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Essay X-ray: Using an in-house academic writing tool to scaffold academic skills support

Laura Key
York St John University, UK

Chris Till
Leeds Beckett University, UK

Joe Maxwell
Leeds Beckett University, UK

Abstract

This paper introduces a project to develop a digital academic writing tool at Leeds Beckett University (LBU). Essay X-ray is an interactive online tool designed to help students get to grips with the structure and style of academic writing and was developed using the Articulate Storyline 360 platform. The aim was to expand LBU's academic skills support for students tasked with essay assignments, especially at Level 4 (first year, undergraduate), enabling independent learning using a self-paced format available open access and 24/7. This would complement existing academic skills provision (one-to-ones, workshops, drop-ins, static online resources), with the interactive element facilitating active, hands-on learning (Lumpkin, Achen and Dodd, 2015).

Following a successful development, review and rollout process, the utility of Essay X-ray as an independent learning tool but also as a classroom resource was reported by students and colleagues. Tentative talks about additional versions (Dissertation X-ray, Report X-ray) have taken place, indicating its potential for rollout to other subject areas and assessment types.

Finally, in-house digital academic skills tools like Essay X-ray are posited as a potential response to the recent upsurge in Generative Artificial Intelligence (GenAI) tools. Essay X-ray requires users to think critically about essay structure, style and content to create their own original pieces of writing, thus responding to questions about the maintenance of academic integrity in a digital world. These features enable users to develop their essay

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writing skills, in contrast to passive engagement with a GenAI programme that merely writes an answer for them.

Keywords: academic skills; essay writing; interactive; academic support; technologies for learning.

Introduction

Digital learning is a vital component of university teaching and learning in the twenty-first century, which has accelerated particularly since the Covid-19 pandemic (Smith and Traxler, 2022). While many institutions offer in-house tools to support learning development via virtual learning environments (VLEs) and websites, students also seek out external content, as demonstrated by the range of digital learning resources available online. While some of these are widely used and well respected by the LD community (for example, Manchester Academic Phrasebank and British Council LearnEnglish resources), the unregulated nature of internet-based resources, coupled with limited space for digital literacy work within curricula, remains a concern (Bhatt and MacKenzie, 2019; De Paor and Heravi, 2020). At Leeds Beckett University (LBU), academic skills support is relied upon by many Schools to bolster academic outcomes and is constantly developing in response to the changing needs of students, many of whom are faced with news ways of learning and unfamiliar models of assessment when they begin undergraduate courses. It is within this context that the Essay X-ray digital learning tool (Skills for Learning, 2022) was born.

Background

Essay X-ray began life as a Microsoft Word template designed to help Level 4 students get to grips with the structure and style of academic writing, and was piloted with Sociology students. Recognising the increasing focus on educational technologies in the scholarship of teaching and learning (SoTL) (Kaushik and Verma, 2020; Smith and Traxler, 2022), a team (a Senior Lecturer in Sociology, an Academic Skills Tutor in the central Library Academic Support Team, a Digital Learning Developer and student partners) came together to transform Essay X-ray from a static document into a dynamic, interactive tool

using the Articulate Storyline 360 platform ('Storyline' hereafter) and hosted on the university's open-access Skills for Learning website.[1]

The project, sponsored by the Centre for Learning and Teaching at LBU under the 'Teaching Excellence Project' programme, sought to assist students in preparing their first academic essay at Level 4, and responded to the popularity of online learning tools post-Covid-19 (Maatuk et al., 2021; Smith and Traxler, 2022). The aim was to combine the concept of the earlier static version of the tool with the variety boasted by the Manchester Academic Phrasebank, offering a range of interchangeable sentence stems that could be arranged in a multitude of ways to create skeleton paragraphs for an academic essay, hence 'Essay X-ray'. After using the tool, the student would have to 'flesh out' the 'bones' of the essay to create a final piece, thus ensuring that the work remained the original property of the student and did not pose a threat to academic integrity guidelines and the use of Turnitin to check submissions for plagiarism; the intention was that it would be impossible to generate an entire assignment solely using the tool. Rather, Essay X-ray would guide students to be able to recognise common academic phrasing and to begin to incorporate appropriate semantic structures into their work, with a view to them writing subsequent essays independently.

Method

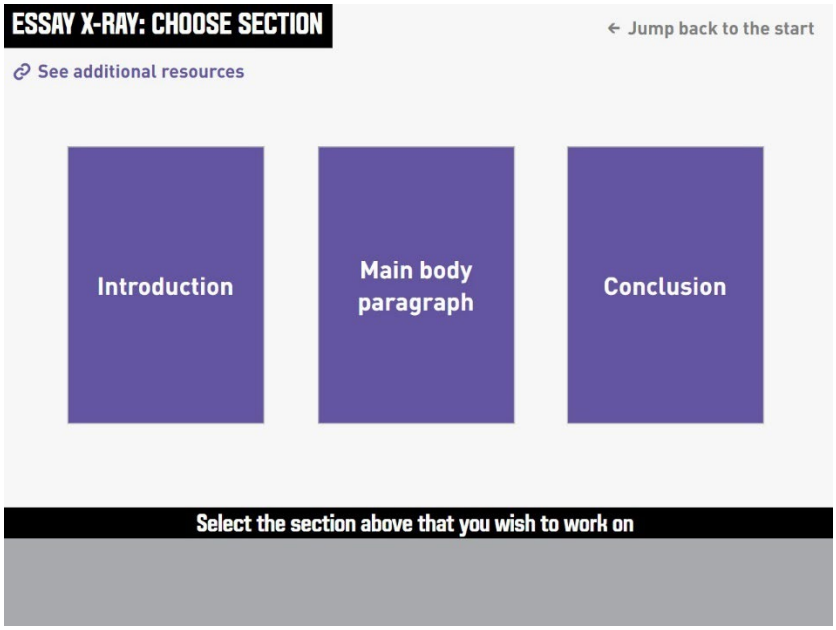
Initially, the project team workshopped the concept, using prior knowledge of typical academic phrasing to develop the original static document into a range of stock sentence fragments organised according to the sections typically found in an academic essay (introduction, main body paragraph and conclusion). Then, the text was developed into an interactive tool using Storyline (used to create both the initial functioning prototype and the final version). Once developed, the X-ray tool content was exported to HTML5 and uploaded to the university library web server to be embedded into the LibGuides content management system for viewing within the Skills for Learning webpages. It was hoped that the interactive nature of the tool would encourage student engagement, tapping into

[1] Articulate Storyline 360 is a commercial, subscription-based software programme for Microsoft Windows which allows users to create interactive and engaging online courses, simulations, quizzes and other learning content (Articulate, 2023). It is part of a suite of e-learning authoring tools offered by Articulate, a company specialising in online learning and training solutions. The software allows you to create responsive e-learning content that can be published easily for distribution on the web and viewing on any device, with accessibility in mind. Storyline is considered relatively easy to learn for beginners, especially those with some experience in presentation software or e-learning development, although mastering its full potential requires dedication and practice.

research into the efficacy of activity-based learning (Lumpkin, Achen and Dodd, 2015; Wekerle, Daumiller and Kollar, 2022).

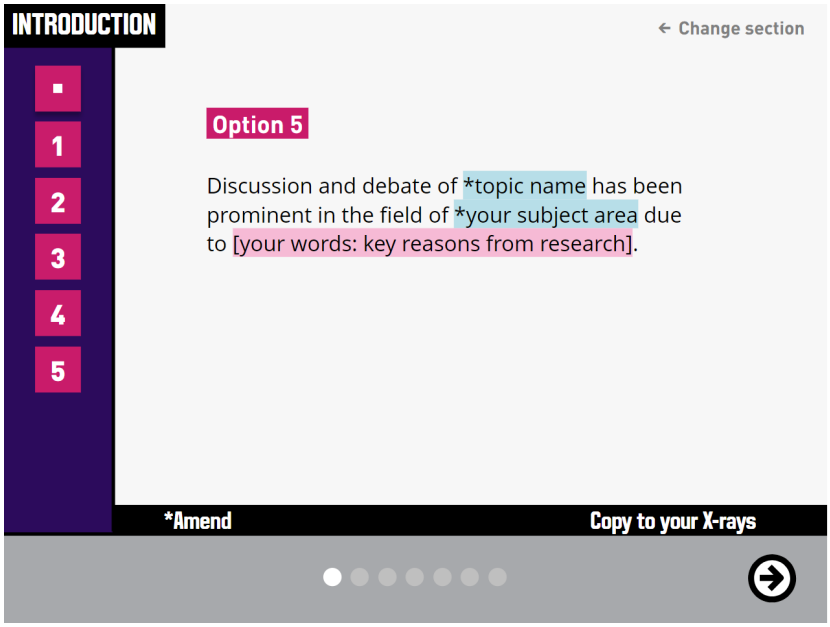
Upon arriving at the launch page, users are greeted by a series of instructional screens, guiding them through their first use of Essay X-ray. There is an option to skip these initial screens for repeat users. The main activity begins with a simple interface, where users select to work on their essay introduction, main body paragraphs or conclusion (Figure 1).

Figure 1. Essay X-ray home screen (Skills for Learning, 2022).



As users enter each section, they are prompted to work on different types of sentences, such as opening sentences, sentences to introduce information and sentences analysing evidence. They can choose from 4 to 6 sentence fragments per sentence type, then they use the fragment as a building block around which to develop a longer sentence (Figure 2).

Figure 2. Example sentence from Essay X-ray 'Introduction' section (Skills for Learning, 2022).



On selecting 'Copy to your X-rays', users are presented with a text editor screen, in which they can build their skeleton paragraphs and sentences, before exporting their work to an external word processing programme like Microsoft Word for further development and saving. The entire activity is scaffolded with the types of information and prompts that would be given in an essay writing academic skills workshop (for example, 'Your introduction should consist of one or two paragraphs' and 'Introduce some evidence to support your point'), as well as a set of links to further useful resources outside of the tool (such as the LBU library website and Skills for Learning pages). The language style follows the style guide utilised across the academic skills provision at LBU, favouring plain English and short sentences to aid comprehension, thus providing consistency with the content and approaches used across LBU academic support.

To ensure that the student voice was heard during the development phase, two student partners were recruited to the project team (from Sociology – the discipline in which the static version was first piloted), with a further eight students from across the university taking part in focus groups to feed back on the first prototype. The use of student partners in research on the student experience is well established as an effective and important strategy in building student-staff relationships and improving educational outcomes (Matthews, 2016). Focus group participants were given access to a prototype in advance

of conversations held on Microsoft Teams. Open questions were posed on the utility of the tool, barriers to its use and the efficacy of the technology, an approach which helped to stimulate discussion between participants and the research team. The findings led to some redevelopment – for example, students noted that a copy and paste function would be valuable to export work for further development. This functionality was incorporated into the final version. Some additional bespoke JavaScript was required to allow external copy and paste functionality as this is not currently supported within Storyline.[2]

Focus group participants also suggested that referencing support would be a useful addition. A separate reference builder tool was developed in tandem, which could be used in conjunction with Essay X-ray or as a standalone e-learning artefact to support students working on any kind of written assignment. This decision was made to ensure continuing ease of use of Essay X-ray without overcomplication of the interface.

Engagement and Development

Essay X-ray was launched to the academic community at LBU at the annual 'Developing Excellent Academic Practice' (DEAP) learning and teaching conference in June 2022 and simultaneously uploaded for open-access use on the university's Skills for Learning website. Following the launch, further changes were made in response to colleague feedback. For example, some colleagues felt that it was not totally clear that the tool was geared towards essay-based assignments specifically and was therefore most suitable for arts and humanities subject areas. To this end, a clear disclaimer was added to the Essay X-ray webpage to signpost students to its efficacy as a learning tool for essay writing, rather than for assignments more generally.

In addition, some colleagues noted that the tool could be tricky to navigate due to the number of screens and the lengthy instructions at the beginning. Updates were made to the initial instruction screens to reduce the text and a short three-minute instructional video was added to the webpage, both of which had the added benefit of improving accessibility.

From June 2022 to May 2023, Essay X-ray had a total of 4003 views. The average monthly figure was 364 views, with a peak of 810 in October 2022, corresponding with the

[2] JavaScript is a scripting language that can create dynamically updating content, control multimedia, animate images and add interactivity to web pages, and can be a powerful tool for extending the capabilities of Storyline.

approach of Semester 1 assignment deadlines. The tool has remained popular in Semester 1 of 2023-24, with 1,250 views by 781 different users, indicating that users are returning to the tool multiple times. It is acknowledged that the data available does not indicate average usage time, but the current platform does not allow for this and redevelopment would be required to capture such information. Anecdotally, the authors are aware that a number of academics, support staff and students are using Essay X-ray for extended periods of time both in and outside the classroom to support the development of essay writing skills. As the platform is open access, there is also a strong possibility that external users are looking at the tool, although data tracking external use is currently unavailable. Longer term, it would be worthwhile gathering detailed feedback on the user demographic and user experiences to guide further development; nonetheless, the preliminary statistics are promising, as they demonstrate continued engagement.

Discussion

The aim behind the development of this resource was to provide a digital means of bolstering the academic support offered to students working on essay assignments – especially Level 4 students new to higher education. By using Essay X-ray, students would have another means of managing commonly expressed anxieties related to writing (Elliott et al., 2019). Digital tools for higher education have become particularly relevant since the Covid-19 pandemic and the concomitant changes to teaching and learning at all levels of education, such as an increase in online, flipped and blended learning approaches (Megahed and Ghoneim, 2022; Nerantzi, 2020). While Essay X-ray works as a standalone resource and can be used without supervision, it is not intended as a replacement for in-person or tutor-led activities but, rather, as a complement to these. As such, Essay X-ray is scaffolded with broader academic support options by being embedded within LBU's Skills for Learning pages, which provide direct links to face-to-face workshops and tutorials, through which learning can be extended.

Indeed, Essay X-ray is just one intervention in a range of academic skills resources and tools that were developed at LBU during the pandemic, enabling academic support at the institution to evolve into a 'pick and mix' programme of content combining synchronous and asynchronous options, presenting a more flexible support offer to students than pre-pandemic (Morris and Key, 2023). Notably, Essay X-ray complements earlier tools and

resources created under the Skills for Learning brand to help learners with (amongst others) reading, writing and information literacy skills, but also expands on these by offering increased interactivity in a bid to bolster student engagement. The interactive element was praised in student focus groups, with commentary such as ‘I really like how simple it is to use’, ‘I think the overall layout of it was really easy to understand in terms of putting the information in’ and ‘It gave you a bit of freedom with what you could pick […] You don’t want it to be repetitive in an essay […] and I think this helped stop that’.

The Essay X-ray launch led to a surge in interest from the academic community at LBU, including invitations to contribute to the university’s learning and teaching podcast and to deliver a staff training event as part of the LBU educational development programme. These successes pointed to the potential for Essay X-ray to be used as an in-class teaching tool, as well as individually by students. Staff can set mock assignments and use Essay X-ray to familiarise Level 4 students with the conventions of essay writing, thus presenting an opportunity to give students formative feedback early in the semester, ahead of summative assessments. Anecdotal reports indicate that a number of academic colleagues are using Essay X-ray for these purposes in the classroom, thus enabling the tool to relieve some of the high demand for the academic support team’s in-curriculum provision.

During the development of Essay X-ray, the team reflected on concerns that the tool could encourage stylistic standardisation or pose threats to academic integrity by providing students with pre-populated text to paste into assignments. However, this was not an outcome of the original static version and was not evident in the piloting of the tool or feedback from this phase. Such consequences are, in fact, unlikely, given the design of the tool, in which short sentence fragments are provided, which use the kind of generic language commonly found in academic writing (for example, ‘It could be argued that…’). Moreover, the use of formulaic sequences and cued output activities is common in existing resources and found to be particularly useful for second-language learners (AlHassan and Wood, 2015; Peters and Pauwels, 2015). Such issues, or others as yet unanticipated, could emerge if use of the tool is scaled up; judicious use of plagiarism detection tools such as Turnitin, however, with close oversight from academic staff marking assignments to enable recognition of acceptable use of digital technologies (in line with institutional academic integrity policies) can mitigate against such potential problems. Thus, the aim is for Essay X-ray to enable the university to support students more effectively, particularly in

their first year of study, in developing academic writing skills, improving outcomes and feeding into attainment and, ultimately, progression to subsequent levels of study.

Since work began on Essay X-ray, use of large text-generating models like ChatGPT, often referred to as Generative Artificial Intelligence (GenAI), has expanded significantly, renewing existing questions around authentic and meaningful assessment (Bryan and Clegg, 2019). In this landscape, while research into GenAI is in its infancy and educators seek to navigate questions around (in)appropriate uses, it is generally accepted that such platforms cannot reproduce the critical thinking strategies required in a typical academic essay (Zaphir and Lodge, 2023). The utility of an in-house digital tool like Essay X-ray is that it actively encourages students to develop analytical and evaluative skills (for example, within the tool's screens, students are prompted to 'analyse their evidence' before 'summing up'). In this way, Essay X-ray has a teaching function, familiarising students with academic writing conventions and facilitating critical engagement with the writing process, rather than merely giving them the answer. Essay X-ray can be framed, therefore, as a regulated platform that responds to challenges from external, unregulated text-generation applications capable of producing answers with minimal human interaction. It is acknowledged that, based on recent user numbers, the impact is small; however, the potential exists for Essay X-ray to be rolled out more broadly as a standard tool, particularly for formative assessment at Level 4 in disciplines where essay-based assignments are commonplace.

Conclusion

Implementation of Essay X-Ray has been successful and initial anecdotal feedback has been positive. Usage statistics remain steady, with the tool being used both as an independent learning activity and as a classroom resource. An additional (and initially unforeseen) benefit is the potential for Essay X-ray to reduce the demand on academic skills staff for Level 4 essay writing support, by facilitating both self-paced student learning *and* offering a formative learning activity for academic staff to utilise in the classroom. The tool is scaffolded by LBU's broader 'pick and mix' academic skills offer of workshops, one-to-ones, drop ins and e-resources, and taps into the increased student demand for online learning support since the Covid-19 pandemic (Smith and Traxler, 2022). Pedagogically speaking, the focus on creating a dynamic, interactive interface is in line with recent

research into the efficacy and popularity of active, hands-on learning (Lumpkin, Achen and Dodd, 2015).

In response to relatively steady levels of uptake, the project team has increased in-house promotion via staff- and student-facing communications and events for 2023-24, with the intention of obtaining more detailed data and further feedback from these user groups during the 2023-24 academic cycle. Student focus groups and staff feedback to date have suggested variants of the tool intended for other forms of writing (for example, reports and dissertations) would be welcomed, representing a potential avenue for further development, which would open up this approach to more subject areas.

Considering recent developments in the availability of GenAI tools, which students may turn to as support mechanisms in the course of their studies but which have not been developed specifically for higher education and therefore require judicious use to ensure conformity with institutional academic integrity policies, it can be argued that e-learning tools created specifically for university study are well placed to become increasingly relevant. Essay X-ray's design, which offers assignment guidance scaffolded with additional layers of academic support, can thus be framed as responding to this changing digital landscape and a gap in current higher education provision that can be harnessed by learning developers to bolster the academic support offer. Institutionally approved and controlled online learning tools that encourage the development of academic skills like analysis and evaluation offer great potential as alternatives to GenAI platforms trained on unregulated large language models, which merely provide answers to passive users. The authors are keen to hear about any similar tools created at other higher education institutions to instigate a discussion about responses both to post-Covid-19 digital development and the upsurge in GenAI, with a view to cross-institutional and sector-wide collaboration on these important developing topics.

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Author details

Laura Key obtained her PhD from the University of Manchester and lectured in American Literature before moving into learning development, most recently at Leeds Beckett University (2018-2023). Currently, Laura is a Lecturer in Academic Practice at York St John University, Co-chair of the ALDinHE LearnHigher Working Group and a Senior Fellow of AdvanceHE.

Chris Till was awarded a PhD from the University of Leeds and is now a Senior Lecturer in Sociology at Leeds Beckett University. He teaches, researches, and publishes in the sociology of health and technologies and is a fellow of Advance HE.

Joe Maxwell holds an MSc in Creative Technology from Leeds Metropolitan University and is currently a Digital Learning Designer at Leeds Beckett University, designing and building online resources in collaboration with the Library Academic Support Team.

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