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Influences on student motivation and independent learning skills: cross-cultural differences between Hong Kong and the United Kingdom

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Introduction: This study examined the ways in which different influences on student motivation and the development of independent learning (IL) skills might be constituted across students learning within different educational cultures. Previous studies on student motivation and IL have suggested the potential for differing conceptualizations of IL and its strategies (ILS), prompting questions as to the sources of these distinctions. One theory is that they might be influenced by differing cultural constructions of these concepts or may be linked to different motivations with respect to the purposes and outcomes of education.

Methods: This study addressed a research gap with respect to these differences in the British and Chinese contexts by examining the responses of students sampled from a university in Scotland and a university in Hong Kong. Through mixed-methods research comprising quantitative analysis of questionnaires and thematic analysis of interview data, this research project compared conceptualizations of IL and ILS across both these contexts and highlighted the role that student motivation might play in either context.

Results: The analytical results showed differences in the conception of IL and the implementation of ILS potentially due to differing cultural contexts.

Discussion: Further cross-cultural comparative research is needed with a study design that excludes the influence of institutional and demographic factors to better isolate the influence of culture on perception of IL and use of ILS.

KEYWORDS

independent learning, self-regulation, self-motivation, growth mindset, cross-cultural, the 8-item intelligence questionnaire

Introduction

This study examined the potential correlations between diverse cultural influences on student motivation and the cultivation of independent learning (IL) skills, and the consequent adoption of varied IL strategies (ILS). Previous studies on student motivation and IL have suggested the potential for differing conceptualizations of IL and ILS

(Susiani et al., 2022), prompting questions as to the sources of these distinctions. This study addressed a gap in the literature with respect to these differences in British and Chinese contexts by using mixed-methods research to compare the responses of students attending a university in Scotland with those attending a university in Hong Kong. This introductory section delineates the study's rationale, elucidates its aims, objectives, and research questions, and offers a preface to the organisation of the remaining segments of the paper.

Background

IL refers to the self-directed approach to education according to which individuals take learning into their own hands (Vinikas, 2023). This typically involves taking responsibility for one's own learning experiences outside of a traditional classroom setting. IL emphasizes the importance of developing the skills and competencies that can ensure that learners are equipped to learn without reliance upon external support, which necessitates the development of associated skills such as critical thinking, problem solving, and self-regulation.

IL practices or ILS constitute a number of aspects, such as setting goals, managing time, and utilizing resources effectively (Nabizadeh et al., 2019). Students can advance their IL by organizing their time effectively, motivating themselves to complete their studies, regulating their own emotional and intellectual states, and processing information efficiently in order to acquire knowledge. This is distinct from complete self-reliance insofar as students may still utilize academic support and external resources, but are not reliant upon being guided in the learning process itself, as they are able to engage independently with materials or tasks in order to advance their own learning.

Developing IL skills and strategies is important because these are often correlated with positive outcomes (Berthold et al., 2007). Students who engage in IL enjoy better grades (Meyer et al., 2008), with some research suggesting that such students also maintain a better work-life balance (Romero, 2011). Not all ILS are necessarily created equal, as some strategies are more strongly associated with successful or desirable outcomes than others (Harvey and Chickie-Wolfe, 2007). Beyond education, IL rewards learners with the ability to manage their learning beyond formal education and imparts a number of other important skills related to professional and career-based outcomes (Shi, 2017). It is thus an important practice to foster whilst in education, and further research is required to understand how it functions and how it may be inculcated and developed.

Rationale

The ever-globalizing nature of higher education means that there is an increasingly diverse student body hailing from diverse cultural backgrounds. In these contexts, there is the potential for students' cultural backgrounds and the cultural environments in which they study to influence their learning strategies, motivation, and the development of IL skills (Anyichie and Butler, 2023). As the literature review below reveals, various factors may be impacted by cultural, environmental, and institutional differences, including how IL concepts are conceived, which learning styles and ILS are favored, as well as how other factors such as a "growth mindset" or self-motivation interact with the development of ILS. This study sought to close the gap identified in the literature below with respect to the factors impacting British and Chinese further education institutions in these regards.

Aims and objectives

To this end, this research project had several aims and objectives. First, it sought to identify factors related to student motivation that might impact IL and ILS. Second, it aimed at better understanding how relationships between ILS and academic performance or attainment might differ across cultural environments. Third, the study sought to understand how students across these contexts conceptualize IL and ILS differently. Finally, it attempted to establish the extent to which these differences may be attributed to cultural factors.

Research questions

The above aims and objectives were construed as the following research questions, designed to help guide the study's methodology:

- How does cultural background influence students' motivation to learn in higher education?
- How does cultural background affect students' development of IL skills
- What similarities and differences exist in these influences between students from Hong Kong and the United Kingdom?

This study adopted a research design suited to answering these research questions and meeting the study's aims and objectives. It is described in detail in Materials and Methods.

Structure

The remainder of this paper is organized as follows. First, the findings of a literature review on this topic are reported, identifying appropriate gaps in the literature with regards to the above research questions. Second, the methodology section presents the methodological decisions undertaken in arriving at this research design, are described and justified with regards to the study's demands. Next, the results of analysis of the quantitative and qualitative data are presented, and the paper discusses the findings' relationships to the study's aims, objectives, and research questions. The paper concludes with recommendations for future research.

Literature review

This section reviews the literature on the topic of this research project, and offers background information on a number of

relevant concepts, while also identifying a gap in the literature with regards to cross-cultural comparisons of IL and ILS in Hong Kong and the United Kingdom.

Motivation

There are a number of theories of learner motivation, with five main theories dominating contemporary perspectives: attribution theory, expectancy value theory, self-efficacy theory, achievement goal theory, and self-determination theory (Svinicki and Vogler, 2012). This indicates the lack of a scientific consensus on how self-motivation functions toward learning. For example, attribution theory posits that individuals will attempt to account for past successes or failures by attributing outcomes to causal factors related to their study practices (Weiner, 2010). Some research has suggested that cultural and environmental factors play a big role in these attributions, with changes in culture resulting in a change in attributional logic (Ogan et al., 2009). This demonstrates one of the ways in which culture can potentially play a role in self-motivation.

Other important theories of motivation include self-efficacy theory, according to which students' motivation to learn is mediated by their expectations of success in completing a given task (Bandura et al., 2001). Here, students' perceived likelihood of undertaking a task is correlated with their self-efficacy, or their self-belief with regards to the likelihood of their completing that task. This places IL more within a framework of self-regulation, with self-assessments of ability playing a significant role in independent learning behaviour. Thus, there are potentially other factors besides cultural ones that might play a role in outcomes, such as cognition. The extent to which cultural factors might play a role with regards to the motivation to undertake IL or specific ILS could therefore be the subject of further research.

Growth mindset

In the education and psychology literature, a "growth mindset" refers to an individual's belief system, particularly the set of beliefs that holds that abilities, intelligence, and other traits are not fixed but rather than can be developed through effort, such as study (Dweck, 2016). This view is particularly associated with the work of Caroline Dweck (2000, 2006, 2016), who argues that a growth mindset is necessary for individuals to embrace change and respond positively to failures and successes. At the core of this mindset is a love of learning that is protected by a resilient attitude toward setbacks in learning and education.

Multiple studies have implied the importance of a growth mindset is implied across research. Research has shown that a growth mindset is preferable to a "fixed" mindset insofar as it allows learners to be more flexible in adapting their learning practices with regards to specific tasks (Dweck, 2006). Government reports have also indicated the importance of inculcating such a mindset in education due to its high degree of association with later-life outcomes:

> For pupils to thrive, they must be placed in a situation which promotes their positive physical and mental health, a sense of personal safety, pleasure in learning, enthusiasm for social participation and opportunities for their eventual positive and active engagement in the adult world of work. (Cooper, 2007, p. 234).

Adopting a growth mindset thus permits individuals to become better learners. It therefore plays a potentially important role with regards to IL.

The relation of a growth mindset to IL is in the learner's belief that they can develop their abilities through study, which encourages individuals to take their learning into their own hands. Individuals with a growth mindset seek opportunities for development insofar that it is an aspirational mindset as well as a position on the nature of learning (Dweck, 2016). Furthermore, it allows individuals to be resilient with regards to setbacks rather than requiring external support and validation (Dweck, 2006). Individuals respond to their own setbacks and fix problems associated with the learning process through trial and error as opposed to seeking instruction or active guidance from others. A growth mindset is thus theoretically associated with IL.

Learning strategies

Beyond being motivated and attitudinally disposed to undertake IL, attitudes toward specific strategies are also potentially important. Students may undertake a number of strategies, such as setting goals, managing their time, and utilizing resources efficiently—practices associated with self-regulation (Dignath et al., 2008). Here, self-discipline is a potentially impactful skill in terms of the individual's ability to self-manage their own time and practices.

These skills or practices come under the umbrella of "metacognition," or awareness of and reflection upon the thought processes involved in learning. Metacognition is likewise related to cognitive processes of learning, such as critical thinking, problem solving, and reflection (EEF, 2021). These describe important processes that determine how individuals interact with information and how they go about completing tasks, referring especially to individuated processes of accomplishing these ends (as opposed to collaborative ones).

Beyond this, some ILS refer more to practices associated with study and learning. For example, note-taking is a practice associated with IL, as is self-assessment or "rehearsal" (Biyikli and Dogan, 2015). Such strategies form the practical means of engaging with tasks or information in order to enhance knowledge and develop skills in a self-directed manner. This indicates that students have the capacity to set their own tasks that have been designed to develop their skills and knowledge but also require also some theory of paedagogy pertaining to IL.

How students conceive of the learning process is thus potentially determinative of what strategies and practices they will employ. Given the social construction of meaning (Maines, 2000), how various learners construe learning may be expected to be culturally dependent, that is, changing depending upon the culture within which a learner has been raised or is studying. For this reason, examining cultural differences in the construction of concepts such as IL may prove illustrative of the cultural reasons behind differences in strategies, practices, and outcomes.

Research gap

Database searches for studies on the topic of cross-cultural comparisons of IL in the United Kingdom and Hong Kong returned few relevant results. For example, entering the search string ("Hong Kong" AND "United Kingdom" AND "independent learning") into ERIC returned only one study primarily dealing with gender equality in education. Searches of other databases returned studies focusing overwhelmingly on IL among English students in Hong Kong, and some relevant studies are unfortunately now long out of date (Kember and Gow, 1990; Lai, 1994). Consequently, there is a gap in the current research literature regarding cross-cultural comparisons of IL and ILS, which the present study attempted to fill.

Materials and methods

This section describes the study's methodology, including, setting out its research design and its justification regarding meeting the needs of the research questions identified in the introductory section above.

Research methods

The study utilized mixed methods of data collection and analysis, employing both qualitative and quantitative methods. There are number of reasons as to why both methods were selected for use. First, quantitative methods are useful for identifying patterns across data and arriving at correlations that can be proven to be statistically significant (Given, 2008). However, such approaches can also overlook individual perspectives, such as attitudes (Yilmaz, 2013)—which the literature review indicated as linking factors such as culture, student motivation, and ILS.

As such, qualitative methods can provide a means for investigating how individuals perceive their own practice and performance, as well as how they conceive of concepts such as IL and the causal influences acting on them (Savin-Baden and Major, 2013). By the same token, however, qualitative methods can be imprecise in terms of making generalizations beyond the sample and are more prone to research bias (Cypress, 2017). As such, a mixed-methods approach allows for both types of data and analysis to be used, drawing from the strengths of both and offsetting their individual shortcomings (Ivankova et al., 2006).

Data collection

This study's utilization of mixed methods means that there were two modes of data collection. On the one hand, data for quantitative analysis were collected through using surveys or questionnaires (Jansen, 2010). It is known that relatively closed yields easily quantifiable responses that are suitable for quantitative analysis (Bielick, 2016). For this reason, questionnaires were used.

This study used a mix of primary and secondary data. First, the study referred to two previous studies already carried out at universities, one of which provided raw data. However, the questionnaires used in the study for which raw data were not available were adapted and used for the present study's primary data collection to allow for some point of comparison. The study used the Motivated Strategies for Learning Questionnaire (MSLQ) (Duncan and McKeachie, 2005), which is scored on a 7-point Likert sale. Its sub-scales measure factors related to motivation, learning strategies, and time and study environment management (**Table 1**), and this study added questions in which students self-reported their scores (**Supplementary Appendix 2**). The study also used the 8-item Intelligence Questionnaire (Dweck, 2000), which is scored on a 6-point scale. This questionnaire was also adapted to suit the present study's needs.

Qualitative data were also collected for qualitative analysis. The study used interview data for a number of reasons including those espoused in the following quote:

> Though varying in purpose, style and design, all forms of qualitative interviews share key features. First, projects using qualitative interviews build on naturalistic, interpretive philosophy. . .. second, qualitative interviews are extensions of ordinary conversations. Third, the interviewees are partners in the research enterprise rather than subjects to be tested or examined. (Rubin and Rubin, 2005, p. 12).

Interview data can therefore reveal much about individual attitudes and perspectives that quantitative data cannot (Peters and Halcomb, 2015). To use a comparable number of participants as in the extant study, this study conducted focus groups interviews with students as a less labor-intensive way of gathering a large number of perspectives in the qualitative interview data (Frey and Fontana, 1991).

Sampling

The sample sizes varied significantly across the two cohorts. In the case of the Aberdeen-based Robert Gordon University (RGU) study, some 201 students and staff participated in the questionnaire study, comprising 123 students and 78 staff. Focus groups with staff consisted of a single focus group with one professor, two TEFs, a reader, three lecturers, and three course leaders across various disciplines; whilst six focus groups with 33 students were also carried out. For the Hong Kong research, all participants were business students studying in Hong Kong, with 658 students completing the questionnaire research and 30 of those participating in four focus groups. The study recruited participants using convenience sampling. Although a randomized sample would have been more representative, non-probability samples are often used in cases where non-zero probabilities for selected are not necessitated by the conditions required for testing hypotheses (Lavrakas, 2008). In this case, as direct comparisons between the two sets of data could not be made, randomized sampling was not deemed necessary.

TABLE 1 Coefficient alphas and items comprising the MLSQ.

Scale	Items comprising the scale	α
Motivation scales		
Intrinsic goal orientation	1, 16, 22, 24	0.74
Extrinsic goal orientation	7, 11, 13,30	0.62
Task value	4, 10, 17, 23, 26, 27	0.90
Control of learning beliefs	2, 9, 18, 25	0.68
Self-efficacy for learning and performance	5, 6, 12, 15, 20, 21, 29, 31	0.93
Test anxiety	3, 8, 14, 19, 28	0.80
Learning strategies scales		
Rehearsal	39, 46, 59, 72	0.69
Elaboration	53, 62, 64, 67, 69, 81	0.75
Organization	32, 42, 49, 63	0.64
Critical thinking	38, 47, 51, 66, 71	0.80
Metacognitive self-regulation	33r, 36, 41, 44, 54, 55, 56, 57r, 61, 76, 78, 79	0.79
Time and study environment management	35, 43, 52r, 65, 70, 73, 77r, 80r	0.76
Effort regulation	37r, 48, 60r, 74	0.69
Peer learning	34, 45, 50	0.76
Help seeking	40r, 58, 68, 75	0.52

Duncan and McKeachie (2005, p. 119).

TABLE 2 Respondent breakdown for learning style activity in RGU research.

	Grouping	Frequency (%)
Gender	Male	31 (15.4%)
	Female	170 (84.6%)
Age	Under 22 years	124 (61.7%)
	Over 22 years	77 (38.3%)
Level of study	Undergraduate	181 (90%)
	Postgraduate	20 (10%)
Student status	Domestic	164 (81.6%)
	International	37 (18.4%)

Bremner and Forbes-McKay (2022, p. 24).

Data analysis

Quantitative analysis of the questionnaire data was achieved by comparing two types of data across the primary and secondary data available. Calculations such as Pearson's correlation coefficient were used to ascertain the statistical significance of the relationships the analysis revealed, indicating both the strength of the correlations and their significance they are in relation to factors such as the number of data and the standard deviation. Although not all datasets could be compared directly due to the lack of raw data for the United Kingdom-based study, analysis and comparison are included in the Discussion.

Analysis of the interview data used methods similar to those utilized earlier in the United Kingdom-based study. Thematic analysis was used in this study, given its status as a foundational method of interview data analysis:

> Thematic analysis is a method for analysing qualitative data that entails searching across a data set to identify, analyse, and report repeated patterns. It is a method for describing data, but it also involves interpretation in the processes of selecting codes and constructing themes. A distinguishing feature of thematic analysis is its flexibility to be used within a wide range of theoretical and epistemological frameworks, and to be applied to a wide range of study questions, designs, and sample sizes. (Kiger and Varpio, 2020, p. 2).

Thematic analysis was performed by transcribing audio recordings from the focus groups and then coding the data, according to the following definition: "Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study. Codes are attached to 'chunks' of varying size—words, phrases, sentences, or whole paragraphs" (Miles and Huberman, 1994). By attaching themes to chunks of data, the study's findings were organized under several thematic categories. These were then be compared with the findings of the thematic analysis of the focus group data carried out in the Bremner and Forbes-McKay (2022) study also.

Ethical considerations

A number of ethical considerations were taken into account when planning and undertaking this research. First, the relevant permissions to undertake primary qualitative research were sought and received from the institution prior to collecting primary data. Secondly, institutional and professional guidance on how to undertake ethical educational research was sought through consultation (BERA, 2018). This guided many of the ethical considerations during planning.

Informed consent was obtained from all participants (Sin, 2005). Participants consented before completing the questionnaires and before participating in any focus group. All participants were informed that they could withdraw from the study at any time and retract their data prior to publication of the research (Oliver, 2010). Likewise, data protection guidance was sought via consultation with regards to the gathering and storing of information (NFER, 2019). Adequate data protection necessitated storing personal information securely in password-protected folders, as well as arranging to delete recordings and other personal information after a certain amount of time (Mourby et al., 2019). Additionally, data were anonymized during transcription in order to protect the identities of the participants involved and to avoid any personal or professional repercussions (e.g., for criticizing their institution, its policies, or staff) (Saunders et al., 2015).

Finally, remaining aware of the researcher's positionality in relation to the participants was important to maintain throughout

(Qin, 2016). Power imbalances in this process can potentially make participants feel uncomfortable and skew results (Bourke, 2014). Furthermore, a researcher must remain aware of how relative identities can impact interactions in primary research, a risk that is especially prominent in cross-cultural research (May and Perry, 2010). Practicing a reflexive awareness of one's own identity, values, and biases can help offset these obstacles and encourage a more sensitive approach to data collection and analysis (Terry and Hayfield, 2020).

Findings

As outlined in the previous section, this research comprised both quantitative and qualitative research with students sampled from RGU and the Hong Kong Polytechnic University College of Professional and Continuing Education in Hong Kong (hereafter, simply PolyU). Given that the RGU study lacked raw data and the original PolyU study had a slightly different focus, new research was undertaken at PolyU in order to make these findings more comparable.

Quantitative research

This sub-section compares the findings to the results of the quantitative analyses carried out at RGU and PolyU. It reports upon the findings of the RGU study in relation to IL and ILS, as well as the relationship between these factors and a growth mindset. The results of quantitative analysis of questionnaire data derived from a survey of PolyU students are referenced used to compare and contrast the findings derived from the British and Chinese institutions and cultures.

Students in Scotland

The RGU study utilized quantitative research to investigate IL at a Scottish institution. Students were asked to complete learning styles activities alongside questionnaires that analyzed correlations between their responses and demographic factors. The 201 students who completed the task were demographically distributed shown in **Table 2**.

The study scored students on self-reported independence in learning and cross-referenced those scores with the grades they received (**Figure 1**). These findings indicated that there was a positive correlation between more independent learning styles and grade outcomes, though the correlations were statistically insignificant correlations.

A questionnaire was also carried out to investigate students' understandings of their IL and ILS. ILS were measured using self-efficacy, rehearsal, elaboration, organization, time management, self-regulation, and critical thinking, derived from the MLSQ (Duncan and McKeachie, 2005). These factors were scored on a 7-point Likert scale. Mindset in relation to IL was measured using the 8-item Intelligence Questionnaire (Dweck, 2000), and responses were scored on a 6-point scale.

Of the 123 students who completed these questionnaires, the majority of students were found to understand IL, and they conceived of themselves as independent learners (**Supplementary Appendix 1**). Regarding IL types, students reported a variety of scores across each type (**Table 3**). In a comparison of these types with IL scores, there was a correlation between the IL level and the rehearsal style [rs (N = 122) = 0.34, $p < 0.01$], as well as between IL and organization [rs (N = 122) = 0.25, $p < 0.01$] and self-regulation [rs (N = 122) = 0.19, $p < 0.05$] (Bremner and Forbes-McKay, 2022, p. 33). Therefore, there exists a correlation between hours spent engaging in IL and the tendency to revise course materials, organize study, and self-regulate one's learning.

This study also explored attributing these behaviors to beliefs or mindsets. The results of the 8-item Intelligence Questionnaire found a small but positive relationship between mindset and self-efficacy [rs (N = 122) = 0.23, $p < 0.05$], rehearsal [rs (N = 122) = 0.19, $p < 0.05$], elaboration [rs (N = 122) = 0.23, $p < 0.05$], and organization [rs (N = 122) = 0.19, $p < 0.05$]. This indicates a relationship between a more pronounced growth mindset and belief in one's abilities, more engagement in revision and rehearsal activities, more organization, and the use of techniques to expand and elaborate upon learning. Therefore, evidence was found for a relationship between IL and a growth mindset.

Students in Hong Kong

The researcher carried out a previous study on into the emotional influences on student engagement, motivation, and academic performance. Using a cohort of 658 students, surveys were administered to students across five separate but overlapping courses. Although the investigation focused mainly on the affective influences on these outcomes using a questionnaire derived from Goetz et al.'s (2012) Homework Emotion Scale (see **Supplementary Appendix 2**, the study also included an IL exercise and examined its impact on performance. A much higher performance threshold was found compared to other courses, with a mean score of 89.97 (SD = 11.592). Additionally, a high correlation was found between enjoyment and performance (**Table 4**). This suggests that a preference for IL tasks is correlated with improved academic attainment.

To compare the results with those of the RGU study, the original participants in the PolyU study were approached and asked to complete a new questionnaire. Of the original cohort, some 131 participants responded and provided appropriately completed questionnaires. These questionnaires comprised an adapted MSLQ and 8-item Intelligence Questionnaire, based on the questionnaire administered in the RGU study; responses were scored on the same 7-point and 6-point Likert scales responses, respectively. As **Table 4** shows, there were a number of points of departure with the scores from the RGU study (**Table 3**). Among these, the respondents in Hong Kong had substantially lower scores for self-efficacy, critical thinking, and self-regulation, and they also had substantially higher scores for rehearsal, organization, and time management (**Table 5**). This suggests that students in Hong Kong are more likely than those in the United Kingdom to practice ILS associated with time management, organization, and rehearsal as opposed

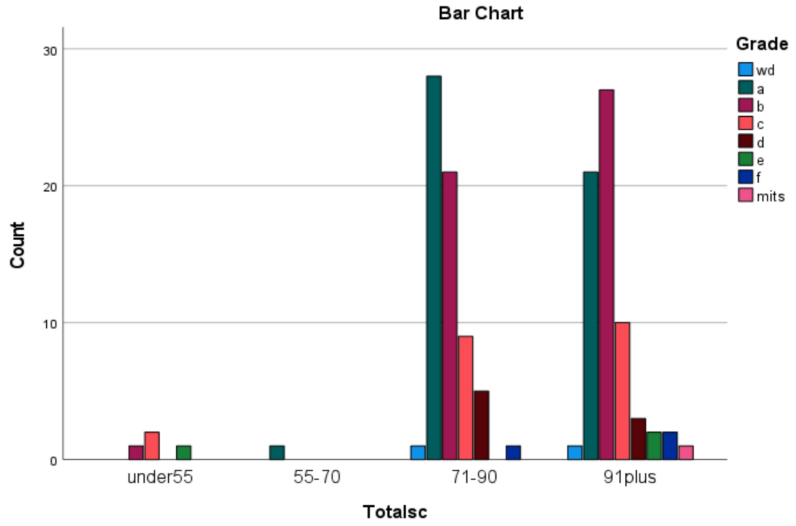

FIGURE 1
Learning styles against grades in RGU study. Source: Bremner and Forbes-McKay (2022, p. 25).

to those associated with high self-evaluations of self-efficacy and self-regulation.

Quantitative analysis of these scores revealed correlations between these students and their previously measured academic performance. Using Pearson's correlation coefficient, moderate correlations between performance and organization (r = 0.52, p = < 0.02) and rehearsal (r = 0.45, p = < 0.04) were noted, and a minor correlation between self-regulation and performance (r = 0.18, p = < 0.05) was also found. This findings are similar to those of the RGU study, though self-regulation showed a weaker correlation, whereas organization and rehearsal showed stronger correlations.

Although the original RGU study also scored IL according to the results of the learning styles test, the test was not administered in the original PolyU study, rendering comparison in this regard impossible. However, the mindset questionnaire revealed small correlations between mindset and organization (r = 0.24, p = < 0.04), rehearsal (r = 0.22, p = < 0.02), and elaboration (r = 0.17, p = < 0.05), though, interestingly, not with self-efficacy as in the RGU test. This suggests that self-regulation and self-efficacy may be less practiced in the Hong Kong context as opposed in the United Kingdom.

TABLE 3 Mean (SD) scores for ILS in RGU study.

Type of independent learning	Mean	SD
Self-efficacy score	4.98	1.09
Rehearsal score	4.17	1.38
Elaboration score	5.39	1.14
Organization score	4.89	1.22
Critical thinking score	4.75	1.29
Self-regulation score	4.57	0.95
Time management score	5.25	1.06

Bremner and Forbes-McKay (2022, p. 33).

TABLE 4 Regression analysis of self-directed learning portfolio.

Factor	F	P	R square	Std error
Regression analysis LP				
Enjoyment	8.29	0.00	0.10	8.71
Anxiety	2.75	0.03	0.02	9.02
Boredom	7.93	0.00	0.09	8.73

Qualitative research

This section presents the findings of the qualitative research carried out at RGU and PolyU. In both cases, focus groups were carried out with participants; however, the RGU teachers and staff were interviewed alongside students, whereas the PolyU students were interviewed separately. Nevertheless, potentially significant findings can be compared across the two cohorts.

Focus group in Scotland

The RGU study included thematic analysis of a focus group interview with one professor, two TEFs, a reader, three lecturers, and three course leaders across a variety of disciplines. The thematic analysis noted six themes relevant to IL:

- What does IL mean to you?
- Issues
- Skills to be developed and who is responsible
- Resources
- Barriers
- What can we do? (Bremner and Forbes-McKay, 2022, p. 39).

TABLE 5 Mean (SD) scores for ILS in PolyU study.

Type of independent learning	Mean	SD
Self-efficacy score	4.02	1.14
Rehearsal score	4.75	0.97
Elaboration score	5.12	1.09
Organisation score	5.85	0.87
Critical thinking score	4.04	1.4
Self-regulation score	4.22	1.21
Time management score	6.02	1.09

These thematic categories were derived from a number of key words and phrases highlighted by the thematic analysis (**Table 6**). These were illustrated further in the text through excerpts from the focus group itself.

The staff interviewed described a "spectrum" of IL and noted a number of issues holding students back, including non-engagement, a lack of self-regulation, and a reliance upon teachers and resources (Bremner and Forbes-McKay, 2022, pp. 39–40). Teachers also highlighted several skills they felt were conducive to developing good independent learning (**Table 7**). Here, the inclusion of terms such as "engagement," "self-motivation," and "confidence" illustrate the relationships between student motivation and successful ILS. In particular, the staff highlighted the importance of confidence and stated that this was lacking among their students at RGU.

The interviews with students at RGU likewise consisted of focus groups, here with a six focus groups encompassing a total of 33 students (Bremner and Forbes-McKay, 2022, p. 44). The thematic categories derived from the analysis of this data produced again six main themes:

- What is your experience learning at RGU?
- Helpful strategies you use
- What do you understand by the term "Independent Learning?"
- Have you been an IL learner whilst at RGU?
- Barriers to IL
- What can we do for future students? (Bremner and Forbes-McKay, 2022, p. 44).

Again, these categories had several subthemes, which were expanded upon through use of excerpts from the focus groups.

Students mentioned practicing various ILS whilst at RGU, and they related this to the resources the university provided for them: "You can go back and revisit stuff [because it's] its always there, [whereas before] you had to go and get the microfiche to look up articles and the books were about a foot thick. We wasted so much time [back] then" (Bremner and Forbes-McKay, 2022, p. 47). In this quote, the student linked the availability of online resources with the use of rehearsal strategies and also indirectly referenced time management. A link between online resources and easier organization was also mentioned. This indicates that beyond cultural factors, institutional factors are also incredibly important in supporting learners' favored ILS.

Students in Hong Kong

In addition to the questionnaires administered to the students in Hong Kong, focus groups with students drawn from the cohort were also undertaken. These interviews were conducted in four focus groups with a total of 30 students, all of whom participated in the original study. These students were all enrolled in business courses in Hong Kong and were interviewed about self-motivation, IL, and ILS. The study identified three themes, and subthemes were also generated through thematic analysis of the interview transcripts (**Table 8**).

The themes were dealt with in turn, revealing a number of patterns across the data. First, students rooted their IL in their individual motivations. For many students, academic attainment and career development topped the list, and these motivated a significant number of the students to undertake IL outside of the classroom. However, these were not the sole motivating factors for students. Some students identified their aims as largely social in nature, with one student clarifying their position on this as follows: "I am saying that I want to improve [my] education so I can get

TABLE 6 Words highlighted in the RGU focus group.

Initiative	Focus	Time management	Proactive
Autonomy	Motivated	To be in charge of their own workload	Do it on their own
Self-reliant	Passionate about their subject area	Student-centered	Willing
Determined to find out more	Well-rounded/more holistic	Helping students to be this way	Self-starting

Bremner and Forbes-McKay (2022, p. 39).

TABLE 7 Skills highlighted as required for IL according to the RGU focus group.

Library search	Confidence	Analyzing	Empowerment
Inquisitive	An understanding	Synthesis of understanding	Interpretive skills
Engage	Self-motivation	Summarizing a topic	Clear narrative
Curiosity	Problem solving		

Bremner and Forbes-McKay (2022, p. 41).

TABLE 8 Thematic analysis findings from the PolyU focus groups.

Motivations	Independent learning
Academic attainment	Resources
Career development	Self-discipline
Social outcomes	Motivation
Competition	Environment
Independent learning strategies	
Time management	
Organization	
Rehearsal	

a good job, but it is about the kind of life I want to live." Others viewed more social outcomes as more directly motivating, with some stating that competition with other students in their class motivated them to study harder.

Regarding IL itself, students identified a number of factors that supported or detracted from IL. First, resources were deemed to be important, with one student stating that PolyU had a better library than their previous institution: "At the old university, I couldn't find anything online, so sometimes I just g[a]ve up." This indicates the importance of institutional factors are with regards to supporting IL, in line with the focus of the staff discussions in the qualitative analysis of the Bremner and MacKay's focus groups. Environment was also tied to this; though students believed that the home environment was the most important factor although they also mentioned library facilities. Students also linked motivation to self-discipline, but some reported a lack of self-confidence resulting in reduced motivation: "It is difficult to sometimes know if I am studying the right thing and understanding things right without the tutor there to discuss [things with]." Self-confidence and perceived levels of support may therefore be factors related to attitudes toward IL.

Finally, the students conceived of IL and ILS largely in terms of organizing their studies rather than in terms of specific study practices. Time management and organization were the primary focuses of their discussion, suggesting a limited view of what IL comprises and how it can be practiced through ILS. Some students mentioned using practice questions prior to examinations, which suggests that the students engaged in rehearsal. However, approaches such as critical thinking or self-regulation were not mentioned directly, suggesting, once again, that the students had a limited view of how to practice IL. The consequences of this are considered further below.

Discussion

The above mixed methods of data analysis applied across the two studies yielded a number of findings that are potentially relevant to this study's research questions. First, there were a number of differences between the studies at RGU and PolyU. Students in Hong Kong scored lower for self-efficacy, critical thinking, and self-regulation as ILS than students in Scotland, but the former scored higher for rehearsal, organization, and time management. It is also notable that in the focus groups, students in Hong Kong conceived of IL almost entirely in terms of organization and time management, with rehearsal being one of the few ILS mentioned more than once. This indicates potentially that different cultural constructions of IL and ILS might lead to different outcomes in terms of ILS given the clear distinctions across these contexts.

However, this cannot exclude the intrusion of other non-cultural factors. For example, both sets of interviews highlighted institutional factors as potentially supporting or impeding IL. Quality of support and library and online resources were all deemed to be important in influencing whether students practiced IL, and conceivably, they may also play a role in how students practice ILS. To exclude institutional factors, further studies using students drawn from more than one institution in each local are needed to control for variables and isolate cultural factors as causal.

Other issues with the study design limited the comparisons that could be drawn. A lack of raw data for the RGU study meant that direct quantitative comparisons of survey data could not be carried out; furthermore, with the statistical significance of the differences observed was difficult to establish. Similarly, the PolyU study did not operationalize "mindset" specifically, although the qualitative study did offer some insight into the mindsets of students in Hong Kong. Similarly, the RGU study did not focus on emotional factors, making comparisons with the PolyU questionnaires limited. Future studies might plan identical designs to overcome for the shortcomings in the available secondary data in both contexts.

Conclusion

This paper has compared findings from mixed-methods analysis of data derived from studies in a university in the United Kingdom and a university in Hong Kong. Questionnaires measuring student motivation, mindset, IL, ILS, and performance have demonstrated some differences in how IL is conceived of and practiced in the British and Chinese contexts, indicating potential that cultural factors may play a role in mediating self-motivation and IL. Primary and secondary qualitative research consisting of focus groups with teachers and students was also carried out and also revealed different conceptualizations of IL and different favored ILS practices.

Despite the insights the study has yielded, certain design limitations precluded the possibility of direct quantitative comparisons between the two datasets, thereby hampering the determination of statistical significance. This represents a significant obstacle when deriving conclusions from these datasets. Moreover, a difficulty of undertaking research with students from two institutions is determining the extent to which the differences may be attributable to culture rather than other related factors such as institutional features. Consequently, it is impossible to assert that cultural factors account for differences in student motivation and IL across these two contexts. Nevertheless, these limitations underscore the potential value of future research aimed at a more comprehensive exploration of similarities and differences in student learning across diverse cultures and regions.

Indeed, the study points the way to future research in this area. Future studies might use students drawn from different Chinese and British institutions in order to control for culture, or to gather more data on participants' ethnicity and other demographic features to control for other such factors. Similarly, utilizing identical questionnaires and interview questions should render future datasets more directly comparable, allowing for a fuller cross-cultural comparison than was possible in this study. This study has therefore contributed to closing the literature gap highlighted in the literature review and has also illustrated the path to closing the gap completely illustrating the path to closing this gap altogether.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the author, without undue reservation.

Ethics statement

The studies involving humans were approved by the College of Professional and Continuing Education, The Hong Kong Polytechnic University. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

NP-kL: Writing – original draft, Writing – review and editing. PB: Data curation, Methodology, Formal analysis, Validation, Visualization, Writing – review & editing. KF-M: Data curation, Methodology, Formal analysis, Validation, Visualization, Writing – review & editing.

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc.2023.1334357/full#supplementary-material

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Appendices

Appendix 1: Number of students agreeing with statements on IL in RGU study.

	Yes	No
Takes ownership, control, and a desire to develop their own learning	121 (98%)	2 (1.6%)
Learns by their own actions and direct, regulate, and assess their own learning	109 (89%)	14 (11%)
Sets goals, make choices, and decisions about how to meet their learning needs	117 (95%)	6 (5%)
Takes responsibility for constructing and carrying out their own learning, monitor their progress towards achieving their learning goals	114 (93%)	9 (7%)
Reflects on, seeks out and actions feedback	109 (89%)	14 (11%)
Can learn on their own**	101 (82%)	22 (18%)
Can complete their assessments without any help**	44 (36%)	79 (64%)

Appendix 2: Self-directed learning portfolio questionnaire

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
1) I was looking forward to the assignment.	○	○	○	○	○
2) I enjoyed the assignment.	○	○	○	○	○
3) I enjoyed the assignment so much that I was strongly motivated to continue studying.	○	○	○	○	○
4) The material we dealt with in the assignment was so exciting that I really enjoyed it.	○	○	○	○	○
5) I felt tense and nervous when doing the assignment.	○	○	○	○	○
6) I worried if the material in the assignment was much too difficult for me.	○	○	○	○	○
7) When thinking of the assignment, I got queasy (噁心).	○	○	○	○	○
8) The assignment made me so nervous that I didn't even want to begin it.	○	○	○	○	○
9) Tick Strongly Disagree here.	○	○	○	○	○

10) When doing the assignment I got bored.	○	○	○	○	○
11) When doing the assignment I couldn't concentrate because I was so bored.	○	○	○	○	○
12) I was so bored while doing the assignment that I couldn't stay awake.	○	○	○	○	○
13) Just thinking of the assignment made me feel bored.	○	○	○	○	○