looking at this from a wider perspective.

15.14 Showcasing Skills

In addition to the traditional CV, students applying for placements or graduate jobs can benefit greatly from having a professional online presence to showcase achievements and demonstrate their skills. This can be done by creating a profile on LinkedIn, which is a both a professional networking site and a tool for recruiters to find talent. In addition the use of blogs, wikis, websites and e-portfolios can provide spaces to share skills, achievements and work experience (see Fig. 15.3). Engagement will increase if students can see the purpose (Barrett 2005) of digital portfolios. Clear signposts can help prospective employers find further information. This can easily be done by cross-referencing the online spaces using hyperlinks.

Students need to take ownership of these spaces and value what is presented publicly. It is common practice for employers and recruitment consultants to use search engines like Google to screen applicants. Digital footprints left in social media spaces where open to the public can reflect on the individual positively, but also negatively. Taking ownership of a personal profile is therefore important. The act of 'googling' yourself can be quite revealing. Not only does it help users see what others might see, it can provide a timely prompt to revisit social media profiles to

check privacy settings where information is not intended to be openly public, and also to tidy up profiles that are public.

Hundreds of millions of professionals now have a LinkedIn profile to which they add their education, skills and information about their employment. As mentioned, employers will actively search for potential candidates using LinkedIn. Considering what search terms they might use to do this is another useful activity. These keywords might include placement or graduate. Where these words are included in a profile header can increase the chance of being found. For example: '*BSC Computing Science graduates looking for employment*'. Adding skills to a profile can help in this search process as well as providing the reader with a clear picture of the strengths of the individual.

Self-promoting a professional online presence can be done in a number of ways.

- email signature—adding the URL of a LinkedIn page, blog or website
- business cards—as above and converting the link into a QR code
- paper CVs—it is now common to see a LinkedIn URL included at the top of a CV alongside an email address and telephone number
- social media—links to any digital portfolios can be shared via Twitter and LinkedIn.

15.15 Summary

The range of soft skills can be seen as a minefield. However building partnerships with industry can help to highlight what is required as work-ready skills, as this will differ in different specialisms within the sector and is likely to change over time in relation to what is a current priority. It is crucial that graduate skills are aligned with the expectations and needs of employers. Underpinning the wide spectrum of skills is the ability to confidently reflect and communicate examples when faced with a job application and interview. The development of all skills is enhanced greatly when students engage in work experiences.

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