Graduate Digital Skills

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See this project presented by the researchers: https://youtu.be/cF3loVkjVhA
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Our Change Makers project set out to explore the digital skills needed in graduate employment. In particular, we aim to understand:

a) What digital skills and competencies are highly valued by employers and how are they are applied in the workplace.
b) Where LSE graduates learnt their digital skills and LSE's role in the provision of digital skills training.

The primary motivation of the project is to help current students enhance their graduate employability by outlining the skills and competencies that are deemed to be important by employers and to investigate the variations of digital skills across sectors that LSE students should account for in preparing their career paths. Through a more detailed understanding of how digital skills are deployed, we aim to demystify the ambiguity surrounding digital skills often present in job descriptions, and thereby help students 'stand out' during the application process.

Methodology

We have answered our research questions mainly through a 'Graduate Digital Skills' survey we designed, constructed, and had sent to recent LSE alumni. Our research seeks to understand, with some depth of detail, how digital skills are used by graduates. We anticipated that HR teams may not precisely convey how digitally proficient prospective graduates should be for roles, with ambiguous language, such as 'familiarity with Excel/Python', often being used. Alumni were considered to be best placed to understand the day-to-day use of digital skills. Moreover, we benefitted from low-barrier access to alumni through the LSE Alumni Engagement team.

Our data was collected through a single mixed-methods survey distributed by email to recent alumni on our behalf and available for approximately two weeks in February. This survey enquired about the graduates first role after graduating, the general cluster of skills they used in their role (e.g., data visualization), and specific skills they used with the opportunity to provide in-depth description. Alumni were also asked about the provision of digital skills training in the LSE. The last question provided respondents with the option to submit their contact details for follow-up interviews to further discuss their answers. Due to resource constraints no follow-up interviews were conducted with alumni.

Sample

A total of 178 responses were completed which were at least partially completed. Unit non-response was high, with 178 out of the 435 initiated responses being recorded.

Recommendations

Specific insights that were uniquely relevant to particular job sectors were fleshed out in the earlier 'Findings' section. This section aggregates sentiments that are generalisable across the various occupation types. Respondents were given the opportunity to provide suggestions on how LSE can better equip students with career-relevant digital skills. Respondents from earlier batches generally shared that LSE did not have digital skills workshops that were "up to industry level" then, and reflected that they would have benefitted immensely if digital skills training was more widely accessible when they were still in school. While some respondents, ostensibly the more recent graduates, utilised resources provided through the Digital Skills Lab (DSL), they opined that a wider variety of digital skills can be covered at greater depth and that LSE can closely examine industry-level trends to inform course structure and design. On the other hand, other respondents had positive reviews for the HTML and Excel training courses available at LSE and expressly encourage current undergraduates to harness these resources. We generally observed that LSE graduates seem to have mixed experiences in their learning of digital skills at LSE. Based on the survey responses, we thus consolidated a series of concrete recommendations to hopefully improve the delivery of digital skills courses at LSE.

We noticed that the challenges faced by Graduates took place at different phases of their learning process and synthesized the recommendations according to a guiding framework we henceforth refer to as the "ILA" framework.

At the "Identify" stage, students face informational frictions in identifying valuable, career-relevant skills. Once students are able to pinpoint the skills they aspire to learn, they enter the "Locate" stage where they seek out quality digital skills courses/workshops that fulfill their learning needs. Lastly, it is crucial that the digital skills opportunities provided by LSE are optimally designed to cater to students' varied needs and preferences while ensuring that learning outcomes have lasting benefits into one's careers. Interventions proposed at each of the three stages in the ILA framework are synthesized from the suggestions made retrospectively by the survey respondents and should adequately alleviate the challenges that conventionally afflict LSE undergraduates in their attempt to acquire digital skills.

Identify

1. **Raising awareness on the importance of digital skills:** Many respondents expressed regret in realizing the importance of digital skills only after they have graduated. Some shared that they were not aware that data science "was that well-regarded" and that possessing such skills would have enhanced their employability significantly. Others would have preferred if they had greater awareness of the types of software used in different job types and industries so that they can appropriately acquire relevant digital skills. LSE could consider providing targeted informational campaigns through Departmental bulletins or school-wide notices that extol the importance of digital skills.

The findings of this report can also be shared with the wider school population to provide a comprehensive overview of the skills needed across various job sectors. Providing career guidance talks that focus on the application of digital skills in various career paths would also eliminate informational frictions that might have deterred students from acquiring digital skills in the first place.

2. **Making digital skills courses mandatory:** Some respondents were inclined towards a more institutionalised, top-down approach to make learning digital skills compulsory. In practice, LSE would pre-select digital skills that have been deemed valuable and this would relieve students of the onus of identifying skills and then curating learning platforms to meet their learning needs. This proposal can supplement optional courses that students can readily tap on through the DSL. The mandatory Digital Skills course can be constructed in the image of the LSE100 course, making it compulsory for students to participate in but not officially graded as part of their degree award. Respondents suggest that the compulsory course should cover Excel skills, data visualisation skills, basic programming skills in R and Python and in-depth professional skills in Microsoft Office software like PowerPoint. We surmise that graduates recognised in retrospect that they would not have optimised their learning of digital skills if left to their own devices. Alternatively, a softer approach using defaults where students are automatically enrolled into basic digital skills course and would have to opt out if they preferred to can be considered. This solution would allow for students to exercise personal autonomy over their learning.

Locate

3. **Improve the visibility and accessibility of digital skills courses/workshops:** Many respondents reflected the hope that LSE can strengthen the resources and technical support available to undergraduates but do not seem to be aware of the wide array of course offerings at the LSE Digital Skills Lab (DSL). We suspect that a significant proportion of recent graduates were not sufficiently informed of the availability of pre-existing DSL workshops during their schooling years and were thus unable to fully take advantage of readily available resources. We thus recommend that DSL can expend greater effort to publicise pre-existing course offerings, thereby increasing the take-up rate of these courses.

Acquire

4. **Focus on practical application of digital skills:** Some respondents shared that LSE had been very successful in imparting theoretical knowledge but could do better in ensuring that students were able to practically apply the skills they've acquired. One example that was particularly salient across the Finance, Research and Information Technology sectors was the use of programming language like R to conduct statistical analyses as opposed to dedicated softwares like Stata and SPSS which are more conventionally taught at LSE. Many shared that requisite knowledge in Stata was "not helpful in the job market for consumer research and technology companies" and that basic training in R and Python would have been more valuable. We suggest that existing courses in statistical analyses and econometrics which traditionally employs Stata can pivot towards integrating programming language in the course content. This ensures that

core learning objectives are met, and students can acquire skills that have wider real-world application.

5. **Workshops that integrate multiple complementary software:** Many respondents shared that digital software are often used synergistically. It is important for students to not only be aware of how a particular software operate in isolation but how one can comfortably perform tasks using multiple interrelated software. For example, a researcher/analyst should ideally be able to query data from SQL, crunch the data using Python or R and design informative visualisations using Tableau and Power BI. Respondents share that the comprehensive understanding of how different software work in harmony to perform a broader, overarching task is a valuable asset that graduates ought to possess. Digital skills courses at LSE can be re-modelled to cover a wider array of skills within the course, providing more breadth than the depth currently offered through courses that solely focus on Excel or Python for example.
6. **Diversity of courses catering to varied needs:** The student population at LSE is rather heterogenous and the feedback we've received on the preferred course content and intensity varies extensively. Some preferred elementary courses that cover the basics while others preferred if there was a wider selection of "lesser-known softwares or applications". LSE Digital Skills Lab could consider expanding the suite of programmes to cater for a wide spectrum of skill sets and also at varying levels of difficulty.
7. **Relieving term-time pressures by providing summer classes or extending resources to alumni:** Some respondents reflected that they would have been unable to fully reap the benefits of pre-existing courses during academic term time and would have preferred if courses can be offered outside of term during summer or even to alumni who would later require this in their jobs. Expanding access to digital skills courses/workshop beyond academic term time is a possible solution to the constraints faced by undergraduates who had wished to pick up digital skills but were unable to.

Conclusion

This research project has uniquely delivered a direct measurement of digital skills used in graduate roles by recent LSE students. Although strong similarities in digital skills are found across career sectors, there are also nuanced differences in the specific tools used and how such tools are used. This provides an evidence-based qualitative insight into digital skills, which complements existing knowledge by stakeholders, to assist relevant LSE teams to identify the necessary digital skills for current students' prospective careers and the design of provision. Additional data on alumni reflections on digital skills provision offers a secondary set of insights intended to determine the what, how, and when of digital skills training. Positively the LSE, and the LSE DSL in particular, has further innovated since many of the respondents were at university such as by introducing courses on R and Python. Nonetheless, the recommendations in this research offer further avenues for improving the provision of digital skills for LSE students. Finally, this research project offers strong foundations in both data, allowing further specific research using qualitative interviews to deepen insights, and in methodology, providing a blueprint for similar research with alumni in the future.