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**Beyond learning in higher education: An evaluation of the ‘Life Design’ initiative to
improve student employability**

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Abstract

With increasing evidence highlighting the link between psychological factors such as self-esteem, self-efficacy and optimism on employability outcomes, this paper reports an evaluation of a unique student experience initiative called 'Life Design' developed to support the professional and personal development of undergraduate students. First year undergraduates engaged in a two-hour workshop involving interactive exercises designed to foster self-reflection, self-efficacy, and career optimism. The impact of this workshop on validated self-report measures of self-esteem, self-efficacy, and optimism, alongside career-related outcomes was explored using a prospective longitudinal design. Analyses revealed a significant immediate and sustained increase in self-esteem following Life Design, but no impact on self-efficacy or career optimism. Certainty of career developing steps increased at a later follow up, but no changes to career prospect confidence or career choice certainty were reported. This paper highlights the benefits and wider challenges of delivering and engaging students in initiatives designed to enhance employability.

150 words

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Introduction

The role of the university sector in the UK and internationally in increasing the employability prospects of its graduates is now well recognised and increasingly embedded across a range of Higher Education programmes and institutions (Tomlinson 2012). Whilst often appearing difficult to articulate, employability skills have been defined as ‘A set of achievements, understandings and personal attributes that make individuals more likely to gain employment and to be successful in their chosen occupations’ (Yorke 2006, 8). In the UK, much of this emphasis has been in direct response to key policy drivers including Government, the Quality Assurance Agency (QAA) for Higher Education and the Higher Education Academy (HEA).

Unsurprisingly, therefore, a growing number of University initiatives exist that are designed to enhance employability and wider life skills. These have included delivery through optional or compulsory employability modules (Taylor and Hooley 2014), general skills building activities embedded throughout degree programmes (Pegg et al. 2012), specific integrated work-learning programmes (Freudenberg, Brimble, and Cameron 2011), educational research internship schemes and student-led public engagement volunteer schemes (Lewis 2017) and employability ‘boot-camps’ (Rattenbury et al. 2018). Whilst these initiatives have indicated varying degrees of success, the extent to which these have been systematically evaluated using strong evaluation methodology frameworks has been limited and have often been hampered by low uptake rates (e.g., Rattenbury et al. 2018). This paper reports on a systematic evaluation of a novel employability initiative, called ‘Life Design,’ delivered within a University setting in the UK designed to support the professional and personal development of undergraduate students.

Drawing heavily upon the field of positive psychology and embracing recognition of the value of developing a ‘growth mindset’ (Dweck 2008, 2015) through encouraging self-awareness of abilities and aspirations, the Life Design initiative was developed by the student experience department at the University of Wales Trinity Saint David (UWTSD) in 2015. The main objective of Life Design is to increase students’ perceptions of control over their future beyond their initial degree through increasing self-esteem, self-efficacy, and optimism about future career options. Following the principles of applied design thinking (Clark, Osterwalder, and Pigneur 2012) it applies techniques from business modelling to encourage students to consider their own individual careers.

Of relevance to Life Design is increasing recognition in the literature that the provision of work-related learning/experience opportunities alone is not the most effective approach and that initiatives need to also focus on enhancing students’ understanding of sense of self, what Smith et al. (2017) call the ‘graduate identity’. Inherent in this approach is recognition that identifying the core psychological characteristics that underpin the development of such an identity, and a more enterprising mindset, is likely to be crucial to the success of any employability initiative. The concept of self-efficacy, developed by Bandura in the 1970s, refers to the belief an individual has in their own abilities, including their perceived ability to meet the challenges ahead of them and complete tasks successfully (e.g., Bandura and Ramachandran 1994). Self-esteem refers to a person’s overall feeling of worth or value (Pelham and Swan 1989) as distinct from a belief about being able to do or achieve something. The relationship between self-efficacy and motivation (the *desire* to achieve as distinct from the feeling that you are *capable* of achieving something) has been well documented, with studies reporting that higher levels of self-efficacy can lead to higher motivation (Bandura and Cervone 1983; Schunk 1991), but also recognising that individuals

who are motivated are likely to develop skills which also increase self-efficacy (Mayer 2010). There is increasing evidence that interventions focused around enhancing self-efficacy and self-esteem can lead to improvements in academic motivation, engagement and optimism, and confidence about career options (Freudenberg, Cameron, and Brimble 2011; Martin 2005). Specifically, career optimism has been found to be an important outcome when evaluating the impact of educational and employability initiatives (Gunkel and Schlaegel 2010; McIlveen, Beccaria, and Burton 2013). It is defined as a positive disposition about one's future career development (Rottinghaus, Day, and Borgen 2005) and reflects concepts such as expectations of best possible career outcomes, the most positive aspects of one's future career development, and comfort in performing career planning tasks.

The central delivery of Life Design builds on these concepts through the provision of workshops, facilitated by members of the student experience department, focused on interactive exercises that provide students with insight about their skills, personality, values, and aspirations, supported by additional web-based resources and signposting to further opportunities within and beyond the university. Online Life Design resources include the Life Design website, Twitter feed, Events page, Facebook page, links to Skills sessions, and Guest speaker events. Originally developed to support graduate students from the field of product design and automotive design to plan for further study, business start-up or employment, feedback from these graduates indicated that they felt that these workshops needed to come at an earlier stage in their undergraduate student journey. Accordingly, Life Design is now routinely offered to all first-year students within the first few months of University (either in the first or second semester) with workshops structured around four key phases. The initial '*Discover and Understand*' phase encourages students to explore their personality in terms of introversion-extraversion and how others may see them, identify life priorities and

satisfaction, and reflect on their strengths and weaknesses to build self-esteem. The '*Explore and Experiment*' phase encourages identification of specific aspirations and stages needed to achieve these, encouraging steps towards increased self-efficacy around consideration of their 'perfect imagined future life,' which are then formalised into an action plan in the '*Prepare and Launch*' phase. Finally, the '*Do and Review*' phase encourages students to identify and engage with opportunities within and outside of the University to meet their action plan and build an increased sense of career optimism alongside ongoing reflection and re-assessment where required.

Whilst feedback received from students at the end of these sessions were positive, it was recognised that engaging all students in the initiative was proving challenging, and the longer-term impact had not been explored. Accordingly, this paper reports an evaluation designed to capture more systematic data on the impact of Life Design on core psychological outcomes in order that the real value of this initiative can be more critically considered. Crucially, the need to identify whether this initiative results in sustained, longer term change is key given that Life Design is delivered during the first year of undergraduate study. Therefore, the primary aims of the evaluation were:

1. To explore the short and longer-term impact of Life Design on students' self-reported ratings of the primary outcomes of self-efficacy, self-esteem, and career optimism.
2. To explore the short and longer-term impact of Life Design on students self-reported ratings of the secondary outcomes of *certainty of career choices*, *confidence in future career prospects* and *certainty of next steps* to develop their career.

Additional study objectives were to explore whether 1) semester of delivery made a difference to the impact of Life Design; 2) students within certain academic disciplines benefited more or less from Life Design; and 3) identify the level of engagement and

satisfaction with the Life Design workshop and wider online resources. This paper also reports on the success of the methodological framework for evaluation and offers recommendations for future evaluations of similar employability initiatives.

Materials and Methods

Participants and Design

The study utilised a framework based upon a controlled longitudinal pre-post evaluation design, which involved administering paper-based self-report questionnaires at up to five time-points to students in three different schools within the university over the course of the 2015-16 academic year over an eight-month data collection period (See Figure One). The Life Design sessions either took place at the start of Semester One or the start of Semester Two. The original protocol planned that baseline data was collected during the first week of the academic year, with follow-up data taken immediately following the session (post-session), eight weeks later (follow-up 1), and for those receiving the Life Design session in Semester One, up to two further follow-up points (See Figure One).

[FIGURE ONE HERE]

The particular schools were targeted due to being based in different Faculties, having a similar number of students, and operating a similar learning schedule design that would allow for potential comparison within and across Schools. The data collection design and the split-seminar structure operating within each of the three schools enabled students the opportunity to take part in Life Design and the evaluation in each semester. Of the 78 students who consented to take part in the evaluation and completed the baseline questionnaire, there were 34 males and 44 females, 60% were aged 20 years or younger, 90% were single, 82% had either A-levels or a college certificate, and 83% did not have children.

However, due to low numbers and study attrition, the specific profile of those included in the final analysis are considered in more depth in the Results section.

Recruitment and data collection

Following ethical approval from the University Ethics Committee, students in the three Schools were firstly approached during the University's induction week by the Life Design Team and were informed of the initiative and the evaluation study. Students were then approached by a member of the evaluation research team in one of their teaching sessions during the first week of teaching to seek consent for the study and administer the baseline questionnaire prior to any Life Design sessions taking place. To ensure students did not feel coerced into taking part, a clear study information sheet was provided to potential participants detailing the voluntary and confidential nature of the study prior to giving informed consent. All participants were required to consent if they wished to take part in the research, but non-participation in the research did not preclude students from taking part in the Life Design session.

Measures

Along with demographic information on age, gender, marital status, highest level of education, and whether participants had any children, the following standardised scales were administered.

The Life Orientation Test - Revised (LOT-R): Scheier, Carver, and Bridges (1994):

The LOT-R assesses individual differences in generalised optimism versus pessimism and is recognised as having strong psychometric properties (Chiesi et al. 2013; Creed, Patton, and Bartrum 2002; Glaesmer et al. 2012). The LOT-R was administered at baseline only in order

to control for any potential differences in this psychological construct between participant groups. The measure included items such as '*In uncertain times, I usually expect the best*' (Optimism item); '*If something can go wrong for me, it will*' (Pessimism item). Participants were required to indicate the extent to which they agreed with each statement on a five-point Likert scale ranging from '*Strongly Disagree*' to '*Strongly Agree*'. Possible scores could range from 0-24, with higher scores indicating higher self-reported optimism.

The Generalised Self-Efficacy Scale (GSES): Schwarzer and Jerusalem (1993):

The GSES was designed to assess optimistic self-beliefs to cope with a variety of difficult demands in life and explicitly refers to personal agency, i.e., the belief that one's actions are responsible for successful outcomes. Examples of items on this scale include: '*I can usually handle whatever comes my way*'; and '*It is easy for me to stick to my aims and accomplish my goals.*' The GSES has been shown to have strong psychometric properties across different contexts (Luszczynska, Scholz, and Schwarzer 2005; Scholz et al. 2002; Schwarzer, Mueller, and Greenglass 1999). In the current study, a five-choice response option was given ranging from '*Strongly Disagree*' to '*Strongly Agree.*' Total scores could range between 10-50, with higher scores representing greater self-reported self-efficacy.

The Rosenberg Self-esteem Scale (RSES): Rosenberg (1965):

The RSES captures levels of self-reported global self-esteem that relate to a person's own feelings of worthiness and has been shown to have strong psychometric properties (e.g., Robins, Hendin, and Trzesniewski 2001; Schmitt and Allik 2005). The 10-item RSES was used to capture general self-esteem on a four-point scale from '*Strongly Agree*' to '*Strongly Disagree*'. Five of the items were positively worded (e.g., '*On the whole, I am satisfied with myself*'), while the other five were negatively worded (e.g., '*All in all, I am inclined to feel*

that I am a failure’). Negatively worded items were reversed scored and scores from all ten items were summed to give a range of score between 10-40, with higher scores reflecting higher self-reported levels of self-esteem.

The Career Optimism subscale (COS) from the Career Futures Inventory (CFI): Rottinghaus, Day and Borgen (2005):

Career optimism is defined as a positive disposition about one’s future career development (Rottinghaus et al. 2005) and this sub-scale was included to assess changes in expectations of best possible career outcomes, most positive aspects of one’s future career development, and comfort in performing career planning tasks. The CFI has been shown to have strong psychometric properties across a range of studies including student populations (Gunkel and Schlaegel 2010; McIlveen, Beccaria, and Burton 2013). The COS sub-scale comprises eleven items, six are positively worded (e.g., *‘I get excited when I think about my career’*) while five are negatively worded (e.g., *‘Thinking about my career frustrates me’*). Participants indicate the extent to which they agree or disagree with each statement using a five-point Likert-type scale, ranging from *‘Strongly Disagree’* to *‘Strongly Agree.’* The negatively worded items were reversed scored and all items summed to provide a career optimism score, which could range from 11-55. Higher scores indicate more positive self-report feelings towards future career.

Additional items on the baseline questionnaire included a free text section asking respondents to rank order the three most important factors they believed would influence their future career options after University alongside the following closed-response single-item questions: 1. *Has your choice of University course been influenced by your future career plans?* (Yes/No). 2. *Prior to starting University, how much did you think about your future*

career plans? (Not at all/A little/Quite a lot/Very much). 3. *How certain are you about what you would like to do/be in your long-term future career?* 4. *How certain are you about your immediate next steps towards developing your career?* 5. *How confident are you about your career prospects after University?* These final three questions were measured on a five-point scale ranging from ‘*Very Uncertain*’ to ‘*Extremely Certain*.’

Follow-up measures:

At each follow-up assessment, all primary and secondary outcomes were again captured (GSES, RSES, and COS, and the three career certainty items). Additionally, new process measures relating to satisfaction with the Life Design initiative and wider engagement and satisfaction with Life Design resources beyond the session itself (including Life Design website, Twitter feed, Events page, Facebook page, Skills sessions, and Guest speaker events) were also collected. An additional question asked participants to rate how helpful they found the Life Design session. All questionnaires included a free text section where participants could write anything they felt had not been covered in the questions in relation to how they felt about their future.

Analysis:

Data from participants were screened and cleaned prior to calculation of reversed and total scale scores. Missing data was handled by following the procedures for case mean substitution outlined by Fox-Wasylyshyn and El-Masri (2005). Summary statistics including total scale scores, means and standard deviations were calculated for all scales. However, due to low uptake rates at baseline within some of the schools, the low uptake rates for the Life Design session itself, and subsequent study attrition due to low lecture attendance within each of the three schools (See Table One), only data from the baseline, post session and first follow-up collapsed across schools and semester are reported in the current paper. Therefore,

it was not possible to examine the first two of the additional study objectives regarding whether semester of delivery and certain academic disciplines benefited more or less from Life Design.

[TABLE ONE HERE]

To examine immediate psychosocial outcomes pre-post Life Design session, three separate repeated measures t-tests were conducted and are reported in this paper, with time-point (baseline and post-session) as the within-participant factor and each of the three psychosocial outcome measures as dependant variables (Generalised self-efficacy, Self-esteem, and Career optimism). The same analyses were employed to explore the longer-term follow up, this time with the two levels for the within-participant factor of time-point being post-session and follow-up¹.

For the secondary analyses exploring the impact on career-related variables (*certainty of career choices, confidence in future career prospects and certainty of next steps to develop their career*), non-parametric Wilcoxon Signed Ranks Test were conducted on pre-post and post-follow-up outcomes due to data violating assumptions of normality.

¹ Due to the number of t-tests conducted within each set of analyses, all comparisons were Bonferroni corrected to avoid increasing the likelihood of making a Type I error. Therefore, within each of the different sets of analyses, which each contained three comparisons, the α was set at 0.02.

Results

Response rates

Table one shows the number of completed questionnaires at each of the three main time-points by Life Design session semester. Importantly, the number of participants eligible for pre-post analysis through completion of both the baseline and post-session questionnaires was 47, and for the longer-term analysis through completion of the baseline, post-session, and follow-up questionnaires was 34.

Baseline Analyses

Independent samples t-test analyses on dispositional optimism and the three main psychosocial outcome measures were conducted on baseline scores for those in each of the two Life Design session semester groups who had completed both the baseline and post-session questionnaires. Following the removal of individual outlier scores, the results revealed no statistically significant differences between the two semester groups on any of the outcome measures (See Table two for means, standard deviations, t-test outcome, and effect sizes²). Therefore, it was not necessary to include dispositional optimism as a covariate during the main analyses. Furthermore, despite the original analysis plan setting out to examine any potential differences between semester groups following the Life Design sessions, as mentioned previously the low numbers precluded this from happening. However, these baseline analyses provide confidence in the similarities of core psychosocial profiles of respondents within the two semester groups.

² Due to the number of t-tests conducted, all comparisons were Bonferroni corrected to avoid increasing the likelihood of making a Type I error. As there were four analyses, the α was set at 0.01.

[TABLE 2 HERE]

Demographic, Psychosocial, and Career thought characteristics of respondents and dropouts.

Participants completing the baseline and post-session evaluation included 27 males and 20 females, with the majority aged 20 years or younger (57%), single (85%), having either A-levels or a college certificate (80%), and no children (83%). Participants completing the evaluation questionnaires at all three time-points (baseline, post-session, and ~ 8-week follow-up), included 18 males and 16 females, with the majority aged 20 years or younger (62%), single (88%), having either A-levels or a college certificate (79%), and no children (88%). For participants who did not go on to complete the post-session evaluation (despite having completed the baseline questionnaire), these included seven males and 24 females, with a majority aged 20 years or younger (65%), single (97%), having either A-levels or a college certificate (84%), and no children (84%). Other than a greater number of females dropping out from baseline to post-session, there appears to be no specific pattern in terms of demographic characteristics of those who chose not to continue being a part of the evaluation study.

A comparison between males ($N=34$) and females ($N=44$) on the measures of dispositional optimism and the three main psychosocial outcome measures at baseline for all 78 participants was also conducted. Following the removal of one outlier score from the female group dispositional optimism measure, these revealed no significant differences in reported levels of dispositional optimism or career optimism between males ($M = 12.70$, $SD = 3.95$, and $M = 40.18$, $SD = 6.50$, respectively) and females ($M = 11.48$, $SD = 3.67$, and $M = 38.78$, $SD = 7.46$ respectively), $t(75) = 1.40$, $p = 0.17$, with a small to medium effect size for

Cohen's $d = 0.32$ and $t(76) = 0.87$, $p = 0.39$, and a small effect size for Cohen's $d = 0.20$, respectively. However, following the removal of two male and two female outlier scores from the measure of generalised self-efficacy and removal of one male and one female outlier score from the measure of self-esteem, it was discovered that males ($M = 39.06$, $SD = 3.52$ and $M = 30.39$, $SD = 3.91$, respectively) reported significantly higher levels of generalised self-efficacy and higher levels of self-esteem compared to females ($M = 34.82$, $SD = 4.11$, and $M = 26.80$, $SD = 3.83$, respectively) $t(72) = 4.68$, $p < 0.0001$, with a large effect size for Cohen's $d = 1.10$, and $t(74) = 4.01$, $p < 0.0001$, again with a large effect size for Cohen's $d = 0.93$, respectively.

Following the removal of individual outlier scores, the Psychosocial and Career thought characteristics between dropouts from baseline to post-session and those who continued to post-session did not significantly differ at baseline (all $p > 0.05$)³. Although, the difference between dropouts and those who continued was approaching significance on the measure of self-efficacy, with those continuing in the evaluation study reporting slightly higher levels of self-efficacy at baseline compared to dropouts.

Overall ratings of satisfaction with 'Life Design' session

Mean responses to the single item scale measuring perceptions of overall helpfulness of the Life Design session on a five-point scale ranging from '1 - *Very Unhelpful*' to '5 - *Very Helpful*' was 3.83 (SD 1.16) at post session for all those who completed the baseline and post-session questionnaires (NB: $N = 46$ responses to this question), and 3.42 (SD 0.94) at follow-up for all those who completed the questionnaires at all three time-points (NB: $N = 33$ responses to this question).

³ Independent samples t-tests conducted on psychosocial measures. Mann-Whitney U tests conducted on career variables due to violation of normality.

Primary Analysis: Pre-post session impact of Life Design on psychosocial outcomes

Where outliers were identified at each of the time-points within the three psychosocial measures, the data at that time-point and on that measure highlighted as an outlier was removed prior to analysis, and not the participants' whole dataset.

Self-esteem There was a statistically significant main effect of time-point, with self-reported self-esteem scores increasing from baseline ($M = 28.64$, $SD = 2.60$) to post-session ($M = 29.69$, $SD = 2.94$) $t(38) = -3.15$; $p = 0.003$, with a medium Cohen's d effect size, $d = 0.50$.

Generalised self-efficacy There was no statistically significant difference between baseline ($M = 37.16$, $SD = 3.57$) and post-session ($M = 37.76$, $SD = 3.49$) self-reports on self-efficacy, $t(41) = -1.09$; $p = 0.28$, with a small Cohen's d effect size, $d = 0.17$

Career Optimism There was no statistically significant difference between baseline ($M = 39.39$, $SD = 6.38$) and post-session ($M = 39.36$, $SD = 5.95$) self-reports on career optimism, $t(46) = 0.05$; $p = 0.96$, with a very small Cohen's d effect size, $d = 0.01$.

Longer-term follow-up:

These analyses were conducted only on data from students who had completed the evaluation questionnaires at all three time-points (baseline, post-session, and ~eight-week follow-up). Again, any specific time-point and measure data identified as an outlier was removed prior to analysis.

Self-esteem There was no statistically significant difference between post-session ($M = 29.55$, $SD = 3.30$) and follow-up ($M = 29.70$, $SD = 3.26$) self-report levels of self-esteem, $t(30) = -0.40$; $p = 0.69$, with a small Cohen's d effect size, $d = 0.07$, suggesting that the

statistically significant increase in self-esteem between baseline and post-session was maintained in the longer term and did not revert to baseline levels.

Generalised self-efficacy These did increase from post-session ($M = 37.93$, $SD = 3.05$) to follow-up ($M = 39.41$, $SD = 1.87$), $t(26) = -2.39$; $p = 0.03$, with a medium Cohen's d effect size, $d = 0.46$, suggesting that the Life Design sessions had an impact on generalised self-efficacy in the longer-term. However, with the application of the Bonferroni corrected alpha level set at 0.02, due to the number of t-tests conducted, this outcome did not reach statistical significance.

Career Optimism There was no statistically significant difference between post-session ($M = 39.84$, $SD = 4.74$) and follow-up ($M = 39.47$, $SD = 3.89$) self-reports of career optimism, $t(31) = 0.56$; $p = 0.58$, with a small to medium Cohen's d effect size, $d = 0.37$, again indicating that the Life Design sessions had no significant impact on career optimism at immediate or longer-term follow-up.

Secondary analysis: Impact of Life Design on future career variables

Table 3 shows the outcomes from the Wilcoxon Signed Ranks tests to compare responses on the career choices questions from baseline to post-session. No significant differences emerged.

[TABLE 3 HERE]

Longer-term follow-up

Table 4 shows the outcomes from the Wilcoxon Signed Ranks tests to compare responses on the career choices questions from post-session to follow-up. There was a

significant increase in certainty of next steps to develop career responses from post-session to follow-up, suggesting students felt they had a better idea of what they needed to do going forward to develop their future career at a later point following the Life Design session. There were no other significant differences.

[TABLE 4 HERE]

Self-reported factors that participants believed would influence their future career options

Of the 78 participants who completed the baseline questionnaire, 66 participants completed the free-text section asking them to rank the three main factors that would influence their future career options. As shown in Figure 2, many students ranked their University degree or related grades as being an important factor. Many also ranked money, skills, and experience as important factors. Only eight provided additional free-text comments on the baseline questionnaire that mapped on to the above rankings, suggesting this list captured key factors for this cohort.

[FIGURE 2 HERE]

Engagement with wider Life Design Initiatives:

Figure 3 shows the number of students reporting to have engaged with the wider Life Design initiative resources at post-session (total number completing this questionnaire = 77) and follow-up (total number completing this questionnaire = 47). Inspection of this data

shows that the reported level of engagement with each of the wider Life Design initiative resources decreases from post-session to follow-up. Also, reported engagement with the skills session at post-session appears to stand out in comparison to the follow-up engagement and engagement with the other types of resources at post-session and follow-up. One explanation for this could be that students thought the skills session on this question was referring to the Life Design session itself, as opposed to the additional skills sessions offered as part of the wider Life Design initiative throughout the academic year.

[FIGURE 3 HERE]

Discussion

The findings of the evaluation suggest that Life Design was perceived positively by those who engaged with it and that taking part in the initiative led to a significant increase in one of the primary outcomes of self-esteem. Critically, this increase in reported self-esteem was sustained in the longer-term and did not revert to baseline levels. However, engaging with Life Design did not lead to any significant immediate or longer-term changes in the remaining primary outcome measures of self-efficacy and career optimism; although there was a slight increase in reported self-efficacy at follow-up. The findings also suggest that engaging in Life Design did not lead to any immediate changes in the single item career variable measures. However, self-report certainty of the next steps students felt they should take to develop their career did significantly increase when this measure was captured at the approximate eight-week follow-up point after the Life Design session. The extent to which these findings can be explained by theoretical, practical and/or methodological reasons will now be explored.

The importance of developing the students' sense of self while teaching generic skills and preparing students for employment has previously been acknowledged by researchers (Freudenberg, Cameron, and Brimble 2011) and the current findings support the suggestion that increasing self-esteem is an important element in this process and continues to be an important outcome measure to capture. The magnitude of the changes seen in the current evaluation for self-esteem indicated a moderate effect size. Therefore, whilst they may not be considered clinically significant, the fact that the level of self-esteem in the current study was found to be somewhat lower than previously reported studies on student populations, (e.g., Kong, Ding, and Zhao 2015; Martín-Albo et al. 2007; Schmitt and Allik 2005) suggests that Life Design did successfully attract and engage those likely to benefit in relation to this

specific characteristic. Furthermore, that benefit to the measure of self-esteem appears to have been maintained over time; although whether that prolonged benefit was due to the session itself, the initiative resources students may have engaged with after the session, or simply due to being more at ease with university life as time went on is difficult to know. It should also be noted that while this increase in reported self-esteem can be seen as a positive element in the evaluation study, a broader consideration of the self-esteem data within this study should also be considered. In doing this, what comes across as a potential concern relates to the number of females dropping out of the study from baseline to post-session, who were already reporting significantly lower levels of self-esteem in comparison to males. Therefore, despite the Life Design session having a positive impact on levels of self-reported self-esteem for those who continued in the evaluation study, for those who did not it seems they may have missed an opportunity to have potentially benefitted on this measure from the session. Therefore, a key demographic that the session aimed to engage with has potentially been missed.

In contrast to the above and to extant literature, the current evaluation did not find an immediate impact on self-reported self-efficacy following the Life Design session; a concept that has been recognised as an important factor in enhancing academic and career-related motivation and optimism (Mayer, 2010). One explanation for this could be the fact that in the current study, although not significant, those with lower levels of self-reported self-efficacy at baseline were found to be more likely to drop out of the study, with the remaining participants having somewhat higher levels of self-reported self-efficacy and therefore potentially being less likely to report an increase as a consequence of Life Design. This could also be possibly linked to the number of females dropping out from baseline to post-session, who reported significantly lower levels of self-efficacy at baseline. The different pattern of

findings here between self-esteem and self-efficacy are fascinating and whilst partly explained here do suggest that these continue to be separate and unique constructs that remain important outcome measures.

Given the specific focus of Life Design, it was surprising that overall, no significant improvement in Career Optimism was found, suggesting that Life Design did not successfully change students' perceptions of factors linked to possible career options, positive aspects of their future career development and performing career-related tasks. This at first appears counter-intuitive given the aim of Life Design, although could again be at least partially explained by the fact that the students reported higher levels of career optimism at baseline than other studies (e.g., Rottinghaus et al. 2005; Schwarzer et al. 1999). However, is it possible that the focus on a 'growth mindset' and steps to attain the 'perfect career' served to hinder more realistic careers hopes and expectations? Some tentative support for this notion can be found within the free text data supplied by participants; students self-reported the most important factors likely to influence their future career choices as reflecting very practical and realistic goals and challenges such as degree outcome, funding and salary, skills, and experiences.

In line with this lack of improvement in career optimism following Life Design, the three single-item career related variables did not show significant improvement either. Again, this was quite surprising given the aim of Life Design. However, there was a significant increase in responses to the question on how certain students felt of their next steps to developing their career from post-session to follow-up. This would suggest that in the longer term, students felt they had a better idea of what they needed to do going forward to develop their future career. Again, whether this was a direct consequence of the session itself,

engagement with initiative resources after the session, or due to degree programme related activities/information as the academic year progressed is difficult to ascertain.

Furthermore, although not reported in this paper due to limited numbers, limited power, and assumptions of data not being met, analyses were conducted on the psychosocial and career variables divided by semester group. Although there were no differences for the psychosocial measures, analysis of the single-item career measures suggested that the timing of the delivery of Life Design may be important when measuring the impact on career-related constructs. Students who completed Life Design in Semester Two reported greater confidence and certainty in relation to future career choices following Life Design than those completing it in Semester One. Whilst students completing Life Design in Semester One reported being less certain and confident of their future career choices immediately after Life Design than they were before. However, the effect sizes here were small and the pattern did not replicate for the main psychometric career optimism scale. Nevertheless, it does suggest a need to possibly consider whether introducing employability initiatives in the very early days of a student's first year of study can be detrimental rather than beneficial.

There are several methodological limitations of the reported study due to the challenges presented by such an 'in-vitro' evaluation design. Firstly, the Life Design sessions were led by different individuals in Semesters One and Two, which may have resulted in a potential confounding variable. However, the fact that the only differences that were found between semesters was for the aforementioned low powered single-item career confidence variables with data not meeting relevant assumptions and no differences for any of the primary outcome measures suggests that the content and delivery was sufficiently matched by each workshop lead.

Secondly, the evaluation suffered from lower levels of engagement from students within the target Schools than envisaged, which meant that low numbers at post-session and follow-up precluded any potential comparisons by 'degree subject cluster.' This is a shame, as it would have been interesting to establish whether the initiative had greater beneficial effects for some students compared to others depending on the type of degree programmes they were studying. This and the lower than anticipated numbers overall also prevented any more robust longer-term evaluation of the impact of this initiative.

Finally, the most important limitation, which will continue to present future challenge for researchers in this area, is that of low levels of engagement and potentially highly biased nature of the sample. This issue is in no way unique to this study (e.g., Rattenbury et al. 2018; Taylor and Hooley 2014) and there is a need therefore to identify more effective ways to encourage initial and maintained engagement with such initiatives. Rattenbury et al. (2018) suggest that such initiatives could be embedded into the curriculum. However, they also highlight potential issues with regards to effectiveness in encouraging motivation and engagement when students are not allowed to optionally attend. Another suggestion put forward by Rattenbury et al. (2018) could be to include an employability credit-awarding course delivered by personal tutors. It remains a challenge, therefore, to identify how best to encourage those who may be in greatest need to engage with such initiatives. Crucially, this initiative, as many others, has failed to fully embrace the notion of co-design and co-production. Through actively engaging students (and specific profiles of students) at the early stages of idea inception as part of the design and evaluation team, it could be that methods are identified to increase engagement that will have real impact (Bovill et al. 2016).

In conclusion, this paper has perhaps raised more methodological, theoretical, and practical challenges for future research and employability initiatives than it has provided

answers. A unique finding within this evaluation that can inform the delivery of future initiatives was that the timing of such initiatives may be important and particularly that attempting to engage new undergraduate students too early in their first year of study may be less beneficial. However, we must continue to endeavour to systematically evaluate complex initiatives such as Life Design, to be able to articulate not only the potential benefit of such schemes, but also better understanding the psychosocial characteristics of those who do, and do not, gain benefit.

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Declaration of Interest

No potential conflict of interest was reported by the authors.

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Table 1: Summary of collected data by Semester of Life Design Session and School.

	School One		School Two		School Three		Total	
Measure	Sem. 1	Sem. 2	Sem. 1	Sem. 2	Sem. 1	Sem. 2	Sem. 1	Sem. 2
Baseline	1	6	24	17	16	14	41	37
Post-session	15	6	27	7	9	13	51	26
Follow-up	9	0	16	6	9	7	34	13
No. completing Baseline & Post-session	1	3	21	5	8	9	30	17
No. completing Baseline, Post-session & Follow-up	1	0	14	5	7	7	22	12

Note: Sem. = Semester

Table 2: Means, Standard Deviations, and Independent-samples t-test statistics on the outcome from the dispositional optimism measure and the three main psychosocial outcome measures at Baseline specifically between those in each of the two Life Design session semester groups who completed both the Baseline and Post-session questionnaires.

Psychosocial Measure	Sem. One Mean Total (<i>Standard Deviation</i>)	Sem. Two Mean Total (<i>Standard Deviation</i>)	t-test outcome & effect size
Baseline Dispositional Optimism	12.63 (4.36)	11.51 (4.21)	$t(45) = 0.86$; $p = 0.39$, $d = 0.3$
Baseline Generalised Self-efficacy (GSE)	37.34 (2.18)	35.57 (2.68)	$t(35) = 2.20$; $p = 0.04$, $d = 0.7$
Baseline Self-esteem (SES)	28.07 (3.49)	29.00 (1.58)	$t(39) = -1.17$; $p = 0.25$, $d = 0.4$
Baseline Career Optimism (COS)	40.38 (7.04)	37.64 (4.72)	$t(45) = 1.43$; $p = 0.16$, $d = 0.4$

Note 1: Sem. = Semester

Note 2: Number completing Baseline and post-session in semester one = 30; No. completing Baseline and post-session in semester two = 17.

Note 3: Seven outliers in the GSE measure and two outliers in the SES measure were removed from the Semester One group, and three outliers in the GSE measure and four outliers in the SES measure were removed from the Semester Two group.

Note 4: $\alpha = 0.01$

Table 3: Wilcoxon Signed Ranks Test outcomes for future career variable measures from Baseline to Post-session.

Measure	N	Mean	Wilcoxon Signed Ranks Test Outcomes
Baseline Certainty of future career choice	46	3.80	$z = -0.19, n = 45, p = 0.85, r = 0.02$
Post-session Certainty of future career choice	45	3.84	
Baseline Certainty of next steps to develop career	44	3.78	$z = -0.04, n = 43, p = 0.97, r = 0.004$
Post-session Certainty of next steps to develop career	45	2.64	
Baseline Confidence in career prospects	45	3.60	$z = -1.34, n = 44, p = 0.18, r = 0.14$
Post-session Confidence in career prospects	44*	3.80	

Note 1: Only 46 participants completed the career variable questions at Post-session

Note 2: A total of six outlier scores were removed prior to analysis

**NB only 45 responses to this scale prior to removal of outlier*

Table 4: Wilcoxon Signed Ranks Test outcomes for future career variable measures from Post-session to Follow-up

Measure	N	Mean	Wilcoxon Signed Ranks Test Outcomes
Post-session Certainty of future career choice	32	3.78	$z = -0.91, n = 31, p = 0.36, r = 0.11$
Follow-up Certainty of future career choice	32	3.66	
Post-session Certainty of next steps to develop career	32	3.53	$z = -2.59, n = 20, p = 0.01, r = 0.41$
Follow-up Certainty of next steps to develop career	21	4.00	
Post-session Confidence in career prospects	31*	4.00	$z = -1.00, n = 22, p = 0.32, r = 0.15$
Follow-up Confidence in career prospects	22	4.00	

Note 1: Only 33 participants completed the career variable questions at post-session and follow-up

Note 2: A total of 27 outlier scores were removed prior to analysis

**NB only 32 responses to this scale prior to removal of outlier*

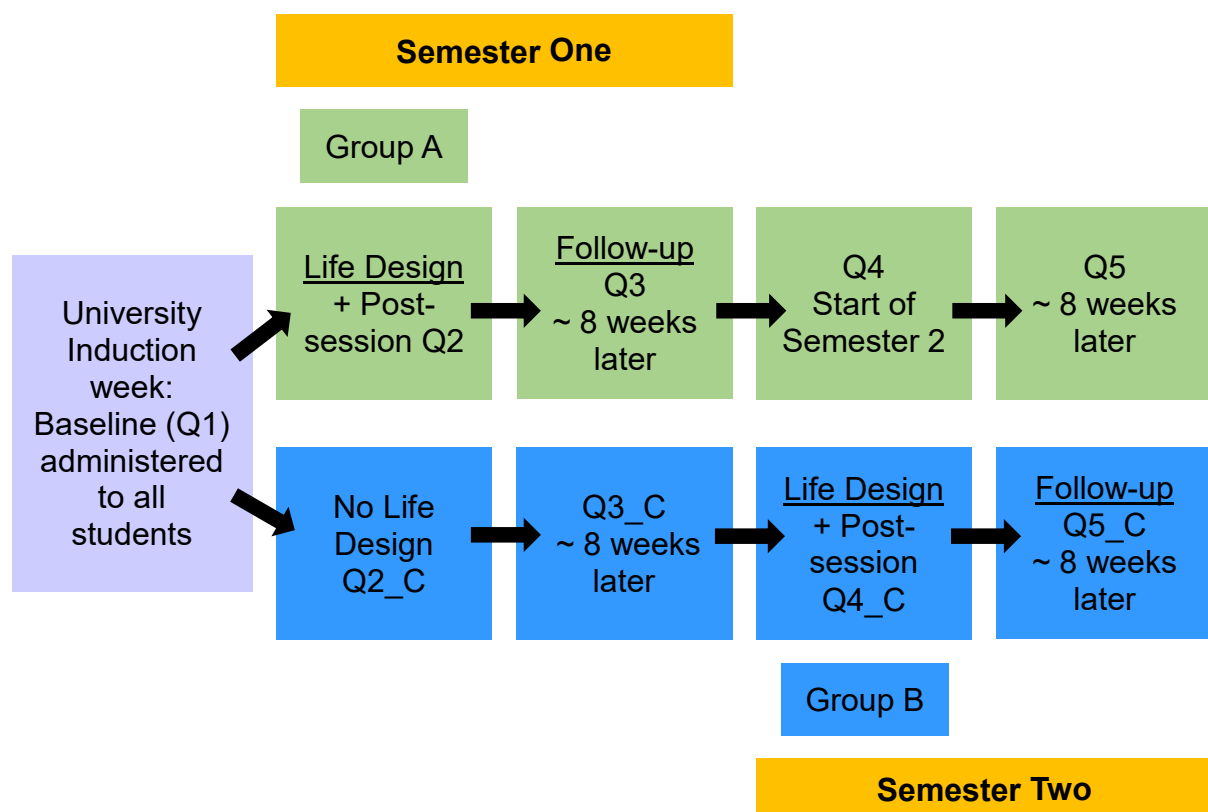


Figure 1: Timeline of the controlled longitudinal self-report questionnaire evaluation design over the course of the 2015-16 academic year.

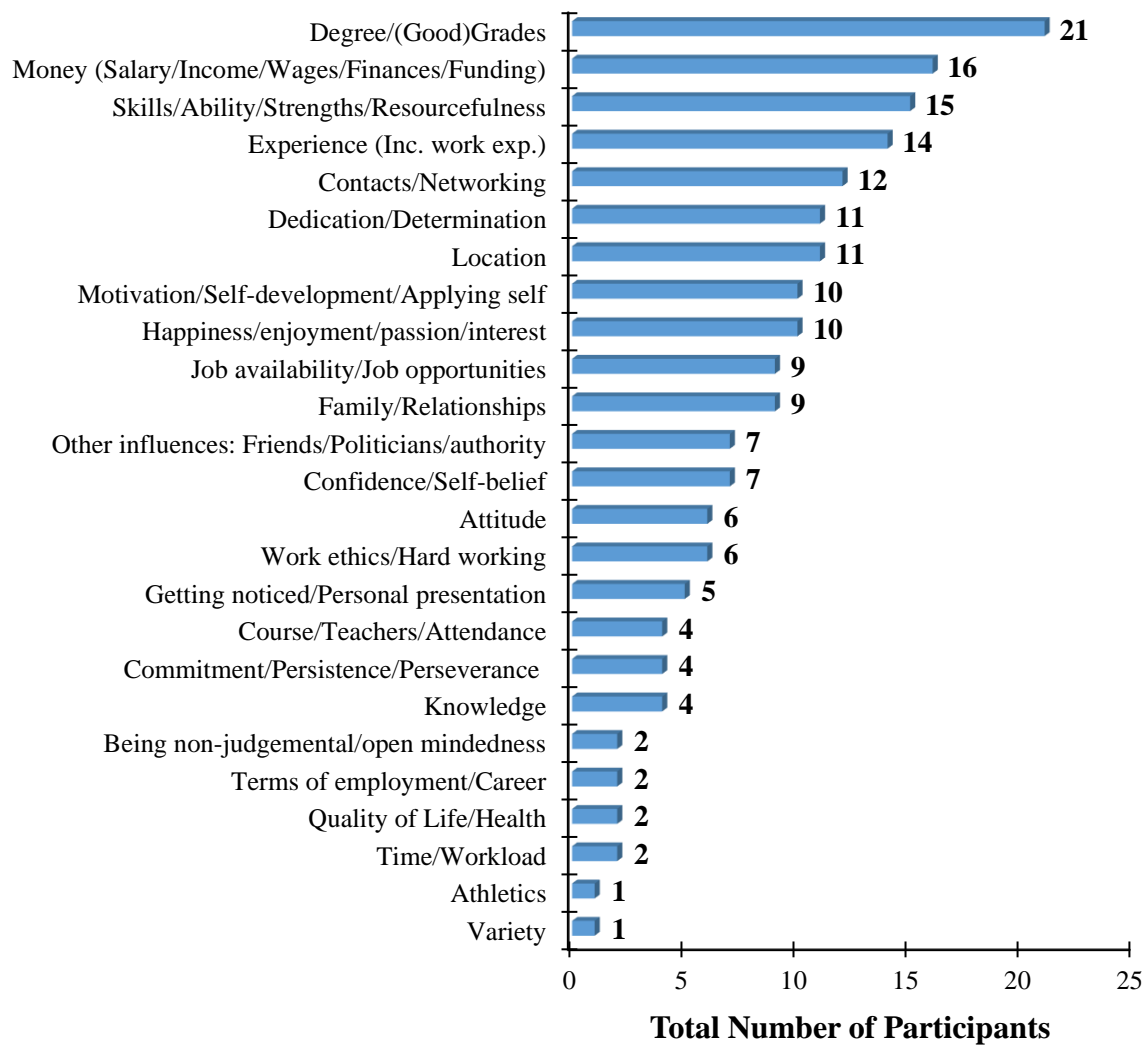


Figure 2: Number of students endorsing the most important factors they felt would influence their future career options after University.

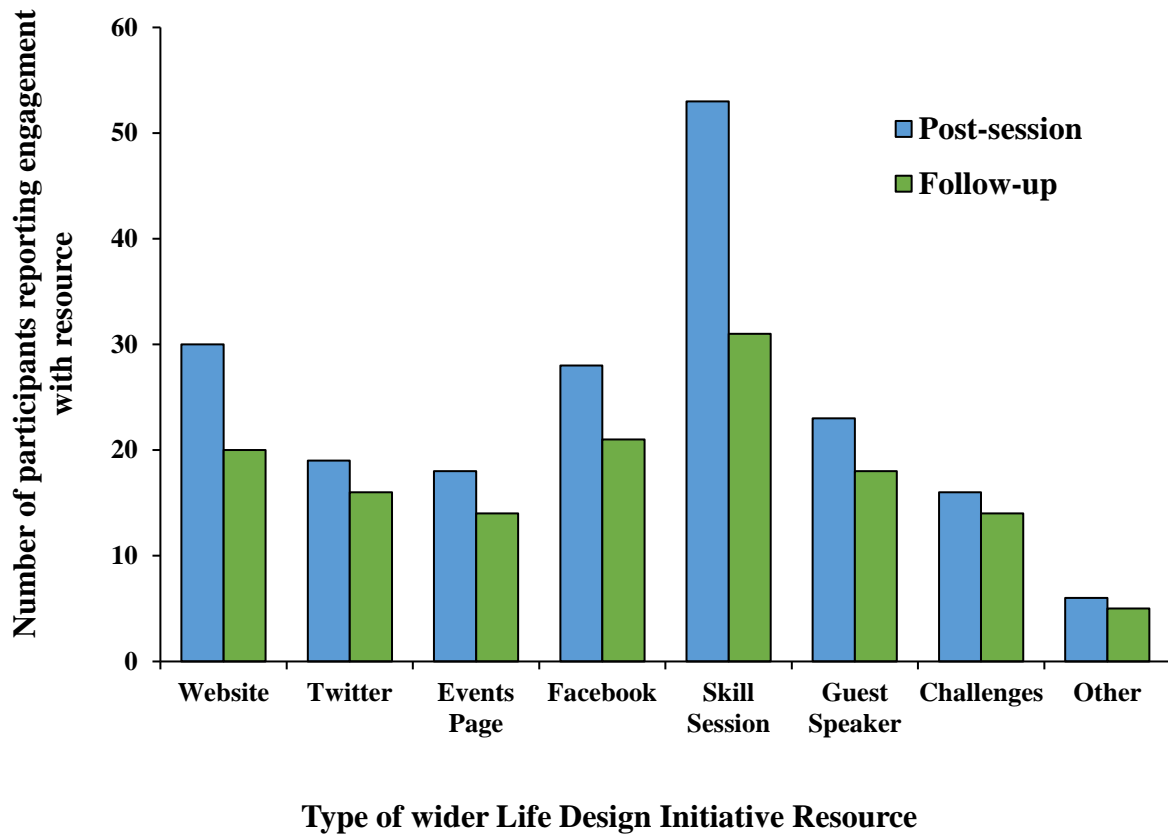


Figure 3: Chart displaying total number of students reporting engagement with the wider Life Design initiative resources at Post-session and Follow-up.

