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Seven ESE Factors for Career-Ready Students

Validation of the Employability Self Evaluation measure and proposal of a readiness/competence career development model

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Executive summary

Given the increasing use of more holistic models of career development in the HE sector, this research has investigated one such model, the Solent Capital Compass, by statistically analysing data from 5797 Solent University students who completed the online questionnaire based on this model, the Employability Self Evaluation (ESE), between January 2014 and June 2018.

The original ESE (ESE 1.0) contained 16 components arranged into three broad categories of capabilities (classical career management skills or human capital), connections (networking or social capital) and confidence (broader psychological capital constructs underpinning career development).

Factor analysis revealed seven independent, psychometrically robust underlying constructs that together form a new employability measure referred to as ESE 2.0. Our new My Employability model is based on these seven career development factors:

1. My Career
2. My Experience
3. My Opportunities
4. My Network
5. My Creativity
6. My Attitude
7. My Communication

Two focus groups of recent graduates explored the above terminology and confirmed it to be suitably student-friendly.

Multiple regression analyses did not show any significant correlations between one-off ESE 2.0 factor scores and objective measures of being in work or graduate level employment. There was a slight positive correlation between My Career and being in further study and a small negative correlation between My Network and being in further study.

Like ESE 1.0, we want ESE 2.0 to be first and foremost a learning tool for students but are still keen to explore its predictive potential. Future research may show whether repeated, learning gain measures using ESE 2.0 data have more predictive power for both objective and subjective measures of career success.

We hope to include global measures of career readiness, such as level of career thinking data gathered in the Careers Registration project, and maybe other qualitative elements, in future research designs. This will enable us to explore the validity of our proposed readiness/competence career development model.

The next step is to develop a more interactive and user-friendly ESE 2.0 App that will support students, lecturers, careers staff and ongoing research.

We hope that documenting the process of developing and refining the ESE, as outlined in this report, will be of genuine use to colleagues who are considering similar initiatives.

Introduction

Possible ingredients of career development and employability

Concepts of career development and employability, like many elements of the human condition, are rich and complex with numerous models and frameworks informing the conversation. Artess et al (2017) provide a thorough review of recent literature. For the purposes of this report, the Higher Education Academy describes employability as being a mixture of

> '…knowledge, skills, experiences, behaviours, attributes, achievements and attitudes to enable graduates to make successful transitions and contributions, benefitting them, the economy and their communities.' HEA (2018)

Examples of theory-based ingredients that could explain this important mix are listed in Table 1.

Table 1: Some career development and employability models and frameworks

Model	Authors	Components
DOTS	Law and Watts (1977)	Decision making Opportunity awareness Transition learning Self-awareness
USEM	Yorke and Knight (2003)	Subject Understanding Skilful practice Efficacy beliefs, self-theories and personal qualities Metacognition
Employability	Fugate, Kinicki and Ashforth (2004)	Career identity Personal adaptability Social and human capital
CareerEDGE	Dacre Pool and Sewell (2007)	Career development learning Experience Degree subject knowledge / academic performance Generic skills Emotional intelligence
Solent Capital Compass	Jones and Sant (2013)	Capabilities (Human capital) Connections (Social capital) Confidence (Psychological capital)
Creative Attributes Framework	University of the Arts London (2016)	Making things happen • Proactivity, Enterprise and Agility Showcasing abilities and accomplishments • Communication, Connectivity and Storytelling Life-wide learning • Curiosity, Self-efficacy and Resilience
Graduate Capital	Tomlinson (2017)	Human capital Social capital Cultural capital Psychological capital Identity capital

The Law and Watts (1977) DOTS model, while developed over 40 years ago, still has value in the daily practice of many career development professionals because it relates directly to the issues people face when dealing with the practicalities of managing their career. It is still used in contemporary research e.g. Appendix 1 details the undergraduate DOTS elements measured in Jackson and Wilton (2016).

We would be surprised if current graduate recruiters did not talk about the need for complex psychological qualities like growth mindset (Reeve, 2016). For example,

> 'It's quite hard to predict the future, so when we talk about the skills and attributes that students should be looking at developing, we focus on the ability to deal with ambiguity, the resilience to deal with change and the ability to work flexibly and be open-minded.' (Isherwood, 2018)

However, it was only in the early years of the new millennium that broader psycho-social ideas explicitly entered the career development discourse and formally added more holistic dimensions to DOTS-based career management skills models. In particular, at around the time Mel Fugate and colleagues in the USA were proposing a broader construct of employability which emerged from the dynamic interaction of career identity, personal adaptability and social and human capital (Fugate et al, 2004), in the UK, Peter Knight and Mantz Yorke were also articulating their USEM model (Yorke and Knight, 2003) for the University sector – see Table 1 for an overview.

More recent Higher Education career development models now explicitly include these broader psycho-social considerations e.g. see Dacre Pool and Sewell (2007), Jones and Sant (2013), University of the Arts London (2016) and Tomlinson (2017) as outlined in Table 1. We can imagine how these different holistic frameworks evolved in response to, amongst other things, the demands of the unique university contexts and specific needs of their students. For example, the Creative Attributes Framework (see Table 1) uses terminology which arguably aligns with both the institutional identity of the University of the Arts London and the profile of employability skills and attitudes required by students who wish to work in the creative industries.

From theoretical diversity to theory-based research and application

While many of the employability and career development learning models touched on so far have been encountered by one of the authors, David Whistance, in his professional role as a Careers Adviser, this is not a comprehensive review. Artess et al (2017) explore many issues including contemporary thinking about what career development and employability could mean and ongoing discussions about the attributes graduates may need to succeed. Authors such as Tomlinson (2007) and Tymon (2013) also argue that the debate needs to more fully represent the lived experiences of students whose voices have often been secondary to those of employers and universities.

In the face of these continuing conversations, the pragmatic rallying call of how to best support students and graduates to build successful and rewarding careers still remains. Just how can these frameworks be effectively used in practice? At one level, they can inform the strategic steps institutions take to develop, review and improve their own employability frameworks (Cole and Tibby, 2013). However, Brown et al (2003) call for more theoretically informed research. So…

- Various models may appeal intellectually but do they deliver?
- Do theory-based employability measures tick the necessary psychometric boxes? For example, do they measure what they claim to measure?
- Do interventions based on the models make a significant difference?
- Do the models have any predictive power?

A growing research base is starting to explore these questions. For example, after conducting their own review of employability in higher education, Lorraine Dacre Pool and Peter Sewell (2007) developed the CareerEDGE model which is outlined in Table 1. Students can assess their relative strengths and weaknesses in the five elements of the model through using the Employability Development Profile (EDP). Dacre Pool et al (2014) went on to complete a factor analysis of 807 undergraduates who completed the EDP. Factor analysis provides a statistical assessment of how students actually interact with questions in the EDP. The results showed that the questions in the EDP grouped into five factors that mapped onto the CareerEDGE model i.e. the EDP measured the CareerEDGE model.

In the second part of their research, 19 students who completed the EDP also repeated it after engaging in a 12 week careers education course. There was a significant improvement in career development learning (t=4.483, p=0.000) and academic performance (t=3.522, p=0.002) but not in the other factors which suggested that the EDP 'can be used to identify changes in students' self-perceptions of their employability as a consequence of effective employability interventions' (Dacre Pool et al, 2014, page 309).

Gonzalez-Roma et al (2018) analysed the results of 7,881 graduates from the University of Valencia who had completed a questionnaire based on the Fugate et al (2004) employability model. Their research explored complex relationships between 10 variables and four construct measures. The four construct scales are listed in Appendix 2. One variable, vertical match, asked respondents whether a university degree was required for their current role. Four variables showed significant, positive relationships with vertical match: degree subject (ΔR^2 = .10, p <.008), work experience (β = .29, p <.008), social capital (β = .08, p <.008) and career identity (β = .20, p <.008). As well as exploring the theoretical implications of this research, findings such as these supported practical recommendations including:

- Growing provision for students to access work experience.
- Building networking and related activities to develop social capital.
- Providing opportunities for students to clarify their career identity through developing understanding of occupations, options and themselves.

These examples of research suggest it is possible to find effective ways to measure and work with theory-based career development and employability constructs (Brown et al, 2003). There are models. There are questionnaires that map onto the models. There is also evidence that students interact with different parts of the models in ways that make sense. And finally, some of the relationships between variables can inform practice. For example, Gonzalez-Roma et al (2018) showed that work experience, career identity and social capital scores were positively related to graduates being in roles that required a degree. This in turn validated the importance of various employability development activities (see previous paragraph for details).

A readiness/competence model of career development

The Gonzalez-Roma et al (2018) research was cross-sectional i.e. graduates assessed their employability and other measures such as job satisfaction after they had left university. The authors recognised that 'it would have been better to measure the employability dimensions in the last year of university studies and the criterion variables later, once university graduates had entered the labour market' (Gonzalez-Roma et al, 2018, page 145). This longitudinal approach would have enabled the researchers to explore whether any employability factors could predict any career outcome measures.

The UK Careers Registration Learning Gain initiative has taken a longitudinal approach. The final report, which considers results from 17 universities, had not been released by the Office for Students at the time of publication. However, some data was available from the project conference in London in May 2018. For example, Katie Hill (Hill, 2018a) provided evidence regarding 2015/16 graduates from the University of Bristol. This showed that students who had completed institutionally sourced work experience, had experience of self-employment or had been members of a university society or club were more likely to be in graduate level employment. This was a statistically significant difference compared to the overall proportion of students in graduate level employment (Hill, 2018a). Annual surveys of graduate employers such as www.highfliers.co.uk routinely show that recruiters place a premium on relevant work experience. The above data from the University of Bristol validates, amongst other things, the value-added benefits many students derive from completing work placements as part of their degree.

Hill (2018a) and Hill et al (2018) also reported on Career Thinking data. Undergraduate students selected a statement that most closely described where they were in their career planning at the start of each year at university. Table 2 lists typical questions used by Careers Registration project members - see Cobb (2017) for further details.

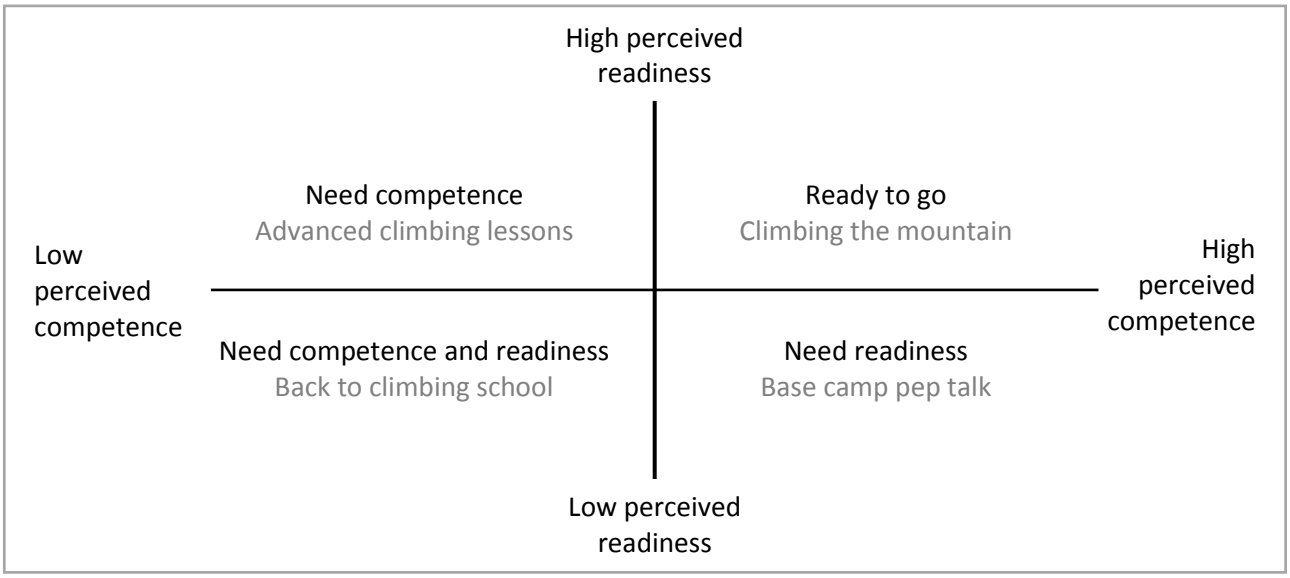
Table 2: Career thinking questions described in Cobb (2017)

Statement	**Category**
I am not ready to start thinking about my career yet	Decide
I have no career ideas yet but want to start thinking	Decide
I have some ideas about my career and I am ready to start planning	Decide
I have a career in mind and intend to gain relevant work experience	Plan
I know what I want to do but not sure how to get there	Plan
I want to spend a year gaining experience	Plan
I am ready to apply for graduate level / professional opportunities	Compete
I am ready to apply for further study	Compete
I have been applying for opportunities and so far I have not been successful	Compete
I have a job, further study or my own business plan confirmed	Sorted

When reporting on findings from the University of Bristol, 'A change in careers thinking between the penultimate and final year has less impact on outcomes than thinking at the start of the final year' (Hill et al, 2018). Focusing on the final year data, students at a later phases of career thinking were significantly more likely to be in employment (95.7%) compared to students in earlier phases of career thinking (91.7% in employment) ($X^2(2)=21.77$, $p < .001$,) see Hill et al (2018) and Hill (2018b).

Reflecting on these results, this raises the likelihood of significant interactions between more global perceptions of career thinking/readiness on the one hand and more detailed assessment of career management competencies on the other. While career thinking questions are designed to measure perceptions of employability readiness, the Careers Registration research cited above did not ask students to provide more detailed information about perceptions of their career management skills which are arguably required to translate their general sense of readiness into action. So while the final year students referred to in Hill et al (2018) viewed themselves as being in a later phase of career thinking, some of them may have been in the 'Need competence' location and others may have been in the 'Ready to go' quadrant in the career management readiness/competence model proposed in Figure 1. Considering more granular readiness/competence datasets may potentially yield more detailed predictive results.

Figure 1: A readiness/competence model of career development



Different research investigates different aspects of this model in different ways. For example, while Dacre Pool et al (2014) showed students experienced significant learning gain in key measures of career development from completing a careers education course, these were not linked with measures of self-perceptions of career readiness. Hill (2018a, 2018b) and Hill et al (2018) reported on career readiness measures including work experience and career thinking that had powerful predictive capacity but this design did not include career development competence measures. And Gonzalez-Roma et al (2018) included rich correlational analyses between employability constructs and important outcomes but it was not a longitudinal predictive design.

In our own research at Solent University, we realised we would also not be able to explore the readiness/competence model as we did not have access to data measuring general career readiness perceptions such as level of career thinking. However, we did have self-perception measures of employability competencies completed by almost 6,000 students that we could link with their career outcomes collected in the Destinations of Leavers from Higher Education (DLHE) survey that would enable us to complete predictive analysis.

Solent Capital Compass

This report focuses on the Employability Self Evaluation (ESE 1.0) which was designed to measure the elements of the original Solent Capital Compass model of employability. This model was developed by Rosy Jones and Richard Sant after reviewing career development and employability literature that is referenced in Jones and Sant (2013) and listed in Appendix 3. Extensive dialogues with Solent Futures staff, academic colleagues, employers and other external contacts also informed its development.

It is important to recognise the helpfulness of conversations with Michael Tomlinson based at the University of Southampton. While various types of non-economic capital such as social and human capital formally entered the employability discourse in Fugate et al (2004), their importance in the minds of Rosy and Richard was reinforced and extended during mutually enriching conversations with Michael who has subsequently developed the Graduate Capital Model (Tomlinson, 2017) outlined as the last entry in Table 1.

The Solent Capital Compass model of employability is comprised of three areas of Psychological Capital, Social Capital and Human Capital. Each capital is made up of various elements.

Psychological Capital (Confidence)
This is comprised of self-efficacy, resilience, positivity and goal setting.

Efficacy beliefs are the E in Yorke and Knight's (2003) USEM model – see Table 1. According to Albert Bandura, who developed the construct:

> 'Among the mechanisms of agency, none is more central or pervasive than people's beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives. Efficacy beliefs influence how people feel, think, motivate themselves, and behave.' (Bandura, 1993, page 118).

After reviewing self-efficacy research, he goes on to say:

> 'A strong sense of efficacy enhances personal accomplishment in many ways. People with high efficacy approach difficult tasks as challenges to be mastered rather than as threats to be avoided. Such an efficacious outlook fosters interest and deep engrossment in activities. They set themselves challenging goals and maintain strong commitment to them. They maintain a task-diagnostic focus that guides effective performance. They heighten and sustain their efforts in the face of failure. They attribute failure to insufficient effort or deficient knowledge and skills that are acquirable. They quickly recover their sense of efficacy after failures or setbacks.' (Bandura, 1993, page 144).

In light of this, it is understandable why self-efficacy is a desirable attribute for a graduate, or indeed anyone, to have and develop.

The second aspect of psychological capital is resilience. The career development process has its ups and downs and resilience is required to bounce-back from disappointments and challenges. Employers want to hire resilient graduates (Isherwood 2015 and 2018). There are various models of resilience e.g. Mind Tools (2018), evidence that resilience training promotes subjective wellbeing at work e.g. Robertson and Sarkar (2015), and frameworks have been created to help different groups to develop resilience e.g. Worsley (2010). The Open University has a free online multimedia course called 'Developing career resilience' that can be completed over 24 hours and is supported by a 312 page workbook (Open University, 2017).

Positivity links to the idea of optimism which is a core aspect of the PERMA (Positive emotion, Engagement, Relationships, Meaning and Achievement) positive psychology model (Seligman, 2011). It overlaps with the notion of positive attitude which forms the central hub of the CBI/NUS (2011) graduate employability model.

> 'A positive attitude is the key foundation of employability. This type of attitude involves a readiness to take part, openness to new activities and ideas, and a desire to achieve results. It underpins and links together the other key capabilities.' (CBI/NUS, 2011, page 13).

Goal setting is the final element of psychological capital. Luthans and Youssef (2004) identify self-efficacy, hope, optimism and resilience as the key elements of psychological capital and recognise that goal setting has an important role to play in developing hope. While we may view goal setting in terms of occupational or career choice, goal setting is more generally the purposeful process of helping people to envision a positive, better future. This is a key element of many action planning practices including career development action planning e.g. Egan and Reese (2014).

Social Capital (Connections)

Pierre Bourdieu (1986) introduced the term Social Capital to refer to the benefits people experience from belonging to different groups. We are drawn to the Fugate et al (2004, page 23) uplifting description of Social Capital as 'the goodwill inherent in social networks.' The two aspects of Social Capital we consider in the Solent Capital Compass are professional networks and peer networks.

One of the key benefits of work experience is that it enables people to access and build their professional networks. People gain first-hand experience of what it could be like to inhabit the occupational community of a specific profession or industry (Van Maanen and Barley, 1984). Through work experience, a student can move from an outsider to a group member which can have a significant impact on their sense of identity and confidence and many aspects of their career development learning (Jackson and Wilton, 2016).

While we recognise the potential benefits of gaining a foothold in a professional community that may be reflected in a high quality LinkedIn connections list, the daily reality of university students is that of being surrounded by their peers. Students talk to each other. It is therefore important to recognise that they may develop their own group career development narrative that may interact positively or negatively with messages coming from lecturers, careers service staff and employers (Tomlinson, 2007).

Human Capital (Capabilities)
These elements link closely to classical career management skills models e.g. Law and Watts (1977) and include:

- Self-awareness
- Opportunity awareness
- Career decision making
- CVs and applications
- Digital literacy
- Industry knowledge
- Industry experience
- Industry skills
- Communication
- Creativity

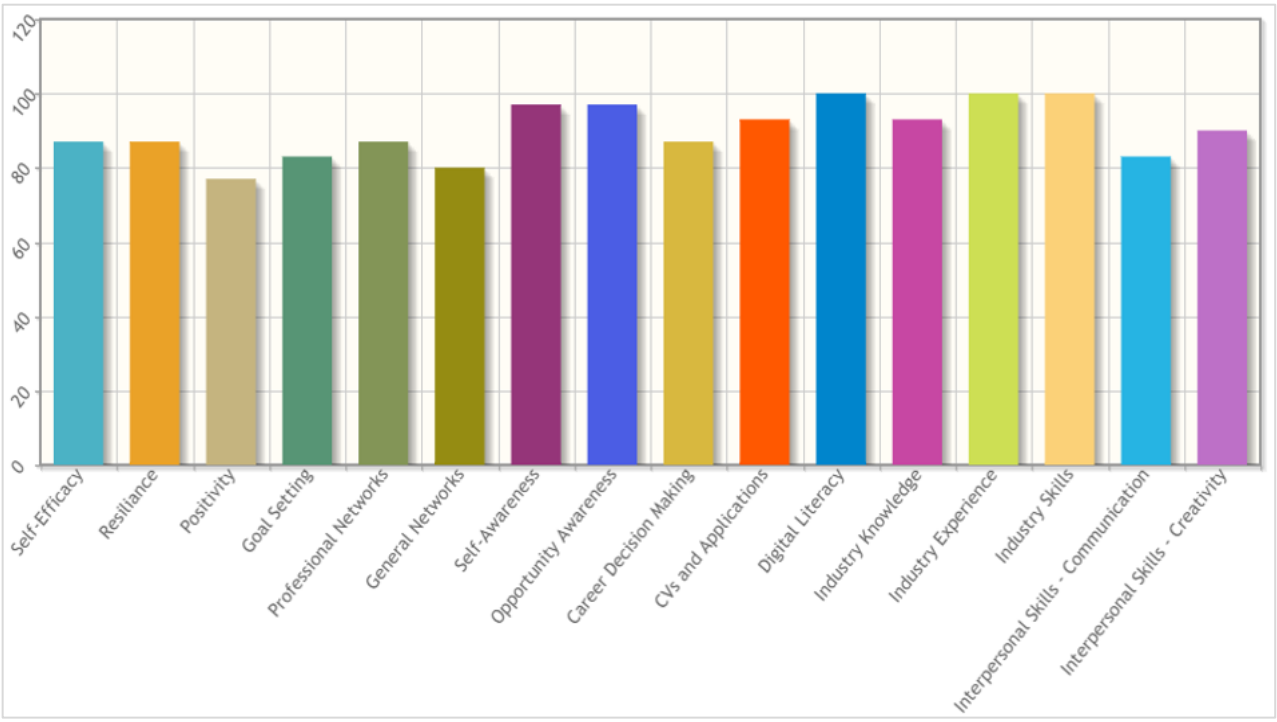
There are many models of the skills, including career management skills, which students may need to succeed. For example, Tymon (2013) considers six models that cover just under 60 skills and Artess et al (2017) identity 34 graduate attributes. While Jones and Sant (2013) eventually prioritised these ten key attributes, we recognise that other valuable skills could form part of this group.

The Employability Self Evaluation

Students assess themselves against each of the 16 elements of the Solent Capital Compass by assessing three statements linked to each element in ESE 1.0 which is accessed through the student Portal. The items that measure each of the 16 ESE 1.0 elements are listed in Appendix 4.

Individual student results
When students have completed ESE 1.0, a graphic output is generated, see Figure 2 for an example, together with a narrative that signposts them to sources of further online and face to face information, advice and guidance to help develop areas of the Solent Capital Compass.

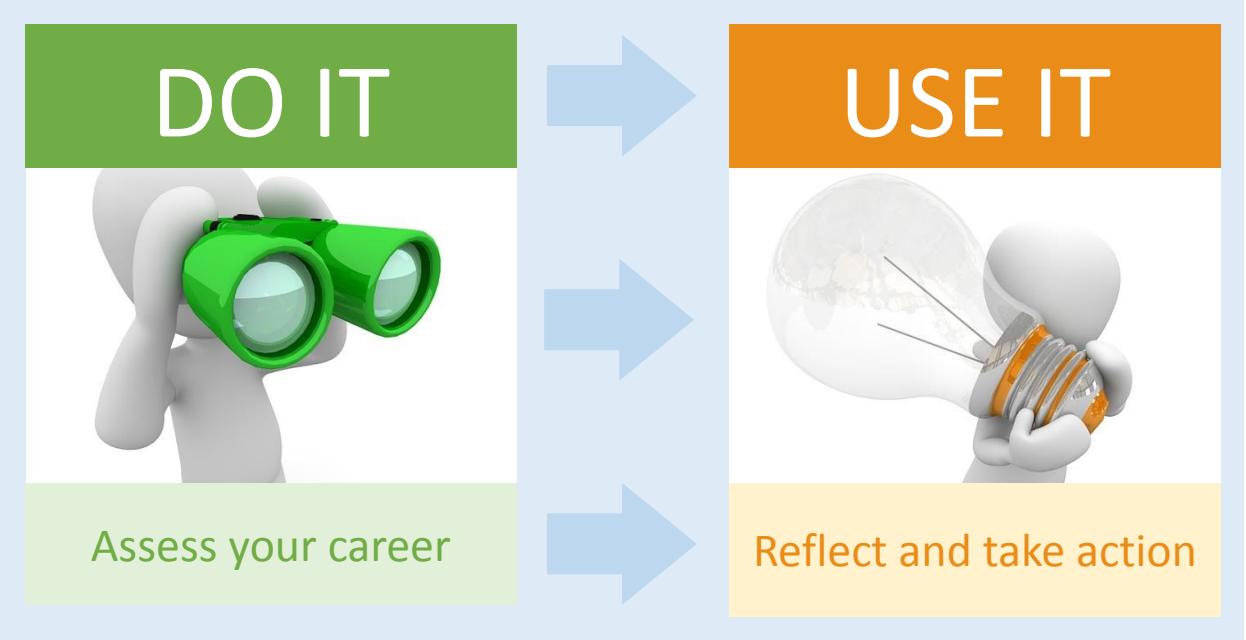
Figure 2: Example of graphical output for students generated by completing ESE 1.0



Any user can log back into the Portal to review their saved profile and suggestions or complete ESE 1.0 as many times as they wish.

We use ESE 1.0 to help students clarify their individual career development needs. This can then inform genuinely useful, reflection-based action. Solent Futures Careers Advisers deliver ESE-based action planning sessions with groups of students and also support lecturers to do the same. Figure 3 is on key web pages of ESE 1.0 learning activities that students can access 24/7.

Figure 3: ESE 1.0 call to reflection-based action



Course-level results

Appendix 4 is an example of a typical anonymised course report that aggregates the responses of individual students. This information can be used by lecturers and Solent Futures staff in different ways. For example, if students complete ESE 1.0 before and after an employability-focussed unit, such as going on work experience or completing a consultancy project for an external organisation, as well as supporting individual reflection, this can help to assess potential employability learning gain for the group as a whole.

Course level data can also inform curriculum development and employability interventions from Solent Futures staff. For example, the level 4 course shown in Appendix 4 had relatively low scores, compared to the average score for the whole course, for the two social capital networking measures as well as career decision making and industry/professional experience. This is a typical profile for level 4 students who are often unsure what to do with their degree and enter university without an extensive portfolio of work experience. The map in Appendix 4 informed discussions between the Careers Adviser and course lecturers to develop, amongst other things, provision of an 'options with my degree' workshop that also included input from course alumni.

Positive responses from students and staff

ESE 1.0 was promoted by Solent Futures managers and staff to all levels of academic management and lecturing on a one to one basis, at subject staff meetings and institution-wide events. As colleagues found out about the ESE and started to explore ways to use it, uptake gradually increased around the University. It is probably fair to say that, overall, the ESE has generally been very well received by both staff and students.

Research questions

What factors does ESE 1.0 really measure?

ESE 1.0 was designed to measure all 16 elements of the Social Capital Compass model of employability. But is this what happens in practice? Each element has three statements but do people rate these statements in a way that shows they map onto the specific element they are meant to measure?

Factor analysis is a statistical technique which enables us to answer these questions. The author responsible for statistical analysis in this project, Sian Campbell, uses the metaphor of our ESE 1.0 dataset as being the fabric of an umbrella. Factor analysis enables us to identify the spokes or factors that reach out from the central pole that keep the fabric supported. It may be that there are 16 factors that provide structure to the ESE dataset but we need to explore whether this is really the case. If a smaller number of factors emerged, this would not only impact on the development of the ESE 2.0 instrument but could help us to review and revise the Solent Capital Compass model of employability.

As the team of Careers Advisers delivered ESE 1.0 workshops with students, it became apparent that some questions, while carefully constructed and well considered, did not seem to 'ring true' in practice. For example, question 22 (see Appendix 4) is 'I belong to a range of clubs and societies' and is used to help assess the social capital construct of peer networking. We mused in the Careers Adviser team that a student could be a notional member of various clubs but not really get much from this while another person may hold a position of responsibility in one club and benefit significantly from their experience. We wondered if the second student may possibly give a lower rating to question 22 than the first student which raised questions about the validity of this question in ESE 1.0.

Factor analysis and other descriptive statistics would provide us with a way to assess issues we had about some of the questions. For example, our concerns about question 22 may have been well founded and supported by statistical analysis or they may not be. It was also our hope that the statistical analysis would enable us to remove unsuitable questions from ESE 1.0 so that ESE 2.0 would be quicker to answer and thus more user friendly whilst also being more statistically robust.

Do one-off ESE 2.0 factor measures predict employability outcomes?

The competence/readiness model of career development that emerged during this research (see pages 8 and 9) raised exciting possibilities that are discussed after presentation of our results. However, as we do not currently collect standardised measures of career thinking at Solent University to indicate levels of perceived employability readiness, we could only explore student self-perceptions of career management competence using the, hopefully, validated factors that would emerge to form the ESE 2.0 constructs.

Colleagues in our Management Information team at the University combined ESE 1.0 data with data about student destinations e.g. whether they were employed, in graduate level employment or completing further study. We were keen to see if any measures of the (hopefully) psychometrically validated ESE 2.0 factors would predict any graduate outcomes such as progression into graduate level employment. Our evolving career development model may make sense, may tick the necessary psychometric boxes and may genuinely help students but we would also hope that it would have predictive potential.

Statistical analysis

Initial dataset

Participants
Data was gathered from 5956 first, second and final year undergraduates who completed the ESE between January 2014 and June 2017.

Materials
The ESE items are listed in Appendix 4. When completing the online questionnaire through the Solent University Portal, the statements are arranged in the sequence 1 to 48 to obscure statement groupings. Students rated each statement on a scale from 1 to 10 where 1 means 'not like me at all' and 10 means 'exactly like me.'

Procedure
Many students completed the ESE as part of formal unit requirements which included support from Solent Futures Careers Advisers or lecturers during ESE workshop sessions. Some completed it on their own with no formal support.

The initial dataset
The initial dataset was anonymised and screened for outliers. The minimum amount of data required for factor analysis was more than satisfied e.g. Kline (1994) recommends a ratio of at least 10:1, with a sample size of 5956 giving a ratio of over 120 cases per variable.

Exploratory factor analysis
Initially, the factorability of the 48 item scale was examined. It was observed that the correlation matrix showed a number of correlations of at least 0.3, indicating suitability for factor analysis.

The Kaiser-Meyer-Olkin (KMO) Test was carried out to measure the sampling adequacy for each variable in the model and for the complete model. KMO returns values of between 0 and 1. The closer to one, the more likely it is that the sample is adequate. Anything over 0.8 is considered acceptable. The ESE has a KMO of .965 which is considered 'marvellous'.

The Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level indicate that the data may be suitable for factor analysis. For the ESE the Bartlett's Test of Sphericity is significant at $p<0.000$ indicating that the data is appropriate for factor analysis. (X^2 (1128)=74550.63, $p<0.000$)

Finally, the communalities were all above 0.3 further confirming that each item shared some common variance with the other items. Given these overall indicators, factor analysis was considered suitable for the ESE.

Principal components exploratory factor analysis with varimax rotation was carried out to understand the extent to which items from the questionnaire reflected underlying scales. We sought to explore the number and shape of the underlying dimensions, rather than imposing a structure on the data. Confirmatory analysis is used when the researcher is testing a model, while exploratory FA should be used on a new questionnaire. The analysis converged in 20 iterations.

Initial eigen values indicated eight factors which explained 59.1% of the variance. Factor 1 explained 11%, Factor 2 explained 8%, Factor 3 explained 7.7%, factor 4 explained 6.9%, Factor 6 explained 6.2%, Factor 7 explained 6% and Factor 8 explained 5.4%. Factor 8 was discarded as only two items loaded onto it independently. The other 7 scales were retained because of relevant theoretical support.

Item analyses
Following factor analysis each of the scales was extracted to test for internal consistency and reliability i.e. whether the items in each scale belonged to the same 'family' of attitudes / behaviours. A Cronbach's Alpha (α) reveals the intercorrelations between items in a scale. Generally, alphas are considered 'good' if they are between 0.7 (part of the same 'family') and 0.9. Above 0.9 items are considered to be too similar and the items are effectively only testing one attitude/behaviour multiple times.

The initial scales and alphas are as follows:

Pathway planning (7 items) α =0.87
1 I believe I can achieve my career ambition
3 I am optimistic regarding my job search
9 I know what I want to do when I finish my degree
17 I am sure that I have what it takes to succeed in my chosen career
19 Regarding my future career I'm sure things will work out well
20 I know what I'm aiming for in life
41 It is easy for me to choose a career I would like to follow

Career awareness (5 items) α =0.83
13 I have some general experience of the workplace
14 I can explain how my skills fit my chosen career path
29 I have some work experience in my chosen area of work
30 I have the skills I need for my chosen industry
44 I have the knowledge to talk about my chosen industry at interview
46 I am clear about the kinds of skills my ideal employer is looking for

Job search skills (5 items) α =0.72
8 I know where to find out information about jobs that interest me
25 I have decided on a list of employers that I want to approach speculatively
40 I know where to find advertised jobs that meet my needs
43 I know how to use Linkedin for professional purposes

Social capital (4 items) α =0.81
5 I have quite a few connections who could help me with my career
6 I have a wide network of friends and acquaintances
21 I know how to network with people who can help me with my career
22 I belong to a range of clubs and societies

Energetic efficacy (5 items) – Problem solver α =0.79
2 I can usually find my own way round problems
4 I generally set goals for myself
16 I can always think up a new way of doing things
32 I am good at solving problems
48 I am good at coming up with new ideas

Optimism (5 items) α =0.71
31 I enjoy working with a wide variety of people
33 I believe I can learn what I need to in order to succeed
34 I know people who can help me bounce back when things go wrong
35 I can usually find the bright side when things go wrong
36 I give myself a reward when I achieve one of my goals

Communication confidence (4 items) α =0.77
15 I am confident when giving presentations
23 I can explain the value of my experience to a potential employer
42 I perform well at interviews and assessment centres
47 I can communicate in a business-like way

Expert focus group
Following the factor and item analyses, a focus group consisting of four Solent Futures Careers Advisers was carried out to review the findings and suggest modifications to reduce duplication of similar questions. Based on their judgement a number of refinements were introduced. An additional 12 items were identified as duplicating or being very similar to other questions in the scale so they were removed and the reliability analysis was rerun.

Revised dataset

Confirmatory factor analysis
We completed a confirmatory factor analysis on an ESE dataset that contained additional, anonymised information we used for predictive analysis. For example, it included information about whether students were working, in graduate-level work or completing further study six months after graduating.

This dataset contained 5797 first, second and final year undergraduates who completed the ESE between January 2014 and June 2018. This was slightly smaller than our first dataset due to the filtering criteria used by the Management Information team at the University.

A confirmatory Factor Analysis was carried out to confirm the seven factors. The following scales were then constructed and renamed to better reflect the content of the questions:

My Career (α =0.76)
1 I believe I can achieve my career ambition
9 I know what I want to do when I finish my degree
20 I know what I'm aiming for in life

My Experience (α =0.71)
13 I have some general experience of the workplace
14 I can explain how my skills fit my chosen career path
29 I have some work experience in my chosen area of work

My Opportunities (α =0.71)
8 I know where to find out information about jobs that interest me
25 I have decided on a list of employers that I want to approach speculatively
40 I know where to find advertised jobs that meet my needs
43 I know how to use Linkedin for professional purposes

My Network (α =0.77)
5 I have quite a few connections who could help me with my career
6 I have a wide network of friends and acquaintances
21 I know how to network with people who can help me with my career

My Creativity (α =0.76)
16 I can always think up a new way of doing things
32 I am good at solving problems

My Attitude (α =0.72)
31 I enjoy working with a wide variety of people
33 I believe I can learn what I need to in order to succeed
34 I know people who can help me bounce back when things go wrong
35 I can usually find the bright side when things go wrong

My Communication (α =0.72)
15 I am confident when giving presentations
42 I perform well at interviews and assessment centres
47 I can communicate in a business-like way

All alphas were above 0.7 and below 0.9 indicating that each of the scales has good internal consistency and reliability.

Graduate focus groups
Eight recent graduates attended two focus groups (five in the first and three in the second focus group) to explore the best way to describe the ESE 2.0 factors. Graduates were shown the grouped items for each factor but were not told what the factors were called. Graduates came up similar names to those suggested by our expert focus group. When the seven provisional factor names were eventually revealed, participants in both groups agreed these names were 'better than the ones we come up with' as well as being 'clear and approachable' for students.

Secondary factor analysis
Following the construction of the new questionnaire, a secondary factor analysis was conducted to determine whether there were higher order factors. Only one factor was extracted which explained 54.88% of the variance and the solution could not be rotated, indicating that the seven factors are relatively independent of each other.

Summary
Overall, these analyses indicated 7 distinct factors underpinning the ESE. These factors are moderately internally consistent. Reference to the theories considered in the literature review indicated that the factor items clustered around established career development learning constructs. The data were normally distributed and so they are well suited for parametric statistical analyses.

Evaluating the validity of the scale

Differences between year groups
While our dataset included course details that would have supported detailed analysis, for the purpose of this report, we wanted to complete a broader exploration of as much of the dataset as possible.

We wanted to see if scores in any of the seven ESE 2.0 factors changed over time. As shown in Table 3, there was little difference in the scores of first and final year undergraduates. There are statistically significant decreases in scores on My Creativity and My Attitude. However, the means and standard deviations suggest that, in practice, there is little difference.

Regression analyses
The data met the 4 assumptions for binary regression analyses. They are:
1. The dependent variable is measured on a dichotomous scale.
2. There are one or more independent variables of at least interval level.
3. There is independence of observations and the independent variable should have mutually exhaustive categories.

4. There is a linear relationship between the continuous variables and the logit transformation of the dependent variable.

Predicting a graduate job
A logistic regression was carried out to determine the effects of My Career, My Experience, My Opportunities, My Network, My Creativity, My Attitude and My Communication on getting a graduate job. The logistic regression model was not statistically significant ($X^2(7)=9.742$, p=.284). The model explained only 4.1% (Nagelkerke R^2) of the variance in predicting a graduate job and none of the factors predicted getting a graduate job.

Table 3: Analysis of first year and final year undergraduate factor scores

My Career	**Mean**	**Standard Deviation**	**t**	**Sig. t-tailed**
First year (Level 4)	7.39	1.54	0.49	0.62
Final year (Level 6)	7.34	1.59		
My Experience				
Level 4	6.89	2.00	0.04	0.97
Level 6	6.88	1.95		
My Opportunities				
Level 4	5.87	1.87	0.29	0.77
Level 6	5.84	1.78		
My Network				
Level 4	6.29	1.94	-0.17	0.86
Level 6	6.31	1.86		
My Creativity				
Level 4	7.42	1.29	2.552	0.01*
Level 6	7.21	1.24		
My Attitude				
Level 4	8.23	1.26	2.555	0.01*
Level 6	8.21	1.32		
My Communication				
Level 4	6.56	1.87	-.49	0.63
Level 6	6.61	1.76		

*Significant at 0.01

Predicting a job
A logistic regression was carried out to determine the effects of My Career, My Experience, My Opportunities, My Network, My Creativity, My Attitude and My Communication on getting a job. The logistic regression model was statistically significant ($X^2(8)=22.93$, $p<0.05$). However the model explained only 15% (Nagelkerke R^2) of the variance in predicting a job and none of the factors predicted getting a job.

Predicting further study
A logistic regression was carried out to determine the effects of My Career, My Experience, My Opportunities, My Network, My Creativity, My Attitude and My Communication on getting a graduate job. The logistic regression model was statistically significant ($X^2(8)=16.79$, $p<0.05$). The model explained 23% (Nagelkerke R^2) of the variance in predicting going on to further study. My Career is slightly positively associated with going on to further study (δ=1.275) and My Network is slightly negatively associated with going on to further study (δ =.876).

Discussion

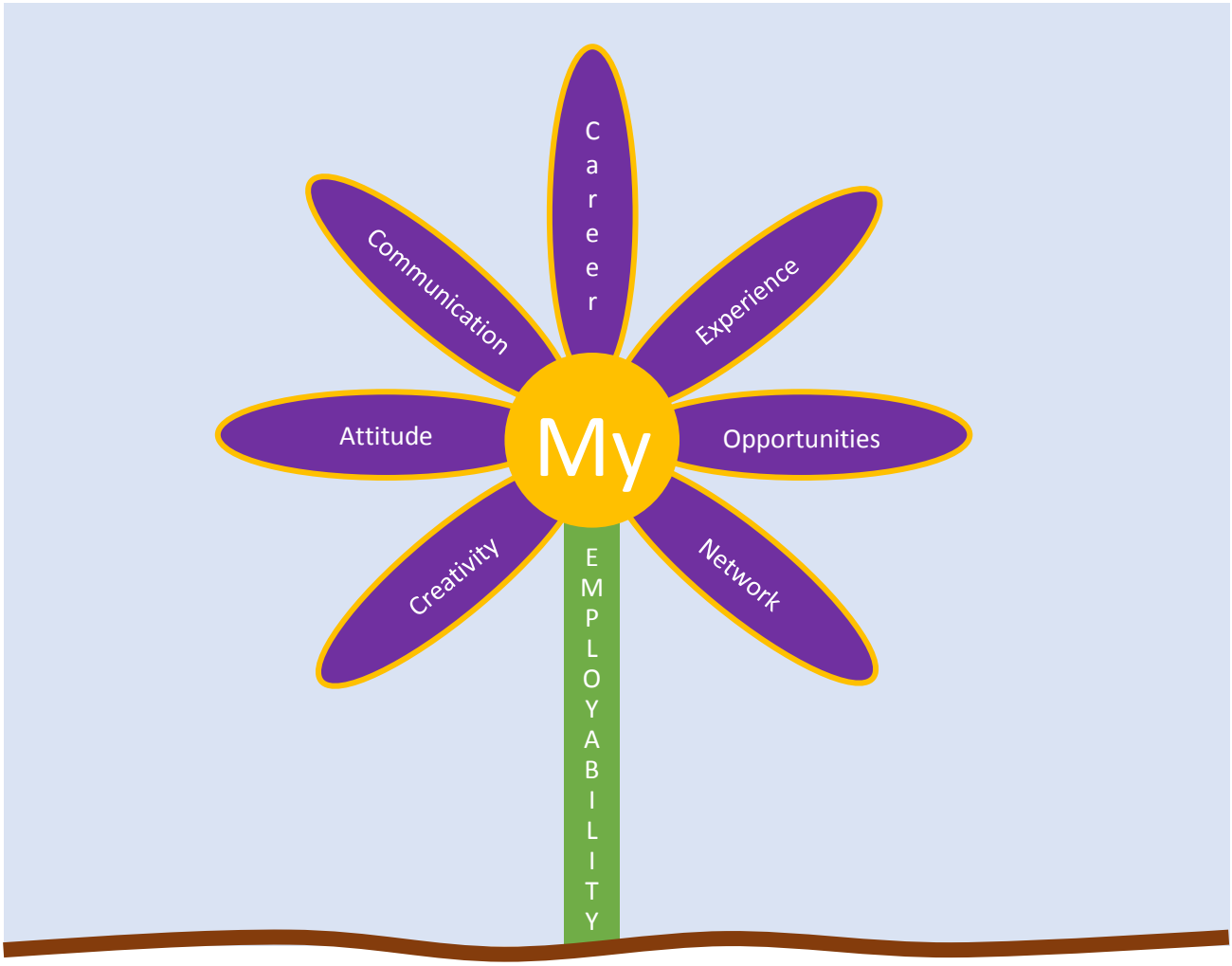
A shorter questionnaire for a new My Employability model

Our research has produced a new questionnaire which contains scales with good internal consistency and reliability. We hope the new shorter 22 item questionnaire will appeal even more to students as it will be quicker to complete. Careers Advisers have been very pleased to see the removal of statements we had concerns about, such as No 22 (see page 14).

The items within each of the seven factors that emerged made sense as they grouped clearly and coherently around constructs that are common parlance in both the academic literature reviewed earlier and the day to day language used by Solent Futures staff, Solent University students and graduate employers. The names of the seven factors have been endorsed as professionally suitable by Solent Futures Careers Advisers and as clear and user-friendly by two focus groups of recent graduates.

We did not identify any secondary factors so Figure 4 represents a revised My Employability model with each factor shown as an individual petal of the My Employability flower. During this research, some colleagues used the term 'Snapshot' to describe how the ESE gives a single frame of student's career development film. A possible name for the questionnaire that measures our new model is My Employability Snapshot (MES). Final wording and visual identify of both model and questionnaire may change in response to ongoing discussion and student feedback.

Figure 4: The My Employability model



A valuable learning tool but questions about predictive potential

None of the single measures of the seven ESE 2.0 factors could predict student progression into graduate level or non-graduate level employment. My Career was slightly positively associated with going into further study. We could imagine students with a stronger sense of career direction using this awareness to choose and pursue further study to help them move towards their goal. My Network was slightly negatively associated with going into further study. Maybe networks have a slightly strongly tendency to support people to move into work than further study. Both findings, while of interest, raise questions that a mixed methods research methodology providing more qualitative data may be able answer more fully.

Looking at the results in Table 3, there was no significant difference between first and final year scores in any of the seven factors. Does this mean that, overall, students are not developing their career management skills while at University? While it is possible this may be the case, we think it is unlikely and recommend careful consideration of the following two points to help further explore this issue.

The ESE as a learning tool: Assessing within-student changes in ESE factor scores

The current research analysed the first and only occasion students completed the ESE and so comparison of factor scores was between different first and final year students. In future research, we need to explore whether there are significant within-student differences i.e. Student A takes the ESE in their first year and we also measure Student A completing the ESE again in their second and/or final year.

Some initial findings from the Careers Registration project (introduced on page 8) suggest that longitudinal changes in perceptions of career thinking over time appear to have less predictive power than measures of career readiness gathered at the start of the final year (Hill et al, 2018). This means that 'the assumed need for students to 'progress' in their careers thinking over time is challenged' (Hill, 2018a).

Unpacking what may be going on here is quite nuanced. Our experiences of conducting individual careers Information, Advice and Guidance (IAG) appointments may support this unpacking process. For example, when gathering IAG outcome measures at Solent University, we sometimes find that students come into an appointment feeling very sure about an aspect of their career management. As they explore it with a Careers Adviser, they sometimes become less sure but still consider the appointment to be 'very useful' as they recognise they leave with a richer and more reality-tested way of viewing and responding to the issue (Whistance, 2014). We wonder whether a similar process may operate with some students when repeating the ESE. Maybe some students recognise that they were engaging in somewhat wishful thinking when they completed the ESE the first time around. If this is the case, a reduction in a subsequent score may indicate that students have developed a more sophisticated understanding of what is involved to genuinely score highly in each employability competence.

The above possibilities emphasise the value of the ESE as a self-diagnostic and awareness raising tool. Before this research project, Careers Advisers routinely said that even if the ESE was far from perfect psychometrically, it still had value in providing a snap shot of career development strengths and needs that students could use to reflect on and take action. We are aware from our experiences at Solent University that students vary in how well they practically use the ESE to guide the next steps in their career action planning process. This is important to consider. Maybe the smaller number of ESE 2.0 factors will contribute to a more effective process of translating enhanced career management self-awareness into action.

An emerging readiness/competence career development model

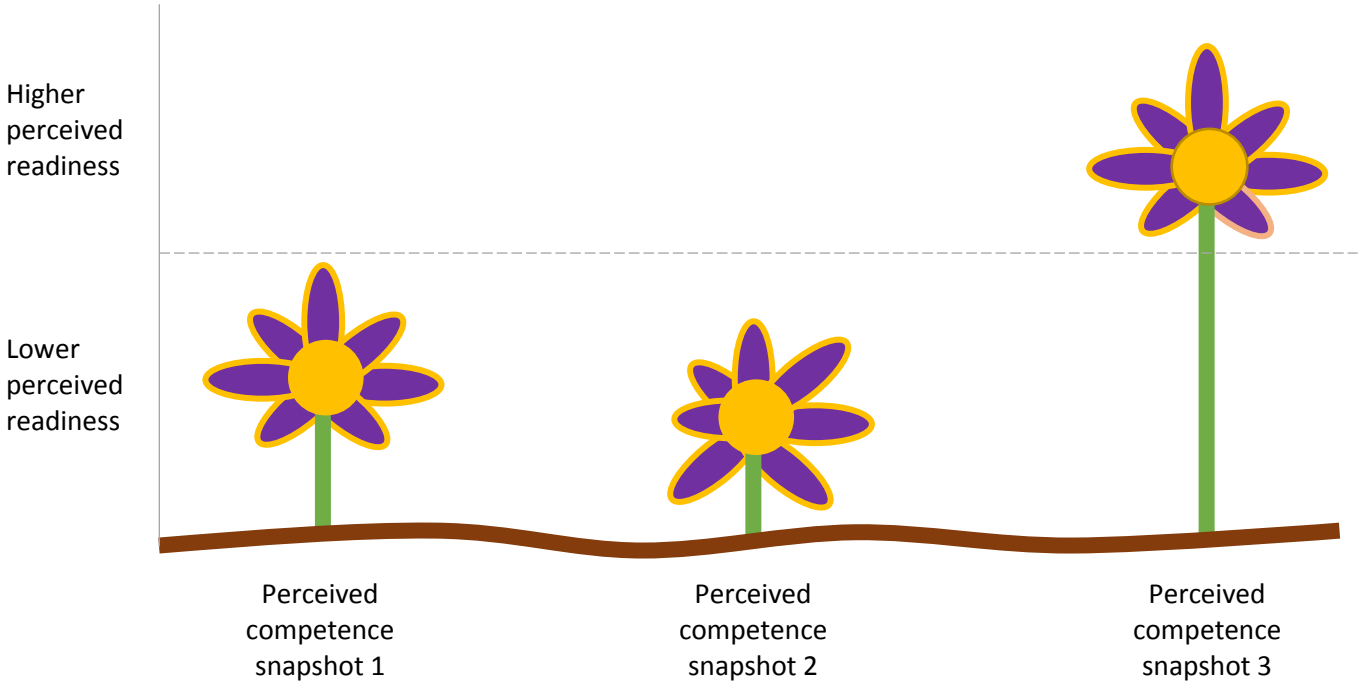
As we consider how students may evaluate and respond to their career development needs, it seems timely to integrate this with recent university-based research into career readiness. The

readiness/competence model of career development described in Figure 1 and the levels of Career Thinking in Table 2 are especially relevant here.

Imagine that a student takes ESE 2.0 in their first term at University. Their map of relative strengths and weaknesses is represented by the size of different career management petals in Competence Snapshot 1 in Figure 5. This first map is at an earlier career thinking stage of having 'some ideas about my career and I am ready to start planning.' Maybe a second year unit provides valuable insights into typical career destinations that raises lots of challenging questions. Topics they initially felt highly confident about now have been shaken up by their learning. This triggers a flurry of research, trips to Solent Futures and reality checking conversations with some of their peers. At times, this is associated with a slight downward shift in their sense of readiness which was represented by Competence Snapshot 2 when they took the ESE again.

When they repeat the ESE in their final year, they now feel ready to get stuck into job hunting as a result of their learning. While confident to tick the overall 'ready to apply for graduate level opportunities' career thinking box, their ESE factor map now has the same profile as the one they completed in their first year. Has their career development learning moved forwards? We would argue that it has. Even though their ESE 2.0 factor scores may not have changed, their scores now represent each ESE factor at a higher and more experience-informed level of career thinking which they now feel ready to translate into action.

Figure 5: A possible readiness/competence career development journey



While this potential scenario appears reasonable, further enquiry is required to clarify whether and how perceptions of employability competence and readiness may interact in practice.

Next steps

Future research possibilities

It could be fruitful to formally explore:

- Differences in ESE factor scores between graduates who are unemployed and graduates who are in professional managerial roles.
- Within-student changes in ESE 2.0 scores and how these may predict graduate outcomes.
- Relationships between ESE factor scores, self-assessed career readiness and predictability of employability outcomes.
- Relationships between changes in individual ESE factor scores, self-assessed career readiness and predictability of employability outcomes.

Mixed methodologies may give deeper qualitative insights into student experiences of engaging with their career development learning process as measured by quantitative tools such as ESE 2.0.

While it is clearly important to develop measures that could help predict objective graduate outcomes such as progression into professional managerial roles, Hirschi et al (2017) caution that career development measures usually correlate more highly with subjective measures rather than objective measures of career success. It may therefore be worthwhile including additional subjective measures of career success or wellbeing in future research. The new Graduate Outcomes Survey (HESA, 2018) includes questions that gather this data such as 'Fit of current activity with future plans', 'Meaningfulness of current activity' and 'Satisfaction with life' that may be important to consider.

Practical considerations and a call for collaboration

We are keen to develop an online ESE 2.0 App that:

- Automatically compiles course level data such as that shown in Appendix 4. This is essential if we want to increase use of ESE 2.0 by lecturers so that they can more easily consider their anonymised course snapshots and use this to inform teaching and course design.
- Provides more integrated interactivity. Students have often said they expected to link to relevant supporting careers information and advice by clicking or tapping on any of the ESE 1.0 graphical output columns in Figure 2. As we are now dealing with seven rather than 16 ESE factors, this may support plans to develop a more visually interactive and integrated App.
- Generates data in a SPSS friendly format. ESE 1.0 data output requires complex preparatory manipulation in Excel. Working with colleagues across the University to develop a more SPSS-friendly data output system in ESE 2.0 will save everyone a lot of valuable time.
- Including or having the ability to seamlessly integrate with a recognised career readiness scale. Many of the research possibilities mentioned require this additional measure.

These are exciting and thought-provoking times for those involved in supporting students and graduates to develop rewarding, meaningful and successful careers.

We hope that sharing the process of developing, applying and refining our employability model and a practical means of measuring it at Solent University will be of interest to careers colleagues, lecturers and senior managers in the University sector as you consider the models, measures and practices that could work best for you.

As well as using, developing and researching the ESE to help our students, at Solent Futures we are open to collaborating with colleagues in other universities who are exploring similar issues. Please feel free to contact us (details on page 2) if you would like to join the conversation.

Appendices

Appendix 1: DOTS scales used in Jackson and Wilton (2016)

Self-awareness
- Identify knowledge, abilities and transferable skills developed by one's degree
- Identify personal skills and how these can be deployed
- Identify one's interests, values and personality in the context of vocational and life planning
- Identify strengths and weaknesses, and areas requiring further development
- Develop a self-reflective stance to academic work and other activities
- Synthesise one's key strengths, goals and motivations into a rounded personal profile

Opportunity awareness
- Demonstrate knowledge of general trends in graduate employment and opportunities for graduates in one's discipline
- Demonstrate understanding of the requirements of graduate recruiters
- Demonstrate research-based knowledge of typical degree-related career options and options in which one is interested

Decision-making learning
- Identify the key elements of career decision-making, in the context of life planning
- Relate self-awareness to knowledge of different opportunities
- Evaluate how personal priorities may impact upon future career options
- Devise a short/medium-term career development action plan
- Identify tactics for addressing the role of chance in career development
- Review changing plans and ideas on an ongoing basis

Transition learning
- Demonstrate understanding of effective opportunity-search strategies
- Apply understanding of recruitment/selection methods to applications
- Demonstrate ability to use relevant vacancy information, including ways of accessing unadvertised vacancies
- Identify challenges and obstacles to success in obtaining suitable opportunities and strategies for addressing them
- Demonstrate capacity to vary self-presentation to meet requirements of specific opportunities
- Demonstrate ability to present oneself effectively in selection interviews and other selection processes

Appendix 2: Scales used in Gonzalez-Roma et al (2018)

Career identity
To what extent do you agree or disagree with the following sentences:
- I strongly identify with my chosen line of work/career field
- I have a clear idea about the place where I want to address my professional career
- I do whatever I can in order to develop the professional career that I want to achieve
- I'm highly motivated to develop my wished professional career

Generalized self-efficacy
To what extent do you agree or disagree with the following sentences in your daily and/or professional life:
- I am able to solve the problems that I deal with
- I am able to perform complex tasks properly
- I am able to deal with the seatbacks that I face

Social capital
To what extent to you agree or disagree with the following sentences:
- I have an extensive network of friends and family members who would help me to find job opportunities
- I have an extensive network of professional contacts that would help me to identify job opportunities

Job satisfaction
Please indicate how much satisfaction or dissatisfaction you feel regarding the following aspects of your current job:
- The work you perform
- The pay you receive
- The opportunities for professional development you have

Appendix 3: References in Jones and Sant (2013)

Bourdieu, P. (1986) The Forms of Capital. In J. Richardson (Ed.) *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood Press, 241-258.

Fugate, M., Kinicki, A.J. and Ashforth, B.E. (2004) Employability: A Psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior,* 65, 14-38.

Halpern, D. (2005) *Social Capital*. Malden, MA: Polity.

Lin, N. and Erickson, B.H. (2008) *Social Capital: An International Research Program*. Oxford: Oxford University Press.

Luthans, F., Youssef C.M. and Avolio B. (2007) *Psychological Capital: Developing the human competitive edge*. New York: Oxford University Press.

Tomlinson, M. (2007) Graduate Employability and student attitudes and orientations to the labour market. *Journal of Education and Work,* 20 (4), 285-304.

Tomlinson, M.B. (2012) Graduate Employability: A review of conceptual and empirical themes. *Higher Education Policy* 25, 407-431.

Yorke, M. and Knight, P. (2006) *Embedding employability into the curriculum*. HEA Learning and Employability Series One.

Yorke, M. (2006 reprint). *Employability in Higher Education – what it is, what it is not*. HEA Learning and Employability Series One

Appendix 4: ESE 1.0 elements and statements

This example of a course-level profile shows which statements link to each of the 16 ESE 1.0 elements. The depth of shading in the element percentage column on the right reflects the extent to which that particular element is above (shaded green) or below (shaded red) the average score for all ESE 1.0 elements for this course group of 6.4 out of 10.

1	I believe I can achieve my career ambition	Self Efficacy	7.7	CONFIDENCE
17	I am sure that I have what it takes to succeed in my chosen career			
33	I believe I can learn what I need to in order to succeed			
2	I can usually find my own way round problems	Resilience	7.2	
18	When I have a setback in my job search I usually recover from it quite quickly			
34	I know people who can help me bounce back when things go wrong			
3	I am optimistic regarding my job search	Positivity	7.3	
19	Regarding my future career I'm sure things will work out well			
35	I can usually find the bright side when things go wrong			
4	I generally set goals for myself	Goal Setting	7.4	
20	I know what I'm aiming for in life			
36	I give myself a reward when I achieve one of my goals			
5	I have quite a few connections who could help me with my career	Professional Networks	5.0	CONNECTIONS
21	I know how to network with people who can help me with my career			
37	I know someone who works in my chosen industry			
6	I have a wide network of friends and acquaintances	Peer Networks	5.8	
22	I belong to a range of clubs and societies			
38	I know a wide range of people			
7	I'm very aware of the skills I can bring to an employer	Self Awareness	7.1	CAPABILITIES
23	I can explain the value of my experience to a potential employer			
39	I could describe the work related skills I have gained during my course			
8	I know where to find out information about jobs that interest me	Opportunity Awareness	6.5	
24	I know what kind of careers are open to me			
40	I know where to find advertised jobs that meet my needs			
9	I know what I want to do when I finish my degree	Career Decision Making	5.5	
25	I have decided on a list of employers that I want to approach speculatively			
41	It is easy for me to choose a career I would like to follow			
10	I carefully select and target the employers and roles I apply for	CVs and applications	6.3	
26	I write excellent CVs cover letters and applications			
42	I perform well at interviews and assessment centres			
11	I know how to use email in a professional way	Career Digital Literacy	6.7	
27	I would be happy for an employer to google me			
43	I know how to use Linkedin for professional purposes			
12	I know how my chosen industry operates	Industry Knowledge	6.2	
28	I really understand the industry that interests me most			
44	I have the knowledge to talk about my chosen industry at interview			
13	I have some general experience of the workplace	Industry Experience	5.3	
29	I have some work experience in my chosen area of work			
45	I have interacted with potential employers during my time of study			
14	I can explain how my skills fit my chosen career path	Industry Skills	6.7	
30	I have the skills I need for my chosen industry			
46	I am clear about the kinds of skills my ideal employer is looking for			
15	I am confident when giving presentations	Interpersonal Skills (communication)	7.2	
31	I enjoy working with a wide variety of people			
47	I can communicate in a business-like way			
16	I can always think up a new way of doing things	Personal skills (creativity)	7.0	
32	I am good at solving problems			
48	I am good at coming up with new ideas			
	AVERAGE		**6.6**	

References

Artess, J., Hooley, T. and Mellors-Bourne, R. (2017) *Employability: A Review of the Literature 2012 to 2016*. York: Higher Education Academy. Available from: www.heacademy.ac.uk/knowledge-hub/employability-review-literature-2012-2016 [Accessed 07/11/2018].

Bandura, A. (1993) Perceived Self-Efficacy in Cognitive Development and Functioning. *Educational Psychologist*, 28 (2), 117-148.

Bourdieu, P. (1986) The Forms of Capital. In J. Richardson (Ed.) *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood Press, 241-258.

Brown, P., Hesketh, A. and Wiliams, S. (2003) Employability in a knowledge-driven economy. *Journal of Education and Work*, 16, 106-126.

CBI/NUS (2011) *Working towards your future: Making the most of your time in higher education*. CBI: London. Available from: www.nus.org.uk/Global/CBI_NUS_Employability%20report_May%202011.pdf [Accessed 07/11/2018]

Cobb, F. (2017) *Careers Registration Top Tips. Issue 1: May 2017*. Research Unit, The Careers Group, University of London. Available from: www.thecareersgroup.co.uk/research/research-projects/careers-registration-learning-gain-project/ [Accessed 07/11/2018].

Cole, D. and Tibby, M. (2013) *Defining and Developing your Approach to Employability*. York: The Higher Education Academy. Available from: www.heacademy.ac.uk/knowledge-hub/defining-and-developing-your-approach-employability-framework-higher-education [Accessed 07/11/2018].

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

Dacre Pool, L., Qualter, P. J. and Sewell, P. (2014) Exploring the factor structure of the CareerEDGE employability development profile. *Education and Training*, 56 (4), 303-313.

Egan, G. and Reese, R. J. (2014) *The Skilled Helper, Eleventh Edition: A Problem-Management and Opportunity-Development Approach to Helping*. Boston: Cengage.

Fugate, M., Kinicki, A. J. and Ashforth, B. E. (2004) Employability: A psycho-social construct, it's dimensions and applications. *Journal of Vocational Behavior*, 65 (2004), 14-38.

Gonzalez-Roma, V., Gamboa, J. P. and Peiro, J. M. (2018) University graduates' employability, employment status and job quality. *Journal of Career Development*, 45 (2), 132-149.

HEA (2018) *Embedding Employability in Higher Education*. Available from: www.heacademy.ac.uk/individuals/strategic-priorities/employability [Accessed 07/11/2018].

HESA (2018) *Graduate Outcomes survey questions*. Available from: www.hesa.ac.uk/innovation/outcomes/survey [Accessed 07/11/2018].

Hill, K. (2018a) *Careers Thinking and Destinations*. Poster presented at the Careers Registration Learning Gain Project, London, 18 May 2018. Available from: www.thecareersgroup.co.uk/research/research-projects/careers-registration-learning-gain-project/ [Accessed 07/11/2018].

Hill, K. (2018b) *Personal Communication*. 25 October 2018.

Hill, K., Mashiter, D. and Richardson, D. (2018) *Workshop 1C: Careers Registration Data as a Predictor of Graduate Destinations*. Slides presented at the Careers Registration Learning Gain Project, London, 18 May 2018. Available from: www.thecareersgroup.co.uk/research/research-projects/careers-registration-learning-gain-project/ [Accessed 07/11/2018].

Hirschi, A., Nagy, N., Baumeler, F., Johnston, C. S. and Spurk, D. (2017) Assessing Key Predictors of Career Success: Development and Validation of the Career Resources Questionnaire. *Journal of Career Assessment,* 26 (2), 338-358.

Isherwood, S. (2015) AGR: Making a Real Difference to the Graduate Labour Market. *Graduate Market Trends*, Autumn. Available from: www.hecsu.ac.uk/assets/assets/documents/gmt/Stephen_Isherwood_interview_GMT.pdf [Accessed 07/11/2018].

Isherwood, S. (2018) *Stephen Isherwood on diversity, Brexit and early careers advice*. Available from: https://luminate.prospects.ac.uk/stephen-isherwood-on-diversity-brexit-and-early-careers-advice [Accessed 07/11/2018].

Jackson, D. and Wilton, N. (2016) Developing career management competencies among undergraduates and the role of work-integrated learning. *Teaching in Higher Education*, 21 (3), 266-286.

Jones, R. and Sant, R. (2013) *The Solent Capital Compass Model of Employability*. Available from: http://ssudl.solent.ac.uk/id/eprint/2567 [Accessed 07/11/2018].

Kline, P. (1994) *An easy guide to factor analysis*. London: Routledge.

Law, B. and Watts, A. (1977) *Schools, Careers and Community. A Study of Some Approaches to Careers Education in Schools*. London: Church Information Office.

Luthans, F. and Youseff, C., M. (2004) Human, Social, and Now Positive Psychological Capital Management: Investing in people for competitive advantage. *Organizational Dynamics*, 33 (2), 143-160.

Mind Tools (2018) *Developing Resilience: Overcoming and Growing From Setbacks*. Available from: www.mindtools.com/pages/article/resilience.htm [Accessed 07/11/2018].

Open University (2017) *Developing Careers Resilience*. Available from: www.open.edu/openlearn/money-business/developing-career-resilience/content-section-overview?active-tab=description-tab [Accessed 07/11/2018].

Reeve, C. (2016) Forget about graduate attributes – it's all about mindset. *Phoenix*, June 2016, 19.

Robertson, I. T., Cooper, C. L., Sarkar, M. and Curran, T. (2015) Resilience training in the workplace from 2003 to 2014: A systematic review. *Journal of Occupational and Organisational Psychology*, 88 (3), 533-562.

Seligman, M. (2011) *Flourish: A New Understanding of Happiness and Well-being and How to Achieve Them*. London: Nicholas Brealey Publishing.

Tomlinson, M. (2007) Graduate Employability and student attitudes and orientations to the labour market. *Journal of Education and Work*, 20 (4), 285-304.

Tomlinson, M. (2017) Forms of graduate capital and their relationship to graduate employability. *Education and Training*, 59 (4), 338-352.

Tymon, A. (2013) The student perspective on employability. *Studies in Higher Education*, 38, 841-856.

University of the Arts London (2016) *Creative Attributes Framework*. Available from: www.arts.ac.uk/about-ual/teaching-and-learning-exchange/careers-and-employability/creative-attributes-framework [Accessed 07/11/2018].

Van Maanen, J. and Barley, S. R. (1984). Occupational communities: Culture and control in organizations. *Research in Organizational Behavior*, 6, 287-365.

Worsley, L. (2010) *The Resilience Doughnut Framework*. Available from: www.theresiliencedoughnut.com.au/about/resilience-research-and-articles/resilience-research/resilience-doughnut-framework-2012/ [Accessed 07/11/2018]

Whistance, D. (2014) Guidance by Numbers: A Student-Centred Approach to Evaluating the Impact of Careers Guidance. *Phoenix*, Issue 143, October 2014, 24-25. Available from: http://viewer.zmags.com/publication/e830b7ab#/e830b7ab/24 [Accessed 07/11/2018]

Yorke, M. and Knight, P. (2003) *The Undergraduate Curriculum and Employability*. York: Enhancing Student Employability Co-ordination team and Learning and Teaching Support Network Generic Centre.