

14. Career Readiness and KPIs: establishing the link and delivering benefit to students

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Linking Career Readiness and Outcomes

Like many institutions, the University of Leeds endeavoured to find a lead indicator for graduate destinations. In 2019, the Careers team undertook some analysis on numerous years of data from the Destinations of Leavers of Higher Education survey to try to understand if there were on-course factors that could help future efforts to overcome the challenges posed by the delay in survey timelines. This led to Career Readiness being unearthed as a major influencer in ‘Graduate Prospects’ and developing a new approach to monitoring individual student progress, aggregated at scale to understand on-course performance.

It was the summer of ‘19

In 2019, the Higher Education Statistics Agency (HESA) changed how we measure graduate destinations with a move from Destination of Leavers from Higher Education Survey (DLHE) to the Graduate Outcomes Survey (HESA, n.d.). This decision had a significant impact on the reporting landscape, because it now meant that data would be collected 15 months after graduation (whereas DLHE was conducted six months after graduation); the happy consequence of the transition

between the two surveys was an unexpected period of time in which the Data Analytics team could turn their attention to other much-needed strategic work.

This meant that we had a brief hiatus in the standard academic cycle which enabled us to focus on things that we did not usually have capacity for. It was during this period that the University of Leeds completed embedding its new conceptual model (see case study in Chapter 5) and we now found ourselves with the headspace needed to unpick a problem that we had been wanting to tackle for quite some time.

The problem related to the fact that graduate destinations data are end-result lag data - which means that by the time we have an understanding of whether our efforts to support students have been positive, it is too late to do anything about it for that cohort and for the next cohort too (who would be graduating at the same time as we received the results). The reality of the change to the Graduate Outcomes Survey was a two-year delay in receiving the data about a particular cohort – far from ideal when you consider the importance of the data for regulatory influence (Office for Students, n.d.) and, most importantly, for helping us to ensure that our graduates go on to have happy and meaningful futures.

With our new-found time, we planned a major project...on graduate destinations!! Our project endeavoured to find an indicator (or indicators) that relates to students while they still studying at the university that would give us insight into their likely chances of arriving at their happy, meaningful future.

The spaghetti principle

First, we merged the last five years of the old graduate destinations survey (DLHE). Then we added every dataset we could which related to activities students undertake while they are studying with us. We included information about engagement with services provided by the Student Careers Service, uptake of modules on which Careers Service taught, and every other factor that we could identify about the individuals to account for nuance (e.g. key demographic information, entry tariffs, attainment, studying a work placement year or study abroad).

Once we had collated and merged these data into a single (very large) table format, we weren't fully sure what to do with it. Back then we had been given the keys to a trial run of Microsoft's Power BI platform and we noticed there was a 'key influencers' visualisation. Our key aim was to find out whether a graduate was in graduate-level employment or further study (known as Graduate Prospects); with this parameter set, we then looked at the influence of the factors we had identified. Power BI struggled to cope with the sheer volume of data, and so we grouped attributes to assess their influence looking at three to four characteristics at a time until we had narrowed down the list to a handful of characteristics that seemed to have the most influence. We found that final year Career Readiness statement was always an influencing factor, as were factors relating to level of study, fee status, attainment, subject area, region of residence, POLAR4 quintile (Office for Students, n.d.) and ethnic group.

After substantial modelling, we found that health profession programmes (such as medicine or dentistry courses) were performing differently to other subject areas. Their Graduate Prospects were extremely high (e.g. 95-99%), and no other factors were a reliable indicator of Graduate Prospects for these graduates – graduating from those programmes was enough for predicting their likely outcome. The same could not be said for our non-health profession programmes. When we looked at this group, we found that Postgraduate Research and Postgraduate Taught programmes differed from Undergraduate programmes; the fee status of undergraduate students influenced the relationship too. We concluded that there was likely to be a relationship between Career Readiness data and their likelihood of achieving a positive Graduate Prospect (figure 14.1).

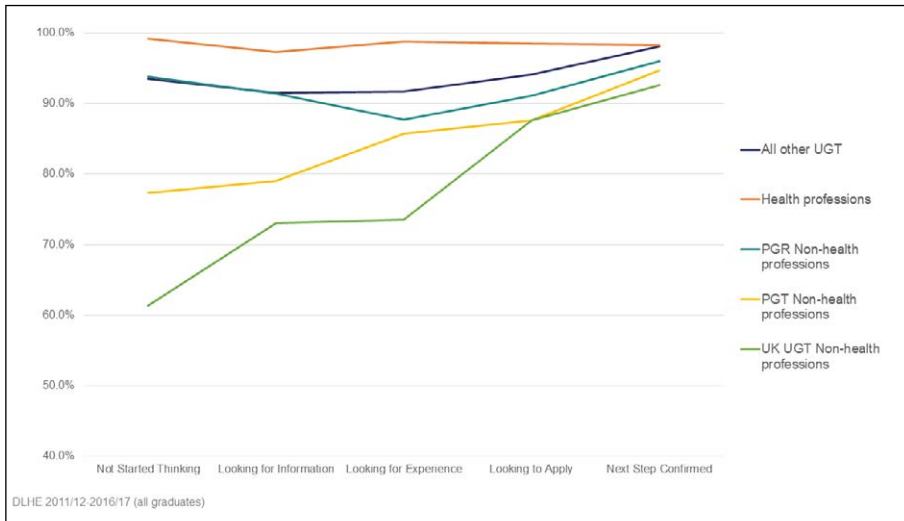


Figure 14.1: Relationship between Graduate Prospects (% of graduates in graduate-level employment or further study) and final year Career Readiness category, by student group, DLHE 2011/12-2016/17 (all graduates)

Establishing an observational association

Having identified the relationship, we then focused on creating visual representations of the data and on some additional analysis. We focused on our UK undergraduate non-health profession cohort as the relationship was strongest with this cohort and the sample size was by far the largest, with some 15,000 graduates. The relationships articulated below were also observed in our Postgraduate Taught non-health profession programmes, but the relationship was not as strong, and the sample sizes are smaller.

It is important to note that no-one in the team is by any means a statistician by profession, but data analysts. As such, we understand the principles of explorative analysis and we conducted exhaustive analysis of the available data to understand observable relationships. That led to a series of charts that highlighted an observational association between final year Career Readiness category and Graduate Prospects. Figures 2-6 highlight the most prominent findings which relate to Graduate Prospects and the factors of attainment (figure 14.2), subject area

(figure 14.3), region of residence (figure 14.4), POLAR4 quintile (figure 14.5) and ethnic group (figure 14.6). In each of these charts, we made the decision to suppress data points that were less than one hundred graduates to increase our confidence in the data.

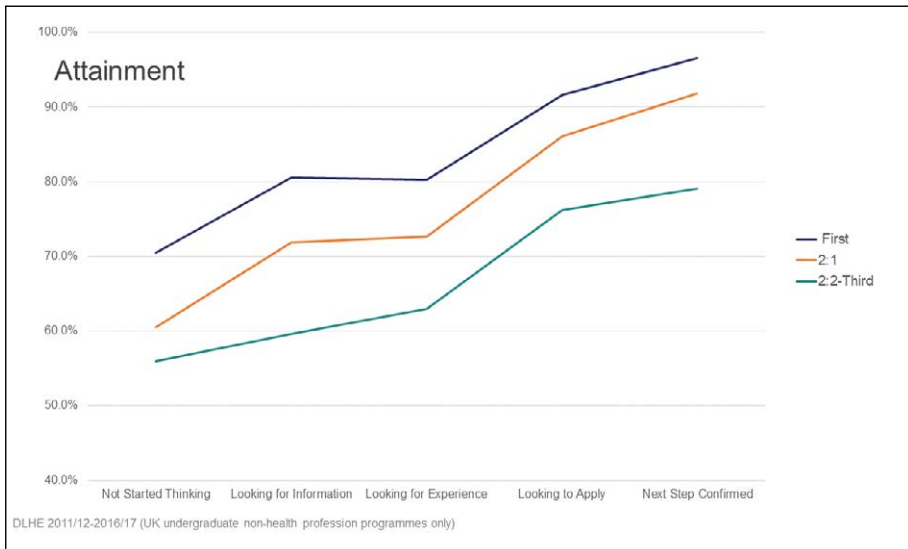


Figure 14.2: Relationship between Graduate Prospects (% of graduates in graduate-level employment or further study) and final year Career Readiness category, by student attainment (degree classification), DLHE 2011/12-2016/17 (UK undergraduates, non-health profession programmes)

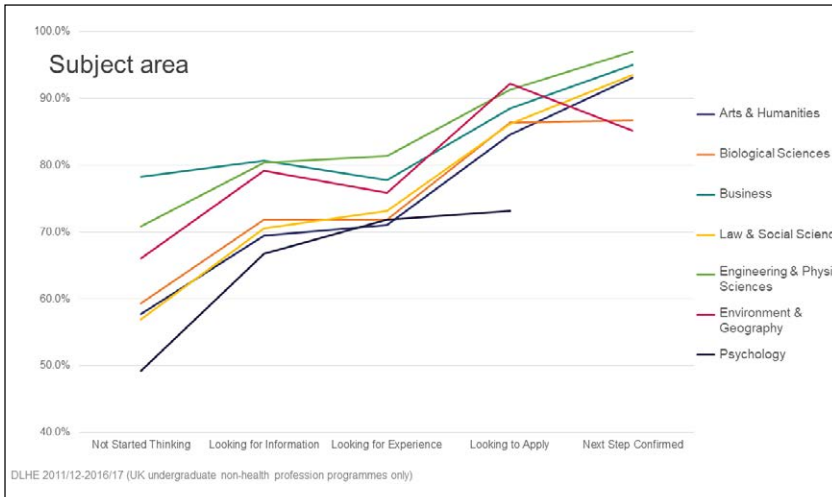


Figure 14.3: Relationship between Graduate Prospects (% of graduates in graduate-level employment or further study) and final year Career Readiness category, by student subject area, DLHE 2011/12-2016/17 (UK undergraduates, non-health profession programmes)

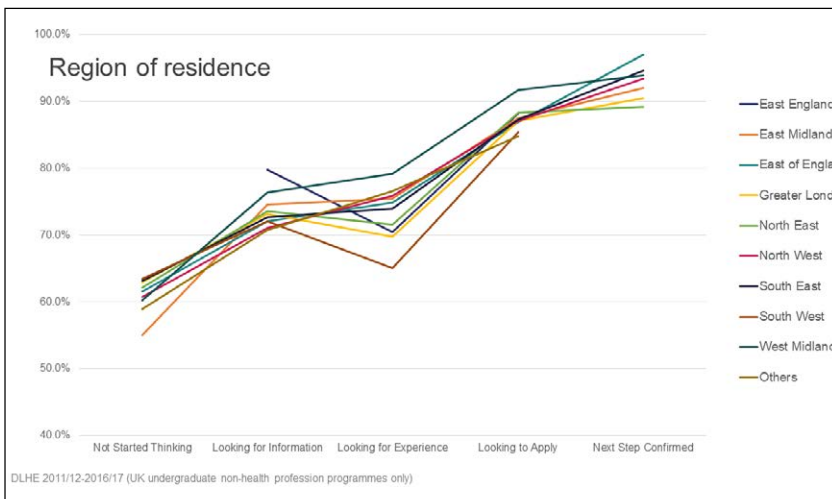


Figure 14.4: Relationship between Graduate Prospects (% of graduates in graduate-level employment or further study) and final year Career Readiness category, by student region of residence, DLHE 2011/12-2016/17 (UK undergraduates, non-health profession programmes)

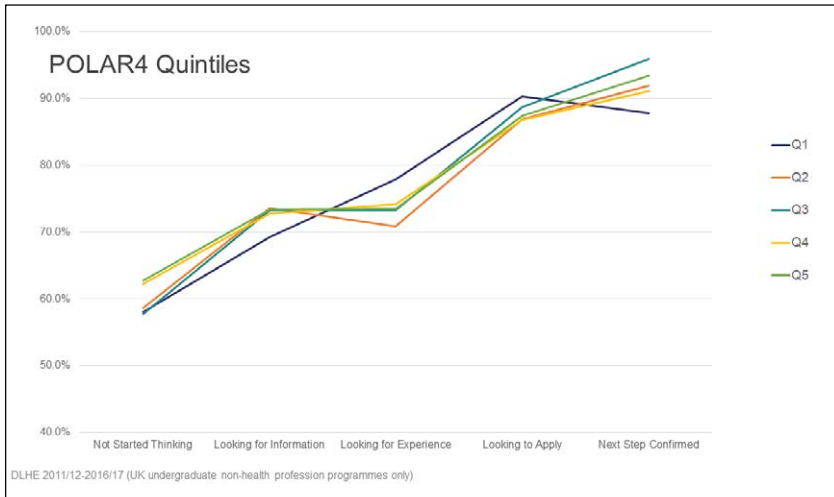


Figure 14.5: Relationship between Graduate Prospects (% of graduates in graduate-level employment or further study) and final year Career Readiness category, by POLAR4 quintile (where 1 represents students from local areas with the lowest level of 18-19yr old participation in higher education, and 5 represents the students from local areas with the highest level), DLHE 2011/12-2016/17 (UK undergraduates, non-health profession programmes)

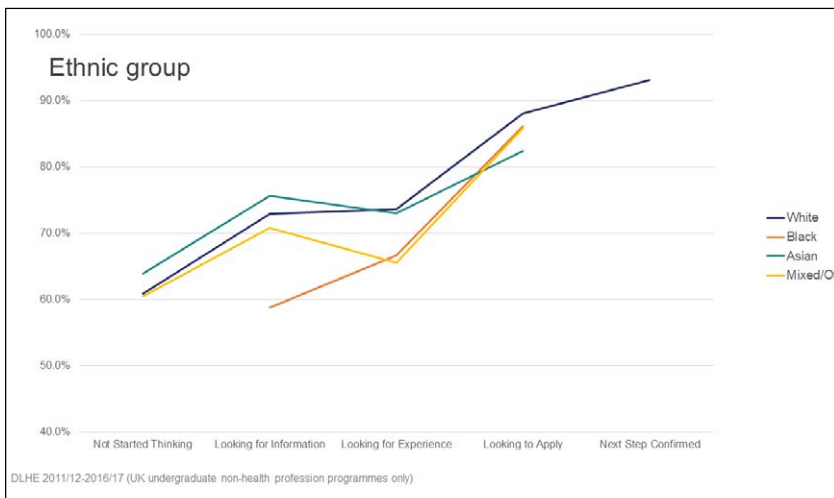


Figure 14.6: Relationship between Graduate Prospects (% of graduates in graduate-level employment or further study) and final year Career Readiness category, by student ethnic group, DLHE 2011/12-2016/17 (UK undergraduates, non-health profession programmes)

These charts were ultimately enough to begin conversations about how we use Career Readiness data at the University of Leeds and its potential value as a dataset. The difference between entering final year in the lowest category (“Not started thinking”) and the highest category (“Next step confirmed”) was a 30.7 percentage point difference in positive Graduate Prospects. This is a highly compelling insight and, unlike a number of the other influencing factors, actively planning for their future while entering their final year is an element which students can impact and change, during their time at university, whatever their starting point.

Searching for significance

A number of years later, working with colleagues in partnership with our central Business Intelligence and Data Analytics team and an analyst in our Lifelong Learning Centre, we applied some inferential statistics to understand the veracity of this relationship. The goal was to understand whether this observational association had statistical validity. We ran a chi-squared analysis, and the relationship between Career Readiness and Graduate Prospect was highly significant ($\chi^2(1, N=14,904), 588.66, p=0.00000$ (with Bonferroni correction)).

It was at this point that whilst we wanted to progress the work into logistic regression analysis, we were very mindful that the data was increasingly dated and, with the emergence of the new Graduate Outcomes Survey, somewhat redundant. As a result, we made the decision that this analysis was enough to support our business case for using the data as a strategic dataset and to wait for our sample sizes to increase with the new survey to continue the analysis with more modern data.

Making the data work for the business

Whilst this relationship between final year Career Readiness and Graduate Prospects is clearly important, the goal of the work was to identify an on-course indicator for progress. What the work identified was a clear predictive analytic, but not a measure for progress. We concluded that we needed to understand students’ individual journeys if we were to fully understand progress.

We commenced a mapping exercise where we assigned scores to each statement and looked at year-on-year change. Initially this work began by taking a student's first statement into one column and their last statement into another to assess change. We did this work with a nine-year dataset between 2014/15 and 2022/23. For this work we continued our focus on the UK undergraduate non-health profession cohort, leaving us with around 43,500 records to analyse. The analysis was chaotic and confirmed what any career practitioner would tell you: that career journeys are non-linear (figure 14.7). There is no clear route that all students can follow.

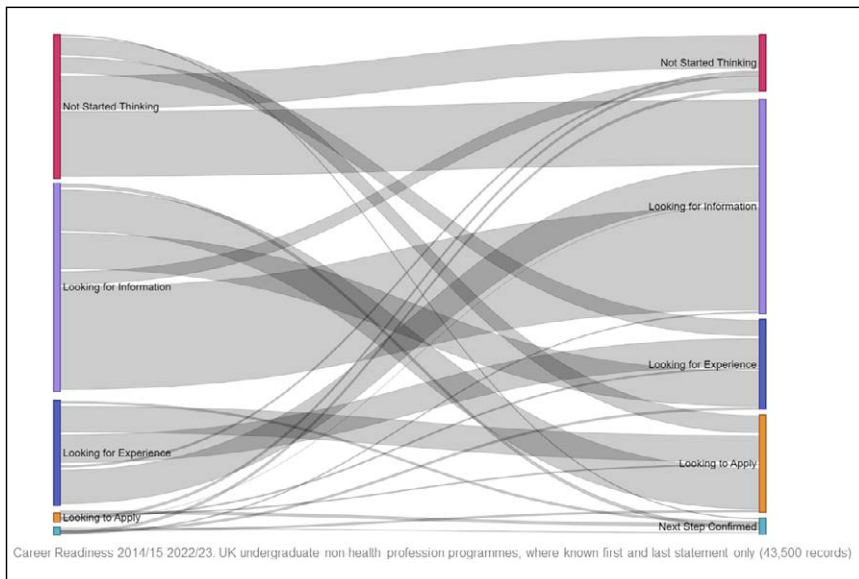


Figure 14.7: Student Career Readiness evolution from first to last statement

It was at this point where we started using the term ‘backwards development’ to capture the notion that sometimes activities can make us reevaluate our decisions. For instance, if a student undertakes an internship and realises that it is not a good fit for them, they may take a step back in their CR journey, while we could still perceive it as a positive step forward in working towards a preferred career.

Turning chaos into performance

Based on our insights gained through the different analyses, we decided to consider Career Readiness performance on the basis of individual gain. After all, one statement at the start of a programme isn't enough to understand a student's journey, it's enough to understand a student's starting point. From this we created a key performance indicator that acts as an institutional 'lead indicator' for graduate destinations performance. One that focuses on student's journeys:

“The proportion of students who are either thinking or developing in Career Readiness”

This is often abbreviated to ‘% Developing Career Thinking’, but ultimately gives a view of student progress over time. Looking at the data in this way leads to a logic map for each student's statements on a student-by-student basis, which can then be summarised at the macro level to understand performance. It requires the statement they choose this year as well as their previous statement. This can allow for where only one statement exists, but without the variance of time the analysis is less meaningful. Following the logic map (table 14.1) gives analysts a categorisation process for an individual's longitudinal performance.

Statement journey outcome	Performance assessment
Is the current statement in the 'Not started thinking' category?	This is negative performance as they are not thinking.
Is the current statement in the 'Next step confirmed' category?	This is positive performance as they are in the top category.
Is the current statement neither of the above but the same statement as previous statement?	This is negative performance as they are not developing.
All other outcomes	This is positive performance as they are developing

Table 14.1: Mapping of CR statements to performance assessment

This allows for analysis of the proportion of students in a positive state and provides more in-depth understanding of the opposing negative

state. Not only can we outline the proportion who are ‘not developing’ (selecting the same statement) and the proportion in the ‘Not started thinking’ category, but we can also explain their journey since last year. Journey analysis shows the proportion of those negative states who ‘became negative’ and those that ‘remained negative’ against their state in the previous academic year. It also allows us to identify those that ‘became positive’ or ‘remained positive’, showing us where our growth is coming from.

These breakdowns are soon to be reported on the same page as our graduate destinations results – placing the data at the forefront of conversations about what we can do right now to support current students in obtaining their happy, meaningful future.

Considerations for your own institution

While we are sharing this case study on the relationship between Graduate Prospects and final year Career Readiness and how we developed a key performance indicator, we are by no means the only institution who has gone through this journey and undertaken this analysis. When analysis like this is shared, the temptation is to check that the relationship holds in our own institution. Our recommendation is to not fall into this trap: every institution who has talked to us about doing this analysis has found the same result. These institutions are from different mission groups, and some have vastly different student profiles to the University of Leeds.

Whilst demonstrating impact is always invaluable, our advice is that the work has already been done in this space by the careers community and efforts are best spent on better utilising the data we collect. Spend your institutional energy on developing a longitudinal view of individual progress that you can summarise at scale. Agree targets for growth, supported by targeted interventions which aim to help key cohorts of your students to develop their career thinking. Spend your institutional energy on delivering impact to your students.

That’s where the real gold is in this work.

References

HESA. (n.d.). *HE Graduate Outcomes data: About the Graduate Outcomes data*. <https://www.hesa.ac.uk/data-and-analysis/graduates>

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Office for Students. (n.d.). *Condition B3: Baselines for student outcomes indicators*. https://www.officeforstudents.org.uk/media/490d884f-03aa-49cf-907d-011149309983/condition_b3_baselines.pdf