

DIGITAL DIVIDES IN CHINESE HE: LEVERAGING AI AS STUDENT'S PARTNER (AIASSP) TO REDUCE PIRACY

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Abstract. This article explores the educational significance of the closure of Z-library, an online platform enabling digital book piracy, through qualitative research with 103 postgraduates in a Sino-British Higher Education Institute (HEI) in China. Analysis found students viewed digital piracy as a tool to expedite academic practice and were weighed the criminal implications of the platform carefully. Consequently, the article suggests that universities need to consider further socioeconomically disadvantaged students alongside library resourcing and digital skills training. It recommends Artificial Intelligence (AI) and an 'AI as Students Partners (AIasSP)' philosophy as a solution to reduce student reliance on digital piracy. The article, therefore, highlights the potential of AI for improving skills-based study, administration, and improving the quality of the student experience. However, it concludes by discussing the ethical and privacy concerns raised by such an approach in Higher Education (HE), stressing the need for a multidisciplinary view of responsible AI as reshaping literacy and information retrieval practices across a process of lifelong learning.

Keywords: *student engagement, AI, lived experience, higher education, digital piracy*

Introduction

Digital Piracy is a widespread issue. It has grown in popularity as fibre broadband connective speeds have become more widely affordable. Users no longer need to wait a long time to download and share large files, which might include albums, movies, or video games (Soberman, 2014). Digital piracy motivations vary, although a common reason is poverty-people cannot afford to buy the goods they want and, because the Internet exists beyond traditional forms of governance, it is easy to act without repercussion (Day et al., 2015; Belleflamme and Peitz, 2013). Subsequently, attempts have been made to combat digital piracy. However, these are, usually, driven not by government agencies but Internet Service Providers (ISPs), whose surveillance can be circumvented through using Virtual Private Networks (VPNs) to mask activity. One research gap, therefore, is exploring the role that digital piracy plays in degree study, by students who may lack institutional resources, information retrieval skills and disposable income. Within this article, and across the study that fuels it, such a phenomenon was conceptualised as 'academic poverty' and investigated because it is believed that digital piracy, for learning, could indicate student digital divides not understood by universities. Arising from this, then, emergent research questions were formed and used to analyse data collected as an outcome of a research process undertaken in a Chinese HE is setting, with students currently engaged in postgraduate learning. This study, asked, then:

RQ1: How were Chinese university students' learning experiences enhanced by Z-library?

Review of literature

Z-library was a network of distributed peer-to-peer users across a global network sharing ebook, which operated until 2022 and was popular amongst those in Higher Education (HE). It enabled students to download stolen journals, academic textbooks, and other study aids. It was taken down on November 4th, 2022, by the U.S. Federal Bureau of Investigation (FBI), who arrested its alleged leaders (Gatlan, 2023). This impacted students who lack resources to support their study. Those in the Global South and Asia, for whom authoritarian censorship can shape access to literature online, and offline, were particularly affected (Bello, 2023). Z-library was a natural go-to for students who faced poverty. It granted free access to millions of literature resources; Z-library held over 11 million electronic books (ebooks) and 84 million articles, over 200 Internet domains (Buckwell, 2023). Such scale made it difficult for ISPs to takedown the numerous access points available. When one was taken down, another appeared, all indexed via search engines. Disadvantaged students relied on 'shadow libraries' like Z-library to steal 'grey' copies of literature, a slang description of books posted online and for free. Exclusion they face in HE, which drove them to this, might include the barriers faced by non-native speakers who rely on platforms like Z-library to provide English-medium books, or to access texts because their own institutional libraries are not well funded.

Barriers arise also from academic repression and censorship, such as in Asia, where learning is shaped by authoritative administration (Waters and Day, 2022a; 2022b). In Thailand, for example, it is not uncommon for digital repression of social media and online content to be deployed to prevent people from reading knowledge deemed undesirable, which shaped a digital civil rights movement led by students (Day and Skulsuthavong, 2022; Day and Skulsuthavong, 2021a; 2021b). Neighbouring China goes further, embedding a Rote culture and emphasis through collective thinking (Perry, 2020; Burnay & Pills, 2019; Chen, 2022). Academic development in Chinese HE is complex, given that it reflects both patriarchy and teacher proximity (Waters and Day, 2022a; 2022b). Meanwhile, the concept of 'students as partners' (SaP) philosophy championing the voice of students, in teaching and learning decisions, are not a common feature of learning in China. Students' opinions neither hold little power nor influence over how universities use space, retrieve information and work on campus, meaning their voice, alongside lived experience, is far from shaping libraries and resources. Indeed, a SaP would not be a common aspect of Chinese pedagogic practice (Mercer-Mapstone et al., 2017).

Yet, a SaP philosophy has been shown to raise student engagement, promotes democratic engagement, and further lifelong learning; it has been successfully deployed in formative assessment, feedback and flipped learning pedagogies (Healey et al., 2021; Kaur and Noman, 2020). Yet, Chinese HE places emphasis on the proximity of the teacher as an authority figure, which can create a narrow zone of proximal development and pushes a patron-client relationship where the student serves the teacher (Chen, 2020; Chou, 2011). Indeed, these relationships are long established, and often carry over to universities from regulated learning in K-12 schools, and the strenuous Gaokao examination that determines admission into publicly funded universities (Howlett et al., 2022; Hu et al., 2022). A considerable amount of the process relies on Rote memorisation, over two days in June every academic year. The exam acts as a sole determinant for admission into universities, except those privately established, such as joint venture Sino-British collaborations and hybrid U.S. degree colleges in China.

Subsequently, those who perform best in exam settings on Chinese history, mathematics, and a foreign language, as well as social and natural sciences, attend top universities (Shou, 2021; Ash, 2016; Kuo, 2013). Those that do not, often enter private universities, at considerable expense. The exam has been critiqued for negative impact on mental health, as well as highlights inevitable issues of inequality in the Chinese HE education system (Tiezzi, 2014). This is because it is not uncommon for wealthy families to fund tutoring, resources, and other arrangements to help their children succeed in the process (LaFraniere, 2009). Meanwhile, the exam process reflects an emphasis of ideological control, promoting traditional cultural values of adherence to meritocracy, driven by status in singular metric-driven achievements (Howlett et al., 2022). Most notably, however, the emphasis of a singular set of study skills means that students attending university beyond the traditional setting will struggle with independent enquiry, information retrieval and other broader digital skills that do not form the basis of the test.

Yet, those that are unable to gain high scores may gain exposure to a more globalised, less centralized, and hence open learning environment, through attending private universities, which influences their learning. One such joint venture partnership setting is the Sino-British University, a joint venture between universities in the United Kingdom (UK) and China. Students at joint-venture universities represent an interesting audience; they are globally connected, having been educated alongside international students and by teachers from various nations. Equally, they study on a curriculum determined by the British system of quality assurance, which ensures less censorship. Meanwhile, being taught in English Medium of Instruction (EMI) means they can express ideas in another language, in a less observed classroom. Yet, research has also shown that Chinese students in global HE can resist cultural influence, often demonstrating reluctance to explore cultural practices beyond their usual habitus (Waters and Day, 2022a; 2022b).

Social media users have shown varied motivations for stealing ebooks online, though some view it as a response to rising publishing and retail costs of books needed to empower their study. Whilst the concept of the digital divide is more often attributed to access to Internet technologies, and social justice, the pay-walling of knowledge, driven by publishers, for example high costs of a PDF version of an academic chapter, could be interpreted as an extension of a digital divide (Saleh and Bista, 2017). Ability to engage in online learning has been shown to influence economic outcomes for young people. Consequently, much of the censorship deployed is intended to silence collective expression, with a strategic undertaking intended to limit discourse not aligned to state interpretation of critical thought (Lorentzen, 2014; King et al., 2013). Undoubtedly, an inability to access learning materials due to cost, is one factor extending of division, as international learners often rely on various tools to find translated versions, both official and unofficial, of texts they require (Van Dijk, 2006).

After all, a significant emphasis of Internet management within China focuses on a domestic firewall intended to splinter access to written content deemed politically dangerous more than the prevention of access to movies, books and literature released without respect for copyright (Yang, 2016; Day et al., 2015). Accordingly, then, students within this environment are potentially likely to offer opinions about such restrictions, as well as consideration of the impact of the takedown on their learning (Perry, 2020). Z-library, as a platform, had influence over young people, as a platform used in HE to support study (Bello, 2023). With respect to digital piracy, research has

shown that the economic impact of the theft of copyrighted material is considerable, but that people tend to steal content more actively from the Internet because of unclear laws with respect to enforcement of copyright online (Belleflamme and Peitz, 2013) Z-library enabled students to study topics not deemed suitable by their governments, schools or even teachers themselves (Bello, 2023; Buckwell, 2023). Accordingly, efforts to limit the financial damage of digital piracy have struggled to change the underlying culture behind piracy (Soberman, 2014).

Z-library then may have acted, in the view of students, as a new technology that facilitated positive outcomes. For example, helping overcome restricted Internet content access in China (Warschauer and Matuchniak, 2010). As social media platforms become intertwined with education, the presence of Z-library, a social media platform as much as an ebook website, in academic vocabulary shows it may have been an important backchannel for educational access (Kimmons and Veletsjanos, 2018). Students rely on social media to learn, yet many popular platforms are banned in China, and communications easily detectable when expressed in Chinese (Tai and Fu, 2020). Hence, studying, within Chinese HE, platforms such as Z-library provides a powerful direction of enquiry for understanding digital divides, and the role institutional libraries learning material influences study. Z-library was remarkable in that it managed to maintain numerous separate domains, aligned to different website handles, at once (Bello, 2023; Buckwell, 2023).

Materials and Methods

This article presents qualitative research undertaken with a group of 103 Chinese students. These students were engaged through an in-person research study undertaken at their joint-venture university in China, during the second semester of a postgraduate degree. This degree was delivered in English and as such, whilst language skills varied, the overall standard of English fluency was such to enable postgraduate degree study in a British awarded system. The purpose of the study was to undertake action research, in the setting Chinese students are studying within, to explore a process of inquiry that is designed to solve problems and improve professional practices in a specific context, such as a university or school (McNiff, 2017; Osterman and Kottkamp, 1993). Deployed in an educational setting, action research as an approach to inquiry might include aspects of practical teaching, lesson observation, ethnographic recording of student-group dynamics or a process of design research embedding a new curriculum towards facilitating change and transformation (Stringer, 2008).

This perspective informed the decision to deliver three seminars about Z-library, where a class of students engaged in the study was taught about the takedown, for one hour, which was followed up by a group debate that served as an ethnographic focus group, lasting an hour. Each seminar was attended by approximately 34 students (1/3), who were organized by mixed academic and language abilities. In seminars, a discussion was used to encourage students to think reflectively about the topic, and ethnographic observations were made about their responses. This was followed up by an online focus group forum, open for two weeks, where students were provided with guiding questions and was encouraged to discuss discussed reasons for using Z-library. Students were asked to answer at least one guiding question or contribute a reflection of their own making; in many instances students contributed more than this. Their responses were collected in a virtual learning environment (VLE), which also contained

a survey. 91/103 students returned the survey. This was approximately 88% who attended the seminars. 87/103 students, approximately 84%, responded by posting comments. Based on survey responses, 91% of the students identified as female, 70% were aged 22-25 years old. Overall, 100% identified as Chinese in nationality.

This article subsequently draws on postmodern thinking and grounded theory as an underlying basis of the thematic analysis engaged to explore the data gained. Within this article, a snapshot of the feedback gained from students in the online focus group is presented, whereby students posted comments and responded to each other in discussion. Grounded theory, a concept initially proposed by Glaser and Strauss (1967), seeks flexible researcher interpretation rather than pre-formed conclusions, hypotheses, or objectives. The study, therefore, uses narrative commonality, as a concept well defined within the grounded perspective, to draw conceptual perspectives and contextualize responses to the two research questions articulated above, which were applied as frames to the data gained (Bryant and Charmaz, 2007; Strauss and Corbin, 1998). As with all thematic based analysis, the research was informed by codes and patterns, shaped by frequency of commonality, to create an understanding of social processes that refine understanding towards offering insight that may go some way to answer these questions. The study acknowledges the limitations of this approach, notably the social representations outlined are heavily influenced by the perspective of the researcher. However, social representation theory, a concept applied to digital research methods, such as an online forum and focus group, stresses that the groups studied within digital communication operate from a variety of biases, which shapes unique in-the-moment viewpoints (Strauss and Corbin, 1998).

Presented in this article is data drawn only from one of several action research methods deployed, hence the study focused on findings in the online focus group. Thematic analysis of this relies on reporting patterns and relationships within the data (Braun and Clarke, 2006). Through sifting and examining the data through thematic analysis, patterns unfold that can generate themes, which once reviewed can provide a basis for analysis (Nowell et al., 2017). Arising from this, insights become codes that enable the researcher to reexamine the data from different perspectives, whilst seeking to balance interrelated phenomena across different data points (Boyatzis, 1998). Questions are raised about the ethical implications of thematic analysis because much of the method is flexible and can be interpreted by researchers to meet their needs (Nowell et al., 2017; Boyatzis, 1998). Arising from this, Aronson (1994) outlines a pragmatic view of thematic analysis, suggesting that researchers approaching their analysis in a manner that suits their interests is an important part of reflexivity, highlighting that subjective experience plays a core role in meaning-making from data (Patton, 1990). Accordingly, all participants within the study were informed of their participation rights, as part of an institutional review board (IRB) process to secure ethical consent. The study was mindful that students were offering opinions about a potential cybercrime, as well as potentially critical views about their university digital provision, in a setting where laws are strictly applied to those who use the Internet in ways not approved by the government. Therefore, the research notes and data were stored securely; the original virtual focus group and VLE space was deleted at the end of the study.

Results and Discussion

For many students, a common theme was that the various forms of expense attached with higher education entailed a lack of access towards effective resources, and the accessibility of Z-library empowered them to gain a wide range of resources, which because of the digital interoperability of ebooks meant that Z-library positively impacted the spatial and temporal aspects of their learning. With it taken down, this produced impact on studies to a significant extent, as Student A remarked:

“Z-library played a vital role in my degree learning. Because of Z-library, I can get access to academic books freely and I can do fragmented via ipad or iphone anytime and anywhere, which saved a lot of money and time. As a result, due to the takedown of Z-library, I had to pay for expansive textbooks or journals, which impacted my academic learning.”

Students fell academic challenges increased post-takedown

A strong theme across the students engaged, then, was that the lost of Z-library as a resource platform, regardless of its criminality, rendered an increase in academic poverty across the learners surveyed. This meant that for some students, the decision for a foreign government to takedown Z-library seemed to clash with underlying communal values that students in China, as driven by being raised in socialist values that proximate a Marxist ideological view of knowledge as a tool of the means of production to enhance society and self, which led to impassioned views from students about the importance of Z-library in fuelling intellectual development:

“Human development comes from time after time without intervals of cooperation. Valuable knowledge shuts out some people and in effect shuts off some people from working for the advancement of knowledge.”

Z-library, therefore, motivated students to enhance their understanding, offsetting poverty that they felt as learners by enabling wide access to knowledge without restriction. As Student C remarked:

“Students living in poverty may not have enough money to purchase printed academic materials, leading to unequal access to knowledge. Z-library is an open online platform where students are able to reach online academic resources equally. Education equality refers to everyone can have the equal chance to get the same knowledge. Z-library largely contributes to facilitate education equality by protecting learners' right of getting knowledge.”

Consequently, a pattern emerged where students viewed the concept of equality as overriding legality, which was surprising given that they attended university in a country with lower academic freedoms and stronger political influence in their learning. This was surprising, because it has previously been suggested that Chinese students, even when exposed to international educational environments that promote more liberal thinking, retain strong national identities and adherence to their home state practices (Waters and Day, 2022a; 2022b). Accordingly, then, there is a need to consider the implications faced by the issue that students in higher education face increasing journal

and publisher fees that correspondingly have a knock on effect on their learning experience; there has been a sense of disconnect, then, between the academic and the student lived experience, whereas traditionally concerns about the cost of open access and publishing are vocalised prominently by those engaged in research, rather than studying it. Whilst moves have been made to widen access to journals, for example through institutional subscription and fee waiving, these are inherently determined first and foremost by institutional library budgets, as well as has some correlation with western, well-resourced universities that charge higher fees being able to offer such an option (Suber, 2004). For example, Student E remarked that they had no choice but to turn to piracy:

“When I was an undergraduate student, our uni didn't have much access to the English academic books. I need to download these books through such website since the books I need is too much which would cost me too much money. So, I choose to download them through the website.”

Indeed, it was observed across the student responses that the removal of Z-library had significant impact on their potential to complete degree study in the future of their education. Meanwhile, students seemed aware that by expecting students to purchase books or journals, in addition to their tuition fees and other costs of study, students from first generation families or those who came from socioeconomic backgrounds that were disadvantaged relative to others would struggle considerably, facing a choice so extreme, in the view of Student H, that it may have been the difference between eating and learning:

“Paying for knowledge will make those poor students and poor people unable to get knowledge, which will make them suffer a lot. When they can't fill their stomachs, they are less able to come up with money to learn knowledge.”

Students were aware digital piracy violated copyright laws

What was also observed across the student body was an awareness that they were breaking laws and infringing copyright, but this was simply necessary because it enabled them to study and the crime was relatively victimless, although students were aware that it might in future impact how authors engaged in disseminating their books, for example in Student C who remarked:

“I have used Z-library when I was writing my undergraduate thesis years ago. And it really helped me a lot. But I know the resources on it were pirated, which seriously violated the authors' intellectual property rights and copyrights of press. If this kind of illegal behavior is not forbidden, authors may be less willing to authorize the electronic version of their own books through legal and formal platforms.”

This was a view understood by several students, in some form, who seemed aware that. For example, with Student D who noted that:

“It is precisely because e-books are more prone to piracy that some authors and editors are reluctant to authorize electronic copies, and the prevalence of scanned versions and leaked archives is the result of the lack of e-books. Rather than "having

to watch piracy", it is piracy that has affected the normal chain of electronic books and caused a vicious circle. There is no doubt that the dissemination of pirated books by z-library is an illegal act that infringes intellectual property rights. However, there are currently a large number of platforms and channels providing support for the dissemination of pirated e-books, many of which are sought after by users. At the same time, e-book authors and publishers who are victims of piracy have little opportunity to speak out."

The concept of intellectual copyright was an interesting view raised across many students' responses in varying degrees of agreement. A concern expressed across the students was not that they felt the act of downloading books was criminal and that they could get in trouble, which was interesting given that the context was of a criminal prosecution of Z-library, and collectivist attitudes towards state rules, rather that freedom of knowledge clashed with the wellbeing of the authors. So, such authors might then not create and innovate because of the economic impact of piracy. Student F noted:

"Another consideration is the role of intellectual property. While some argue that knowledge should be freely available to everyone, there are also concerns about the value of intellectual property and the need for incentives to encourage innovation and creativity. Without some level of protection for intellectual property, it may be difficult for creators and inventors to make a living or continue to produce new ideas."

Furthermore, students seemed equally familiar with the conceptual ambiguity that Z-library operated within, as Student J noted:

"To be honest, there are quite a few reasons for this massive e-book database to be shut down. For example, it is a shadow library project that infringes the copyrights of numerous texts, articles, and books. Besides, this special library's operations make it difficult for individuals that make their livelihoods on such publications to receive the necessary funds from individuals who buy their work. However, the benefits brought by this shadow library push people to ignore the legal issues related to the protection of intellectual property rights."

Importantly, students seemed to recognize that engagement with criminal bodies was a necessary evil brought about by the contextual power and politics of academic publishing, which was several expressed in points that recognized this was an ironic paradox, which Z-library was itself aware of:

"Just as Z-library states, "All people should have access to humanity's knowledge and cultural heritages, regardless of their social status or wealth. This is the sole purpose Z-library was created for." But at the same time, the exorbitant cost of educational materials should not be borne by authors and publishers, and it should not be used to justify reliance on foreign criminals for textbooks or to trivialize the immense personal and economic harm Z-Library is causing authors who are trying to make a living under increasingly difficult and hostile economic circumstances."

Students felt Z-library expedited scholarly activity & lived experience in learning

One common theme was that students had suggested they used Z-library not only to read and learn, but also to facilitate online information retrieval. Students, then, found the ease of interface, functionality, and all-encompassing literature database of the platform as helpful to retrieve information. This was echoed in various studies that highlighted university students, despite being digitally native, lack the core information retrieval skills to conduct online searches in a sophisticated way, likely because they have not been taught the academic digital skills needed to deploy effective information retrieval, timely responses or know how to evaluate the quality of sources (Head and Eisenberg, 2010; Fidel et al., 1999). This is intensified for students facing a wide digital divide, for example because they couldn't afford a wide range of devices or services to access knowledge and make use of it (Fidel et al., 1999). As Student I noted:

"...it will cause me a lot of trouble and waste more time and energy to find information... in the process of learning, I often need to use some foreign documents and materials. However, due to some domestic regulations, foreign websites are not allowed to enter, so I can only use some tools to "magically surf the Internet". However, these tools are not cheap to use, and it is difficult to find suitable ones. This is what bothers me the most."

The platform enabled students to find books that they were unable to purchase, find or gain access to due to local restrictions within their country that prevented access to censored knowledge, as Student K remarked:

"To me, it is hard to find the original version of some academic books: sometimes for strict restrictions, sometimes for the extremely high cost of the books. Therefore, the takedown of Z-l-library affected my ability to study and find resources for degree learning."

It appeared that the facilitation and usability of the platform enhanced the learning experience by reducing temporal restrictions and expediting the range of literature that students had access to. Their physical institutional libraries had a range of traditional book resources, but these were not as easily accessible, retrievable, were sometimes outdated and relied on the presence of faculty librarians to assist with information retrieval. Z-library, it seemed, did all of this for the students and in doing so enabled them to gain access to a wider range of knowledge, which Student L felt was beneficial because:

"Z-library integrates a significant number of academic resources from a variety of subjects and continuously updates its resource collection. Students can readily find the materials they seek by simply typing the necessary information into the search field. Because of this, students learn more effectively and spend less time doing so."

This was important for Student L as they remarked that 'occasionally have trouble finding certain articles in my school's e library. This problem does exist and Z-library can then be used in addition as a resource.' For Student Q, this was also a factor that drove their usage of the platform, as they felt that:

“...universities have limited physical books that are available to students, while e-library contains numerous books that can be used. At last, an e-library will help people save time and energy. It is known that almost every e-library has a function for searching sentences, which physical books are not able to achieve. If people want to search for one of the sentences in an article, then e-libraries would help them find the target. That means people don't have to spend time reading every paragraph of that physical book to find the sentence they want.”

Indeed, the way students engaged with and accessed universities resources, and a sense of a lack of digital format of this resources, which was preferable to their lived experiences of students studying in the digital age, suggesting that the way libraries in educational institutions approached collation and collection of books for the purpose of study wasn't aligned to the needs and lifestyles of the students. As Student M pointed out:

“I like reading novels by mobile software very much, but I often change the reading app frequently because of the book collection problem. This makes me feel very inconvenient, because I can't read all the books I am interested in in a fixed way. So, if I can read and download books without restriction, I think it is a good thing.”

This raises questions, fundamentally, about the role and design of libraries in universities. For students, loaning books from a library seemed an old-fashioned idea, which was remarked upon in various ways across student responses. Students likewise felt that there were various environmental, space saving and community benefits- not every student lived close to the university, and it is not uncommon for students in Asian settings to have reduce personal space in their residences, dormitories and homes, which are were often filled with multigenerational older family members that they would share responsibility in caring for (Waters and Day, 2022a; 2022b). Consequently, students were primed to engage with a digital platform, as Student N remarked:

“In the era of digitilization, it is a common habit to download e-academic books as the learning sources. Paper academic books are too expensive, especially those English version books. I may need more than ten academic books or even more of one course... cost-friendly way to have e-academic books. What's more? It is environment protective.”

Whilst surprising, a considerable amount of debate was observed between students ethnographically during the study, discussions and subsequent online interactions related to how Z-library had benefits linked towards not just social justice, so in enabling affordable access for the disadvantaged, but also social responsibility, global connectivity, and humanistic values. Whilst the platform enabled technical benefits to student's study experiences, it also seemed to align with their broader communal values that were felt in similar remarks to Student N, such as by Student T, who suggested that ebooks gained via the platform had:

“...the convenience to search the content, change the font size and font type. The capacity is large and can be downloaded from the Internet at any time without geographical restrictions. The cost of books can be reduced and the price is low.

Save the space needed to keep books. Easy to purchase; can save paper, reduce the burden of the earth, and can be truly environmentally friendly and low-carbon."

Student U similarly remarked:

"One of the biggest advantages of ebooks is the fact that they require no trees to create them. This is obviously an eco-friendly option that both reduces cost and lowers environmental impact. Information can be obtained without leaving your desk!"

One interesting concept was that students felt the concept of a digitally 'portable' library, reflective much in the way of Netflix, Amazon and on-demand streaming services provided content, was popularly received as a benefit of Z-library. Instantaneous access to knowledge, across devices with synchronous file sharing, was a benefit of this, as was cross-device functionality. Student O remarked that they:

"...personally favor digital books over printed ones. They are more useful to me, particularly when I'm traveling or want to study something quickly. I can peruse any of my e-books from anywhere as long as I have an online link because I can carry my complete library with me on my phone or pad. Additionally, e-books frequently have features, like the ability to annotate and make notes without tampering with the page as well as look for particular words or phrases. For students who need to locate and reference material rapidly, these features are very helpful."

This was echoed in a response by Student P, who said:

"Nowadays, more and more people are holding many digital devices like ipad, laptop and iphone. It is convenient for us to access the digital book no matter where we are. It is also not heavy, thinking about you are going to bring 10 books with you, it must be very heavy, however, if you download all 10 books on your digital devices, that will be lighter."

This was important, as well, for these students, who were studying in an English Medium of Instruction (EMI) and as such their underlying motivation for using Z-library was that it enabled a diverse range of resources that they could use to help enhance their studies as non-native speakers who were taught in English. This has a lot to do with the shadow-translation of officially, or sometimes even unofficially, translated and conceptually interpreted western textbooks that were repurposed in Chinese literature sellers and scholars' work. Student R, for example, liked to 'read English-medium books, as some translations of translated Chinese-medium books are not accurate and will cause misunderstanding and confusion. However, English-medium books are pretty difficult to find and they are expensive.' It seemed that, from an educational policy perspective, western universities that had established Sino-British universities had not fully considered the lived experiences that students faced, as well as the implications of trying to study in an English-only university in a country where the overall language skills were limited, which Student V remarked:

“In China, the usage of English is low, and many Chinese people can't speak English. Besides, academic books are mostly boring. As a result, focusing on the needs of most Chinese people, most of the books sold in bookstores and stored in libraries are in Chinese, and even online shopping sites such as Taobao and Dangdang, you can't find all academic books in English medium there.”

Thus Z-library enabled them to access books that simply were not available in their country. Student we pointed out that it was challenging for them to even tackle studying without platforms because they were based ‘in China, our main language is Chinese, which can cover most of our needs like communication and reading. So it is not easy to have access to English-medium books in daily life. As students in the sample were studying in western degree awarding programmes of study, much of their courses of learning and lived experiences in the classroom were set up in a similar way to their counterparts in the UK. So, reading lists and assessments tied into being able to access certain preferred course materials or content was not uncommon, nor was the problem faced by students who couldn't simply order their books via Amazon, eBay or from other online retailers- they didn't operate or have presence in China, meaning that western books were an imported luxury, subject to commerciality and popularity, rather than scholarly stock-decisions for private sellers, usually through the platform Taobao. As Student S remarked, without Z-library they struggled because they faced:

“...limited access to English-medium academic books in my country is a significant challenge for students and researchers. Online resources can be a helpful alternative, but it can also be overwhelming to navigate the vast amount of information available. I need to be cautious of the sources I use, ensuring that the materials are credible and reliable.”

The impact, then, of the closure of Z-library was clear, because across the students it was felt that the platform had become a cornerstone of some study aspects, which as Student T remarked was down to a very essential reason, that the skills needed to find all the resources required for study was problematic and ‘the information on Z-library is more comprehensive than the academic reports we search through formal channels’.

Discussion

Analysis indicated that universities need to increasingly consider how freedoms and knowledge in digital learning environments, such as piracy-driven shadow libraries, influences their learning experience. Consequently, there is a need to factor this when promoting future decision making across institutional policy to avoid creating conditions that lead students towards practices that do not align with academic best-practice, such as research integrity (Cook-Sather et al., 2014). It seemed, through discussion indicated by the students, that students were self-aware about issues of ethics, integrity, and crime in stealing books from Z-library, but this was a necessity because they needed the faster, more efficient access to resources and as such were drawn away from physical spaces in universities that facilitated information retrieval via one book at a time. Hence, influencing their experiences as students was ability to source books and undertake information retrieval online. Doing so quickly and efficiently was a much more important aspect of their learning experience. Indeed, students felt that were digital divides and access affected the support, nor did publishers

make it an accessible experience. Instead, students and users would redeploy Z-library as a resource they found online to support their learning. What was highlighted, however, was that students pointed to Z-library as being more than a criminal platform, rather it was an essential tool to expedite and enable efficient approaches to learning. In some senses, students lacked digital literacy and information skills, and so found the accessibility and wide degree of literature on Z-library as something that compensated for this. Accordingly, to respond to this challenge and shortfall, it became clear, over the analysis, that much of their reasoning for engaging in digital piracy could be offset through use of generative Artificial Intelligence (GAI), in particular deploying web-focused platforms that offer AI as a process of learning technologies students needed to be taught to use to further research tools.

AI as students partners (AIasSP) in post-digital futures

Deployed appropriately, our analysis shows that generative AI can serve as a student's learning partner (AIasSP), because their lived experiences and reliance on Z-library demonstrates a shortfall in institutional libraries and digital skills training afforded to students as learners. Much of their reasoning for engaging with the platform had been to speed up, make easier or offer wide resources than were available to students presently, which in part was driven by a belief that knowledge should be free for everyone. Consequently, GAI offers similar kinds of information retrieval processes that Z-library had been used for, notably a wide database (corpus) of information that can be queried and retrieved with relevant sources of information and knowledge. Traditional university libraries, it seems from the findings, had far less impact on students' lives than being able to access ebooks. Z-library was described, by some, as a community space that brought people together to share passions; their intellectual alignment and a need to gain a lot of resources quickly, often to manage and satisfy course learning requirements, such as assessments, meant it was a well-designed platform with an accessible interface, alongside functionality, to aid the pursuit of knowledge information retrieval.

Therefore, AI could be deployed as a valuable partner for students in their information retrieval processes, and a more legitimate place to direct students towards after the takedown of Z-library. AI tools are primed to recommend discoverable resources and make personalized recommendations. In turn, this improves accessibility, as students need not rely just on university physical libraries. For example, AI can benefit information retrieval through more accurate keyword matching, saving students time that would previously be spent manually searching through physical books. AI-powered algorithms will be intrinsic to library repositories, which perhaps no longer need physical presence within universities- students will need support to help them navigate such vast databases (Banks, 2023). Students steal books online, engaging in digital piracy, due include financial shortfalls. However, this was found to be intensified by underdeveloped university libraries, geographical locations, and a lack of native language translations of relevant texts.

Many factors, then, drive digital piracy. However, AI is now increasingly central to the future of HE. Combined with the loss of platforms such as Z-library, and of other websites that previously enabled students to gain central access to repositories of knowledge in more efficient ways than their universities could offer, we can anticipate changes in physical universities. Deploying and developing AI skills to enhance the student learning experience, through outcomes and engagement, offers important steps

towards harnessing it as a partner in learning. We recommend devising ways to tech students to use AI to support their studies. This will reduce reliance on criminal platforms like Z-library. After all, the implementation of natural language processing (NLP) at the core of most popular AI tools ensures that the subsequent machine learning (ML) evolutions will be highly responsive, accurate and effective. AI technologies can, then, serve as agents that comprehend student queries, assess students' understanding levels, and provide tailored advice, for example about questions or topics that require further study. Embedded at the core of all learning experiences, AI has the potential to revolutionize the learning experience by improving personalised learning through technology, thereby enabling students to not need to use digital piracy websites to find recommended reading. To some extent, the potential for universities to supplant and reduce dependency on other resources, including resources spent in physical libraries, is one potential outcome, as AI becomes more effective at engaging students at a deeper level and encouraging success while changing the nature of learning.

Combining AI with a student-as-partners philosophy in HE requires us to critically debate how best to integrate AI technologies in a manner that empowers students and enhances their learning experience. One consideration is how we approach educating students on how to use existing generative AI chatbots as learning partners. Meanwhile, how these same chatbots can be built into technologies used within the learning environment. For example, what digital skills training students need on arrival, which can be taught to students and thereby empower them to craft better prompts that will engage AI chatbots to provide personalised, real-time support. Our skills development training, therefore, requires humanistic AI design in education. So, student centred, ensuring such training is responsive and updated frequently, to match the unique learning needs and challenges of individual students. Furthermore, institutions can embrace AI as a new partner to prepare learners for the future workforce. This involves ensuring that students have a foundational understanding of AI and its impact on their chosen fields.

Educators are encouraged to share their knowledge about AI with students, enabling them to become fully adept with the technology as soon as possible, rather than ignoring the benefits and unintentionally encouraging students towards other platforms, such as seen in Z-library. Adopting a proactive approach in the future of HE leadership ensures that students can be equipped to integrate and optimise AI into their learning and, in turn, future careers. Incorporating AI into teaching and learning also further student-as-partners philosophy. For instance, instructors can design assignments that require students to use AI for generating text, or to simulate activities, engaging in debate practice or presentation feedback, or generating writing prompts based on course materials. By involving students in the use of AI and encouraging them to critique its results, at the core of teaching, learning and assessment, HE educators can foster a collaborative and reflective approach to AI integration, aligning with the student-as-partners philosophy, as described above. HE now requires us to empower students to use AI as a learning partner, preparing them for the changing nature of working patterns globally, and involving them in the ethical, hence reflective, use of AI in their learning experience. By doing so, HE institutions can ensure that students are not only beneficiaries of AI technologies but also active participants in shaping their learning experiences. This recognition is important for smooth AI integration in the future of learning and teaching in HE.

Conclusion

This study has found that students pirate textbooks from platforms such as Z-library for several reasons. One significant reason was cost. Yet, this was, interestingly, not the only condition that shaped the learning experiences of students. Indeed, it was less the act of spending money that students objected to, rather high prices of textbooks. These were often controlled by a few major publishers, who set their prices much higher than regular fiction books, make purchasing physical copies, and even ebooks, a significant financial burden for students. This was especially true if they only use such textbooks for a few courses that they will not revisit. To students, then, academic textbooks seemed poor value, especially if they could get these texts online for free, with little chance of reprisal. As a result, students, especially those facing censorship, turned to illegal means to access materials, downloading pirated copies, or using file-sharing platforms such as Z-library. This was seen as more than a criminal platform, rather a repository that granted students a wide degree of functionality. For many students, the role of AI can further draw their usage away from traditional mechanisms of research and study. The textbook publishing industry, with respect to academic and intellectual materials, made an estimated \$7.85 billion in revenue in 2020 (Lakkaraju, 2022). There are incredible profits to be made from publishing academic textbooks, but focusing on knowledge sharing as a business model driven by economic variables impacts the lived experiences of students, who are treated as consumers at a level they cannot afford.

Additionally, the lack of affordable alternatives, such as used copies of books, or access to official subscription libraries, because of paywalls, forced students to seek alternative ways to gather information and build insight. Students pirate textbooks online due to the cost of textbooks, but also for a range of other reasons that intersect around lived experiences, especially during the pandemic, which limited their physical access to universities. Meanwhile, they do this to pass their courses of study. Hence, for every response that remarked on the perceived financial exploitation by publishing companies, data was also found suggesting that students faced logistical or physical concerns of using textbooks that were hardcopies. This requires universities and programme leaders to rethink the role and placement of reading, and how literature is accessed, in HE courses, as well as what digital skills are required in teaching and learning, as the way students read, written and access information changes in the future of educational processes within universities.

Qualitative research as conducted within this study has limitations. In particular, the potential for bias in the analysis and codification process, which creates limited generalisability of the findings. Moreover, the potential for researcher bias is present, as the codified nature of the analysis naturally lends itself towards considering information that leaps out to the researcher. Unlike quantitative research, the pedagogically focused qualitative research outlined in the analysis above involves smaller sample sizes, in a particular context, Chinese HE. This makes it difficult to generalise the findings to a larger population or make substantial claims as a result. Furthermore, qualitative research, as undertaken within this study, may not provide a clear solution for addressing research problems, as well as issues that are identified facing students in HE. Meanwhile, the lack of predefined details makes the study difficult to replicate, especially given the uniqueness of the research setting. Yet, the insight offered is useful for understanding contextual educational practices in an international university, enabling further understanding for future researchers to shape their investigations around.

The research presented has shown Chinese university students learning experiences were enhanced by the affordability, accessibility, and connectivity of Z-library. Insights have been offered, which suggest that digital piracy in HE is more complex than previously understood, because it is not driven by students simply trying to save money. Rather, they engage in sophisticated shadow networks on the Internet, built around the sharing of textbooks, which offers benefits beyond reading accessibility, but also convenience, efficiency, and effective recommendations in well-designed interfaces that benefit their learning experiences. At the same time, the gradual targeting of these platforms by government agencies equally affects the agency of students, reshaping years of prior usage. This ensures that something else must fill the void, and this paper recommends embracing a responsible approach to teaching about AI within universities, through an AiasSP philosophy that promotes and educates AI as a tool to enable more effective research and digital critical thinking skills. Meanwhile, the positioning of Z-library and its subsequent shutdown shifted the literature landscape for students in universities, impacting their modes and methods of study. Further research, therefore, is needed to understand this problem not only within China, but across other settings and with different groups of learners, an area of future research that can be pursued because of this paper.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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