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Effects of career development learning on students' perceived employability: a longitudinal study

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Abstract

This study investigates the relationship between career development learning (CDL) and students' perceived employability (SPE) with the mediating role of human capital. Using a quantitative method based on structured questionnaires to collect data from 512 Vietnamese students before starting their internship at businesses and 322 of them after 4 months, the results of the partial least square Structural Equational Model analysis showed that CDL positively affects SPE over time. Besides, the study explored the mediating effect of human capital in the relationship between CDL and SPE. In particular, scholastic capital and cultural capital play mediating roles while social capital failed to be in the relationship between CDL and SPE. This study is expected to enrich current literature on students' employability and human capital theory. From practical aspects, the findings of this work can be of benefit to higher education institutions in supporting their students to enhance their employability in labour market.

Keywords Career development learning · Employability · Human capital · Students · Vietnam

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Introduction

Employability has received substantial attention from different stakeholders, including both higher education (HE) institutions and students (Cheng et al., 2022), as HE plays an important role in equipping students to find suitable jobs, and students realize the increasing competitiveness of the job market (Byrne, 2022), which is severely affected by turbulent situations such as the COVID-19 pandemic. To enhance students' employability, a better fit between HE and workplaces must be ensured because unemployment often results from a mismatch between graduates' qualities and those demanded by employers (Bennett et al., 2016).

Previous research on employability has acknowledged the importance of holistic approaches to this topic, specifically approaches that take into account a combination of resources beyond a skill-centric focus (Cole & Donald, 2022), including factors such as personal characteristics, academic achievements and graduate skills (Byrne, 2022). Among various such approaches, a focus on capital — such as human capital (Schultz, 1961) — has been widely adopted to understand the resources that are necessary to promote graduates' career readiness (Wallis, 2021). Human capital theory implies that education is a form of individual investment aimed at obtaining explicit returns regarding the individual's career path, with the purpose of ensuring that individuals, by investing in their education, develop their human capital to increase their competitiveness in the labour market (Cai, 2013; Nimmi et al., 2021). The literature on human capital in the context of employment has often considered the consequences of this factor, such as employability (Caballero et al., 2021; Donald et al., 2019) and career success (Frederiksen & Kato, 2018), but has appeared to give only limited attention to the means by which human capital is developed (Islam & Amin, 2022). This study proposes that career development learning (CDL) is an antecedent of students' investment in their human capital and, accordingly, positively influences their employability.

Career development learning (CDL), which focuses on the design of education and practice to help students acquire the qualifications that are necessary for their future careers (Watts, 2006), serves as a possible way of reducing the mismatch between HE and the workplace in terms of students' employability (Bridgstock et al., 2019; Healy et al., 2022). Despite several discussions of CDL and the employability of graduates (Römgens et al., 2020), there remains a lack of interdisciplinary exchange between career development and graduate employability (Healy et al., 2022). Although previous empirical studies have acknowledged the importance of career development competence (e.g., Bridgstock, 2011; Jackson & Wilton, 2017) as well as that of career planning skills and proactivity (e.g., Jackson & Tomlinson, 2020) for students' success, studies using quantitative methods (e.g., Jackson & Tomlinson, 2020; Jackson & Wilton, 2017) have highlighted the limitations of the cross-sectional approach, which cannot explain causal relationships.

To address this research gap, this study adopted a longitudinal quantitative approach to investigate data collected by questionnaires distributed over two waves to examine an integrated model that explains the ways in which CDL affects students' perceived employability. This study confirms the relationship between CDL and perceived employability and explains the mechanism by which CDL influences perceived employability via the comprehensive development of human capital. It also confirms the goal of CDL, which ranges beyond the task of facilitating employability to emphasize an individual's growth and lifelong learning (McIlveen et al., 2011). In addition, this study aims to overcome the limitations of previous cross-sectional studies with respect to investigating the causal

relationships that have important implications for different groups of stakeholders in the context of HE.

Literature review

Students' perceived employability

Perceived employability is defined as 'the individual's perception of his or her possibilities of obtaining and maintaining employment' (Vanhercke et al., 2014, p. 539). While Vanhercke et al. (2014) emphasized the possibility of maintaining current employment, this study focuses on the possibility of becoming employed in the future. We conceptualize perceived employability as referring to students' beliefs regarding their likelihood of success in the labour market (Pitan & Muller, 2020). When students are on the verge of entering the workforce officially for the first time, they must define their desired jobs as well as the competencies required for these jobs to maximize their employability (Rothwell et al., 2008). This task requires students to undergo a process of internal evaluation with regard to both personal attributes and environmental factors. While environmental factors cannot be controlled by HE institutions, students' personal competencies can be enhanced via the teaching and learning offered by universities (Holmes, 2013; Tomlinson, 2017). HE institutions must therefore take the initiative to strengthen students' personal capital and CDL, with a view to improving students' perceived employability (SPE).

Career development learning

The term 'career management' was used in the 1980s to describe the policies and practices used by large business organizations to develop the careers of middle and senior managers (Watts, 2006), before being widely used to refer to career self-management (King, 2004). A vital aspect of career development is learning that can be administered by educational institutions (Donald et al., 2021). Universities have begun to focus on strategies that adjust the curriculum framework to promote CDL among their students (Bridgstock et al., 2019) because CDL may increase students' awareness of employability and allow them to optimize their employability (Smith et al., 2009). CDL involves informing, guiding and assisting students to evaluate the labour market and their desired careers critically while developing the knowledge and skills that are necessary (McMahon et al., 2003; Smith et al., 2009) to manage their careers in a competitive and constantly changing labour market (Karmel & Carroll, 2016).

Human capital

The notion of human capital — as developed by Schultz (1961) and elaborated by Becker (1964) — can be considered to refer to the sum total of resources that an individual accumulates in various ways to secure future monetary and nonmonetary returns (Nimmi et al., 2021). This notion assumes that people invest in themselves to enhance their value, hence developing their employment prospects (Cai, 2013) and improving their position in the labour market (Shivoro et al., 2019). Useem and Karabel (1986) proposed that an educational institution could provide three distinct types of human capital to its students

— namely, scholastic capital (educational attainment), social capital (personal contacts and network ties) and cultural capital (the capacity to decode valued symbolic meanings and objects). These three types of capital highlight the value of a university education with respect to enhancing employability via the perceived value of educational credentials, including knowledge and skills, relationships and culture. They are, therefore, elements that constitute human capital (Baruch et al., 2005; Donald et al., 2019).

Hypothesis development

Career development learning and students' perceived employability

The extant literature has indicated that students' perceived employability increases over their years of university study, corresponding to their accumulation and continual improvement of their confidence, experience and self-esteem, which are achieved through personal development supported by their university's CDL initiatives (Donald et al., 2018). According to Watts (2006), CDL addresses the critical issues of directionality and sustainability in the context of students' personal development. Concerning the first aspect, CDL creates favourable conditions for students by engaging them in work-integrated learning (McIlveen et al., 2011) and by supporting them in the task of discovering whether their strengths and capacities match their employment expectations. Moreover, cooperation between universities and employers with respect to CDL implementation, such as via internships, industry project units, career fairs, career talks, building networks and job application support, improves students' understanding of the labour market and their confidence regarding their future employment (Bridgstock et al., 2019). With respect to the second aspect, CDL helps individuals accumulate skills and knowledge throughout their course of study (McMahon et al., 2003; Smith et al., 2009) and guides them by way of a self-assessment of their accumulated knowledge and skills in relation to their future career development (McIlveen et al., 2011).

Previous studies have demonstrated students' awareness of the relevance of CDL to their employability (e.g., Donald et al., 2019). Students perceive that CDL provides them with career advice from lecturers, recruiters, alumni and career services, which is helpful in improving their employability (Bridgstock et al., 2019). However, students also highlight the ineffectiveness of some provisions due to a lack of sufficient engagement or specific, personalized advice, thereby requiring universities to develop appropriate ways of overcoming these issues. Donald et al. (2021) confirmed the role of the university in the task of preparing students to embark on the university-to-work transition in the context of a competitive labour market, especially in uncertain times such as those associated with the COVID-19 pandemic. Based on this discussion, we propose the following hypothesis:

H1: Career development learning positively affects students' perceived employability.

Human capital and students' perceived employability

Scholastic capital According to Useem and Karabel (1986), scholastic capital refers to educational attainment and has a positive impact on the individual's career outcomes. This term indicates the amount of knowledge that an individual acquires and the implied importance of education for students' preparation for their future careers (Baruch et al., 2005). Knowledge obtained in the context of HE encompasses not only the specific knowledge

conveyed by a study programme, which indicates 'what I know' (Luthans et al., 2004), but also the skills obtained from training at the university, indicating 'what I can do' to perform a job well (Caballero et al., 2021). Knowledge, which is expressed through academic performance, is often considered by employers to be an important indicator for evaluating a potential graduate (Tomlinson et al., 2021). This indicator is particularly helpful when the candidate has limited work experience (Kasler et al., 2017). Additionally, skills are important capabilities on which recruiters rely when evaluating a candidate; hence, fresh graduates with better skills are more competitive in the labour market than their counterparts (Finch et al., 2013; Mahajan et al., 2022). Particularly in the context of the COVID-19 pandemic, different skillsets, such as digital competencies, communication skills, management skills and teamwork skills, are perceived as necessary by both employers and students (Mahajan et al., 2022).

Although Caballero et al. (2021) could not find any relationship between knowledge and SPE, they did find that graduates perceive a positive effect of skills on their employability. Moreover, other previous studies (e.g., Donald et al., 2019, Baruch at el., 2005) have argued that scholastic capital is an important indicator of SPE. Thus, this study proposes that the more scholastic competencies students possess, the more confident they are regarding their employability. We thus posit the following:

H2a: Scholastic capital positively affects students' perceived employability.

Social capital Social capital refers to the total number of relationships that an individual has, encompassing networks of contacts, family members and friends as well as memberships or affiliations and occupational social networks (Donald et al., 2019). These connections, including mentors or advisors, offer jobseekers job-related information, guidance and support (Zamudio et al., 2014). Social relationships can also influence recruiters by providing positive recommendations that can be decisive in selection situations (Stiff & Vugt, 2008) or conveying resources that range beyond a job seeker's skills, abilities and knowledge (Lin, 2002). The positive effects of personal relationships and social networks on SPE have been identified in previous studies (Caballero et al., 2021; Tomlinson et al., 2021). Therefore, we hypothesize the following:

H2b: Social capital positively affects students' perceived employability.

Cultural capital Cultural capital, a notion originating in Bourdieu's (1977) cultural reproduction theory, pertains to knowledge of the dominant conceptual and normative codes inscribed in a culture (Jæger, 2011) and has the ability to 'facilitate or hinder social mobility'. For students who are new to the labour market, cultural capital can be addressed via participation in extracurricular activities, cultural activities and hobbies (Donald et al., 2019; Jæger, 2011). DiMaggio (1982) argued that students who exhibit higher levels of cultural capital or a high level of involvement in elite status cultures receive more attention and support from and are better rewarded by teachers than other students. In the context of HE, an individual who obtains a high level of cultural capital might receive more attention from employers. Previous studies have demonstrated that cultural capital promotes educational success (Jæger, 2011) and employability (Donald et al., 2019). Therefore, we posit the following:

H2c: Cultural capital positively affects students' perceived employability.

Career development learning and human capital

CDL is believed to constitute an important part of both the social and economic quest for human capital by facilitating further human capital development via the formal education system. If education is a form of investment aimed at the development of human capital, CDL provides advice regarding investment options. Watts and Sultana (2004) argued that CDL acts as Adam Smith's famous 'invisible hand of the market' that helps an individual make educational decisions wisely and invest in their human capital effectively. By offering career advice activities, opportunities to communicate with alumni and employers and courses on career skills, students can acquire an overview of the labour market and a sense of their own identity (Bridgstock et al., 2019; McIlveen et al., 2011). Consequently, they can prepare action plans strategically to obtain the knowledge and skills required by prospective employers, especially when in the context of resource constraints and periods of change. Moreover, Lee (2014) found that student engagement in learning affects academic performance, while Folsom et al. (2005) indicated that the positive impact of career planning courses and career development leads to higher levels of academic performance. Therefore, we posit the following:

H3a: Career development learning positively affects students' scholastic capital.

University initiatives that link current students with industry professionals via mentoring schemes, networking events featuring alumni, competitions including challenges from businesses, career fairs and internships can help students broaden their relationships and network, thereby enhancing their social capital (Gilani, 2020). In particular, activities that offer students the opportunity to participate in real work and cooperate with other individuals can lead to sustainable interactions and trusting relationships, which in turn strengthen students' social capital (Janasz & Forret, 2008). Moreover, CDL can support students in developing their networking skills not only with respect to career development topics but also by providing networking experiences with industry professionals. Through networking behaviours, students establish relationships to form their networks, becoming embedded in larger social networks (Batistic & Tymon, 2017). Networking behaviours also improve students' social capital by affecting the scale of their social network, the strength of their relationships, the pattern of their relationships and the benefits of their social networks (Forret, 2006). Thus, we hypothesize the following:

H3b: Career development learning positively affects students' social capital.

Human capital can erode due to changes in the world, which can have a negatively impact on the usefulness of prior learning (Hooley, 2021). In such a situation, education and lifelong learning become wise strategies for sustaining career growth (Healy et al., 2022). With regard to cultural capital, Bourdieu and Richardson (1986) considered educational institutions to be sites of cultural reproduction that promote students' cultural capital, in turn facilitating their mobility. Universities, therefore, are increasingly diversifying their CDL activities. HE offers both academic and nonacademic activities in which students can participate. While academic activities develop students' scholastic capital, nonacademic activities that are considered to be forms of informal learning

(Marsick & Watkins, 1997) — such as extracurricular activities in major student clubs, leisure clubs, competitions and volunteering — are believed to improve students' cultural capital. Moreover, researchers have confirmed the significance of informal learning for the acquisition of cultural capital (Lulle et al., 2021). Thus, we posit the following:

H3c: Career development learning positively affects students' cultural capital.

Human capital mediates the relationship between career development learning and students' perceived employability

One assumption is that CDL may affect employability via its influence on human capital. Students who engage in CDL activities as a way of investing in their human capital can increase their employment confidence accordingly (Donald et al., 2018). Bridgstock et al. (2019) proposed that CDL, when integrated with HE curricula, could benefit students' employability, as it supports the progressive formation of identity and the development of a set of meta-level capabilities. Furthermore, human capital can erode due to changes in the world, thereby having a negatively impact on the usefulness of prior learning (Hooley, 2021). In such a situation, education and lifelong learning become wisdom strategies for sustaining career growth (Healy et al., 2022).

CDL plays an important advisory and educational role for students. In advisory terms, career guidance or mentorship programmes help students clarify their career directions (Smith et al., 2009) by enhancing their understanding of their possible career trajectories (Bridgstock et al., 2019), thereby influencing their learning objectives, career decisions and plans and highlighting the resources that are required to implement those plans (McIlveen et al., 2011). The establishment of career objectives can help students develop their human capital via the acquisition of greater education and experience (Direnzo et al., 2015). Hence, they are likely to obtain greater scholastic capital, which might be advantageous in the employment market. Thus, we posit that the following:

H4a: Students' scholastic capital mediates the relationship between career development learning and students' perceived employability.

Similarly, students who accumulate greater CDL tend to apply greater effort to the tasks of broadening their social networks and managing their relationships for employment purposes. Mentoring and alumni relationships developed through networking events, career days, thematic panels and career counselling are perceived to be beneficial for students' career prospects (Banović, 2022). In educational terms, CDL aims to improve students' employability in a sustainable manner by providing them with the knowledge and skills that are necessary in the workplace. For example, students can take advantage of the opportunity to practice networking when participating in project-based learning, university and industry educational collaborations and alumni connections. By establishing and maintaining contacts that might provide relevant resources, students can enhance their employability (Batistic & Tymon, 2017). Direnzo et al. (2015) found evidence that career planning can lead to higher employability by fostering social capital. Therefore, we propose that CDL influences SPE by providing students with the means of developing their social capital.

H4b: Students' social capital mediates the relationship between career development learning and students' perceived employability.

McIlveen et al. (2011) argued that CDL acts as a mirror for reflection, given that learners use CDL to reflect on themselves. The importance of self-reflection for employability has been emphasized in the extant literature, such as by the DOTS model of career development (Watts, 2006) and the CareerEdge model of graduate employability (Dacre Pool & Sewell, 2007). The model of cultural mobility presented by DiMaggio (1982) suggested that individuals who view themselves as having a lower socioeconomic status than others have an extra incentive to invest in their cultural capital to offset their comparative disadvantages in other domains. CDL is thus believed to increase students' confidence in their future careers by motivating them to improve their cultural capital. We therefore hypothesize the following:

H4c: Students' cultural capital mediates the relationship between career development learning and students' perceived employability.

The conceptual research framework is shown in Fig. 1.

Method

Procedure and participants

A questionnaire was originally developed in English based on previous relevant studies. Subsequently, the questionnaire was translated into Vietnamese using a back-translation process with the support of two university lecturers to assure the content validity of the measurement scales, as recommended by Bracken and Barona (1991). A pretest was conducted with the participation of 15 students. The official survey was administered via the platform Survey Monkey and distributed online to all target participants over two waves. Target participants were senior students, who represent potential and suitable objects to investigate the topic of employability. Namely, senior students, who are usually in their last year of a bachelor's programme or have accumulated between 90 and 120 credits
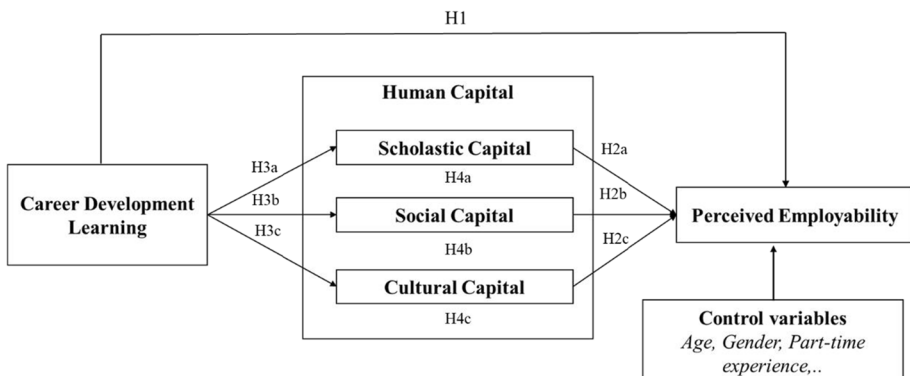

Fig. 1 The conceptual research framework

throughout their whole course of study (MOET, 2007), are on the verge of participating in the labour market. We delivered questionnaires via email to all senior students at a university in Vietnam (after obtaining the agreement of the university's board of management). As the student's official email was generated by combining the student's ID with the university's domain, the authors were able to download the list of all students' emails from the website to determine the total population and send the appropriate number of emails. We ensured that the purpose of the research was well explained to all target respondents at the beginning of the questionnaire.

The first wave of the survey (August 2021) was conducted before students started their compulsory internships at businesses, and the second wave (December 2021) was conducted after their internships. Each survey period lasted for 4 weeks. During the first wave, we obtained 512 responses from 970 target respondents (for a response rate of 52.7%). Based on the respondents' emails used during the first wave, we sent the questionnaire in the second wave. Ultimately, 322 respondents completed the survey, and valid responses were collected (62.8%). The response rate of the second wave exhibited a slight increase thanks to the repetition of some questions in the second phase, which might have caused students to be more familiar with the survey.

Measures

In this study, all measurements were adopted from previous relevant studies and scored on a five-point Likert scale (ranging from 1 — strongly disagree to 5 — strongly agree). SPE was measured using six items adopted from Pitan and Muller (2020). Sample items included 'I feel confident that I will be able to find appropriate work after leaving the university' and 'I am generally confident of success in job interviews'. Cronbach's alpha value for this variable was 0.916.

CDL was measured using five items developed by Dacre Pool et al. (2014). In the first wave of the survey, the students rated their assessment of statements regarding the outcomes of CDL. Sample items included 'I know what I want to do when I finish my degree'. Cronbach's alpha value for this concept was 0.840.

The measurement of students' human capital was mainly based on the framework developed by Baruch et al. (2005), which covers three kinds of capital that educational institutions may provide to students: scholastic capital, social capital and cultural capital (Useem & Karabel, 1986). Specifically, scholastic capital was measured using eight items developed by Baruch et al. (2005) and Jackson and Chapman (2012) and subsequently adapted by Jackson (2013). Examples items include 'My degree course has improved my teamwork skills' and 'Knowledge from my degree course will help me in securing graduate employment'. Social capital was measured using 6 items developed by Baruch et al. (2005) and Steinfield et al. (2008). Sample items included 'I expect to secure graduate employment based on my network of contacts'. Cultural capital was measured using 5 items adopted from Jæger (2011), which measure the cultural capital of students regarding their extracurricular activities or encouragement to participate in hobbies offered by the university. Cronbach's alpha values were 0.866, 0.837 and 0.769 for scholastic capital, social capital and cultural capital, respectively.

Control variables included student age, gender, part-time experience, internship experience, language proficiency and extracurricular participation. These factors have been indicated to be associated with SPE. Students' ages were provided by respondents in numerical form. Gender is a binary variable (0 is male 1 is female). Part-time experience, internship

experience and extracurricular participation were measured by asking yes/no questions. Language proficiency was assessed in terms of six levels in accordance with the CEFR (Common European Framework of Reference for Languages) standard, which is categorized in terms of six levels.

Data analysis

The partial least square-structural modelling (PLS-SEM) technique was used to test the research model over two stages of assessment using SmartPLS 3.0 software (Hair et al., 2019). In the first stage, the measurement model was tested to demonstrate satisfactory reliability and validity (Fornell & Larcker, 1981; Hair et al., 2019). In the second stage, structural model assessment and hypothesis testing were performed using PLS-SEM, which facilitates simultaneous analysis of multiple relationships, using the bootstrapping technique with 5000 resamples (Hair et al., 2017).

Results

Descriptive analysis

Table 1 displays the statistics for each construct as well as their correlations. Among respondents, females accounted for 74.2% of responses, while males accounted for 25.8%. Although female students constituted most of the sample, this proportion is representative of the population of an economics university in Vietnam. The percentage of female students in schools emphasizing socioeconomics consistently ranges from 75 to 80% (Moet, 2020). The average age of the sample was 20.922, which precisely reflects the student population targeted by the survey. Students with part-time employment experience accounted for 79.8% of respondents, while those with internships accounted for 34.0%, and those who participated in extracurricular activities accounted for 34.0%. Concerning English proficiency, 24.0% of respondents rated themselves at the level of upper advanced or proficient, 41.3% at the intermediate level and 38.8% at below the intermediate level.

Common method bias and multicollinearity

In this study, a longitudinal research design was used to collect data to mitigate the possibility of common method variance (CMV). We ensured the robustness of the freedom of CMV and collinearity via the demonstration of inner VIF values and by employing Harman's one-factor test and conducting EFA analysis (Kock, 2015). All constructs had an inner VIF value lower than 2.0, and the observed eigenvalues of six factors were 2.379 (i.e., larger than 1.0). The cumulative variance of four factors was 59.478%; that is, more than one factor was identified, with no single factor explaining the majority of the variance. It can thus be concluded that this study was not threatened by CMV.

Multicollinearity refers to highly correlated associations among measurement items included in a model (Hair Jr et al., 2017). It is crucial to confirm the freedom of multicollinearity before testing the hypotheses in the research model (Hair et al., 2019). The VIF value of single items is assessed by reference to the critical value of 3.33 (Kock, 2015). In this study, the VIF values for all factors were smaller than 2.0, thus satisfying the requirements associated with multicollinearity issues.

Table 1 Mean, *SD* and correlation values among variables

□	Mean	SD	Age	Gender	Part-time job	Internship	English Proficiency	Extra-curricular	CDL	Scholastic capital	Social capital	Cultural capital
Age	20.922	0.349	1									
Gender	0.258	0.438	−0.052	1								
Part-time job	0.798	0.402	0.110*	−0.110*	1							
Internship	0.340	0.476	0.012	0.080	0.007	1						
English proficiency	3.873	0.871	0.019	0.062	−0.038	0.001	1					
Extra-curricular	0.340	0.476	−0.045	−0.054	0.039	−0.017	−0.119*	1				
CDL	3.511	0.673	0.047	0.133*	0.002	−0.030	0.181**	0.007	1			
Scholastic capital	3.906	0.571	0.051	−0.071	−0.022	−0.006	−0.023	0.020	0.327**	1		
Social capital	3.709	0.701	0.035	−0.006	−0.032	0.059	−0.004	0.067	0.310**	0.576**	1	
Cultural capital	3.868	0.641	0.027	−0.034	−0.064	0.014	0.006	0.012	0.321**	0.626**	0.532**	1
SPE	3.588	0.701	0.019	0.190**	−0.024	0.009	0.153**	−0.025	0.483**	0.539**	0.463**	0.539**

$N = 322$.

$*p < 0.5$; $**p < 0.01$.

Measurement model assessment

Table 2 indicates all values that demonstrate the adequacy of the measurement model assessment. All Cronbach's alpha values exceeded 0.70 (ranging from 0.769 for cultural capital to 0.916 for SPE), and all CR values exceeded 0.5 (ranging from 0.852 for cultural capital to 0.935 for SPE). Therefore, the convergent validity of the research constructs was ensured (Hair et al., 2019). In addition, the AVE was larger than 0.5, ranging from 0.517 for scholastic capital to 0.705 for SPE. The Fornell-Larcker criterion was also satisfied due to the indication of a diagnosis value larger than the correlation values among constructs (Fornell & Larcker, 1981).

Structural model assessment

The results of the model fit assessment indicated that the criterion for model fit were satisfied since the chi-square value was 1120.952 at $p < 0.05$, and the standardized root mean square residual (SRMR) was 0.07 (i.e., smaller than 0.08) (Hair Jr et al., 2017). The value of R^2 for SPE was 0.503, indicating a moderate value. Accordingly, the prediction of SPE in this model was relatively substantial. The R^2 values of scholastic capital, social capital and cultural capital were 0.122, 0.106 and 0.111, respectively. In this study, f^2 effect sizes were relatively small, and Q^2 values were all greater than zero. Thus, the PLS path model has predictive relevance with respect to the construct under study (Hair et al., 2019). Table 3 presents the results of structural model testing.

Hypothesis 1 posited that CDL positively affects SPE. The results show that this relationship was significant at $\beta = 0.234$ ($t = 4.435$, $p < 0.001$). Thus, Hypothesis 1 was significantly supported.

Hypotheses 2a, 2b and 2c predicted positive associations between human capital and SPE. While SPE was significantly affected by scholastic capital ($\beta = 0.266$, $t = 4.036$, $p < 0.001$) and cultural capital ($\beta = 0.249$, $t = 3.788$, $p < 0.001$), SPE was only marginally associated with social capital ($\beta = 0.117$, $t = 1.929$, $p < 0.054$). Thus, the results significantly supported Hypotheses 2b and 2c and marginally supported Hypothesis 2b.

Hypotheses 3a, 3b and 3b examined the impacts of CDL on the scholastic capital, social capital and cultural capital of students. The results indicated significant impacts of CDL on scholastic capital ($\beta = 0.350$, $t = 5.791$, $p < 0.001$), social capital ($\beta = 0.326$, $t = 4.582$, $p < 0.001$) and cultural capital ($\beta = 0.334$, $t = 4.731$, $p < 0.001$). Therefore, H3a, H3b and H3c were supported.

Table 2 The measurement model assessment result

	Cronbach's alpha	CR	AVE	Inner VIF	Fornell-Larcker criterion				
					1	2	3	4	5
1. CDL	0.840	0.886	0.609	1.279	0.780				
2. Scholastic capital	0.866	0.895	0.517	1.944	0.350	0.719			
3. Social capital	0.837	0.884	0.604	1.659	0.326	0.574	0.777		
4. Cultural capital	0.769	0.852	0.591	1.802	0.334	0.623	0.326	0.769	
5. SPE	0.916	0.935	0.705	1.000	0.018	0.555	0.473	0.547	0.840

Hypotheses 4a, ab and 4c focused on the mediating effect of human capital on the relationship between CDL and SPE. To test this mediating effect, we followed the procedure developed by Preacher et al. (2007), which emphasizes the use of indirect effects, to demonstrate the mediation analysis. The results presented in Table 3 indicate that the indirect effect of CDL on SPE via scholastic capital was significant ($\beta = 0.093$, $t = 3.568$, $p < 0.001$). Thus, Hypothesis 4a was supported. Exhibiting the same pattern, the indirect effect of CDL on SPE via cultural capital was also significant ($\beta = 0.083$, $t = 2.911$, $p < 0.001$). Thus, Hypothesis 4c was supported. In contrast, the indirect effect of CDL on SPE via social capital SPE was nonsignificant ($\beta = 0.083$, $t = 1.611$, $p = 0.107$). Therefore, Hypothesis 4b was not supported.

Discussion and conclusion

This study confirmed that CDL positively affects SPE over time. This result is consistent with the proposed conceptual model and the conclusions of previous studies (Bridgstock et al., 2019; Pitan, 2016). The findings imply that CDL is important for students with respect to enhancing their perceived employability. By engaging in CDL, students can develop clear directions for their career paths and seek out information regarding the labour market and the education system, including information concerning the qualifications that they will require for their occupations.

This study found that scholastic capital and cultural capital play mediating roles in the relationship between CDL and SPE. This finding is potentially the result of students' belief that 'extracurricular activities' and 'hobbies' are vital elements that they want to display in their applications to signal their capabilities to potential employers (Clark et al., 2015). Thus, they are motivated to invest their time and effort in these activities with the expectation of enhancing their self-confidence, self-awareness and professional skills (Clark et al., 2015; Jackson & Bridgstock, 2021). Previous studies have shown that extracurricular and leisure activities, in which students invest substantially to develop their personal resources, can lead to higher SPE (Jackson & Bridgstock, 2021; Nimmi & Donald, 2022). Our findings imply that when students' understanding and perceptions of the requirements of the employment market are acquired via CDL, they are more prone to invest in their academic education, extracurricular activities and cultural activities. Accordingly, their scholastic capital and cultural capital increase, thereby favourably affecting their perceived employability (Caballero et al., 2021; Donald et al., 2019).

Surprisingly, social capital, which has been proven to have an impact on SPE in previous studies (Caballero et al., 2021; Tomlinson & Anderson, 2021), was not found to mediate the relationship between CDL and SPE. To explain this result, we call attention to the extant literature (e.g., Byrne, 2022; Holmes, 2013), which has considered three aspects of graduate employability: 'possession', 'position' and 'process'. 'Possession' refers to the skills and attributes that a student has; 'position' involves social positioning and status; and 'process' emphasizes the degree to which it is important to students that they 'act in ways that lead others to ascribe to them the identity of being a person worthy of being employed' (Holmes, 2013, p. 549). It can thus be seen that, although CDL might offer networks to students, students might fail to utilize and convert this capital into employment-related benefits. This issue affects not only students but also many other job seekers (Trimble & Kmec, 2011). This finding complements the work of Batistic and Tymon (2017),

Table 3 Results of hypotheses testing

Hypothesis	Path	Coeff	STDV	t-value	p-value	R^2	f^2	Q^2	Decision
	Age—> SPE	−0.014	0.033	0.412	0.680				
	Gender—> SPE	0.181	0.040	4.486	0.000				
	Part-time—> SPE	0.027	0.037	0.736	0.462				
	Internship—> SPE	−0.012	0.040	0.299	0.765				
	English proficiency—> SPE	0.099	0.037	2.641	0.008				
	Extra-curricular—> SPE	−0.024	0.040	0.595	0.552				
H1	CDL—> SPE	0.234	0.053	4.453	0.000	0.503	0.086	0.333	Supported
H2a	Scholastic capital—> SPE	0.266	0.066	4.036	0.000		0.073		Supported
H2b	Social capital—> SPE	0.117	0.061	1.929	0.054		0.017		*Marginally supported*
H2c	Cultural capital—> SPE	0.249	0.066	3.778	0.000		0.069		Supported
H3a	CDL—> Scholastic capital	0.350	0.060	5.791	0.000	0.122	0.139	0.058	Supported
H3b	CDL—> Social capital	0.326	0.071	4.583	0.000	0.106	0.119	0.060	Supported
H3c	CDL—> Cultural capital	0.334	0.071	4.731	0.000	0.111	0.125	0.058	Supported
H4a	CDL—> Scholastic capital—> SPE	0.093	0.026	3.568	0.000				Supported
H4b	CDL—> Social capital—> SPE	0.038	0.024	1.611	0.107				*Not supported*
H4c	CDL—> Cultural capital—> SPE	0.083	0.029	2.911	0.004				Supported

reinforcing the claim that students tend to increase SPE when faced with a combination of strategic exploitative and general networking behaviour.

Regarding English language proficiency, its positive influence on SPE highlights the importance of students being able to improve this capability adequately. In the context of globalization and the 4.0 era, English serves as a bridge that connects an individual to the rest of the world. The ability to use foreign languages in general and English in particular is also a requirement for recruitment in some contemporary professions. The higher the student's level of English language proficiency is, the greater the accompanying enhancement of SPE (Nghia et al., 2019). Both schools and students should therefore develop a specific agenda to improve students' English-language proficiency with the aim of increasing their chances of finding employment upon graduation.

By exploring this topic beyond the level of direct relationships, this study enriches our understanding of the mechanisms underlying the effect of CDL on SPE via scholastic capital and cultural capital. This study also broadens the literature on CDL and human capital theory in relation to employability. In other words, CDL acts as an advisor, educator and source of reflection for students so that they can invest appropriately in their knowledge, skills and cultural activities, which are then converted into scholastic capital and cultural capital, thus enhancing their employability. This research also responds to the call of recent studies conducted in a similar context (e.g., Caballero et al., 2021) by contributing an investigation aimed at improving our understanding of SPE. Understanding undergraduates' self-perception of graduate employability is essential to mitigate the effects of a potential mismatch between their perceptions and the perceptions of other stakeholders (Donald et al., 2019).

This study has several practical implications. First, HE institutions should increase their communication with students regarding the significance of CDL. The more that students recognize the effects of CDL on their future careers, the greater their belief in their future employability. Developing students' career interests beyond the level of asking them to reflect on their human capital could assist them in using their time at university to develop their professional career identities (Meijers & Kuijpers, 2014). Second, educators should educate students regarding the ways in which they can translate their personal capital into values that are beneficial for their employment. Rather than separating knowledge and skills, CDL develops human capital that is necessary not only for an individual's career but also in life in general. Third, HE institutions must improve the effectiveness of CDL by offering and incorporating a wide range of supplementary activities, such as university-based learning activities, work-integrated learning or extracurricular activities featuring mentoring using portfolios or other reflective tools (Goldfinch & Hughes, 2007), as well as by improving the quality of career advice services (Donald et al., 2018). In addition to offering these activities, universities should ensure that such activities are accessible to all groups of students (Jackson & Bridgstock, 2021). From the student perspective, they should participate actively in CDL activities, including by researching the labour market, listening to employers regarding job requirements and opportunities and participating in work-integrated learning (Buckholtz & Donald, 2022; Pitan, 2016).

This study faces several limitations. First, the study was based on a sample that was limited to one country, which restricts the generalizability of the findings. This limitation highlights the importance of future work featuring more diverse samples as well as the incorporation of cultural factors into the research model. Second, the boundary conditions of the baseline relationship between CDL and SPE were not investigated in this study. Third, this study explored employability only from the perspective of students. Future

studies should examine this topic from different perspectives, such as those of educational institutions and employers.

Declarations

Conflict of interest The authors declare no competing interests.

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