

Article

Effect of Deep Learning Approach on Career Self-Efficacy: Using Off-Campus Internships of Hospitality College Students as an Example

Chung-Jen Wang  and Hsin-Yun Hsieh *

Department of Hotel and Restaurant Management, National Pingtung University of Science and Technology, Shufu Road, Neipu, Pingtung 912301, Taiwan; wchungzen@gmail.com

* Correspondence: sy2es93060@gmail.com

Abstract: Off-campus internships are among the policies implemented over the years to reduce the academic gap in the hospitality industry. Additionally, career decision making is unavoidable for college students, who can use different learning strategies in internships to gain knowledge beyond textbooks and determine their future direction. Our research aims to explore the mediating role of self-regulated learning in the relationship between deep learning approach (DLA) in hospitality internships and career self-efficacy. Moreover, it uses cognitive engagement as a moderator to explore the relationships between the three constructs. Data are collected through stratified sampling from hospitality college students in Taiwan who completed off-campus internships. Descriptive statistics are employed, and confirmatory factor analysis and structural equation modeling are conducted to analyze the data. Results indicate the following: (1) DLA has a positive influence on self-regulated learning. (2) Self-regulated learning has a positive influence on career self-efficacy. (3) DLA has a positive influence on career self-efficacy. (4) Self-regulated learning mediates the effect of DLA on career self-efficacy. (5) Cognitive engagement moderates the effect of DLA and self-regulated learning on career self-efficacy. Theoretical and practical implications are also discussed.

Keywords: deep learning approach; self-regulated learning; career self-efficacy; cognitive engagement; hospitality; sustainable growth



Citation: Wang, C.-J.; Hsieh, H.-Y. Effect of Deep Learning Approach on Career Self-Efficacy: Using Off-Campus Internships of Hospitality College Students as an Example. *Sustainability* **2022**, *14*, 7594. <https://doi.org/10.3390/su14137594>

Academic Editors: Marc A. Rosen and Amir Mosavi

Received: 2 February 2022

Accepted: 20 June 2022

Published: 22 June 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Hospitality education is defined as a multidisciplinary field combining various disciplines [1]. The goal of hospitality education is to enable students to develop relevant abilities for their career choices and enhance employability [2–4]. Thus, self-integration and critical thinking skills are necessary for students to face different environments and situations. Marton and Säljö [5] used deep learning to represent a learning strategy with critical thinking and reflective ability. Different from deep learning autoencoder, or deep learning definition in data science, which focus on data science in a machine learning algorithms to reach the way near functioned of the human brain for tasks and visual object recognition [6–8], this research on deep learning mostly focused on teacher-student interaction [9,10], and curriculum model [11,12] for learning strategies. In other words, our research plans to extend the deep learning approach to hospitality education to enable individuals to internalize their knowledge and skills. Moreover, deep learning approach is essential because it represents an integrated and reflective mode of thinking. Compared with surface-learning students, deep-learning students have more critical thinking and reflection abilities. In terms of performance and future achievements, students who use a deep learning approach (DLA) are superior to those who employ surface learning [13]. Furthermore, Biggs [14] proposed surface approach, deep approach and achievement approach. Surface and deep approach express the two ways of learning styles. Surface approach shows the basic effort to achieve goals and rote learning strategies. By contrast, deep

approach is meaningful, shows the intrinsic study, and is capable of creating a connection between prior and new knowledge. On the other hand, achieving approach represents the method that students used to organize and the motive of competition.

In addition, learning belongs to the process of personal knowledge construction and is proven to be related to self-regulation [15]. Self-regulation, which has long been a research hotspot, was first proposed by Bandura [16] through a social cognitive approach. Subsequently, Zimmerman [17] developed three processes of self-regulated learning, namely, performance phase, self-reflection phase, and forethought phase. Individuals achieve cyclic progress through continuous correction and goal pursuit [18]. Numerous studies have been conducted on self-regulated learning, self-efficacy, learning strategies, and cognition in education [19–22], and they show the close relationship between self-regulation and learning and its effect on learning self-efficacy. As an internal motivation, career self-efficacy can embolden individuals to overcome and bear failures when facing career choices [23,24]. To achieve the goal of education to develop relevant abilities to face their career choices. Research topics related to learning strategies and grades or achievements are widely discussed [25–29]. The importance of learning strategies is connected to the learning process. In learning, students use a variety of skills to absorb knowledge, including self-regulation skills such as strategic use or time management [30,31]. Furthermore, owing to the different requirements or ways of instructors to evaluate grades, students must change their strategies to absorb the content of a course [32–34]. The importance of critical thinking ability to the higher-education learning of students is valued by education systems around the world. This ability can help students adapt to different environments and acquire skills for lifelong learning [35]. Thus, the importance of the DLA is obvious. Additionally, learning is an uninterrupted process, and lifelong learning can promote the continuous progress of an individual. Furthermore, self-regulated learning is likewise important in education or employment [36–39]. Self-regulation has been one of the most important theories from the perspective of social cognitive theory for the past 20 years [40]. It is a cyclical process involving three behavioral phases based on an individual's internal motivation (i.e., forethought phase, performance phase, and self-reflection phase) [41]. Students can control their behaviors and learning goals through self-regulated learning, which is a process of actively acquiring knowledge [42,43]. Meanwhile, self-regulation may be affected by confidence [44], which can be expressed in terms of self-efficacy [45]. Hackett and Betz [23] used career self-efficacy to describe an individual's confidence to face future career choices. Career self-efficacy is also proven to affect career exploration [46]. Individuals with high career self-efficacy can learn from their failures and will work hard to achieve their career goals [47,48].

In summary, this research plans to extend the DLA to hospitality education to enable individuals to internalize their knowledge and skills. We thus propose that DLA may have a positive effect on career self-efficacy, which enables students to improve their grades and obtain a series of positive feedback. In addition, since a high level of self-regulated learning can improve performance [21,49–52], we propose that self-regulated learning may have a positive impact on students' career self-efficacy, which can help them attain positive motivations to face their uncertain future [53–56]. Students with high self-regulated learning can use their skills flexibly and set high goals [22,57]. The positive influence of self-regulated learning can be used not only in school but also in career decisions. Therefore, our study also plans to discover the mediating role of self-regulated learning in the relationship between DLA and career self-efficacy. According to Corno and Mandinach [58] and Sesmiyanti et al. [59], cognitive engagement indicates students' degree of commitment to tasks or challenges and is a type of motivation encouraging students to improve. Therefore, our study also plans to explore whether cognitive engagement is a critical moderator in the relationship between the three other variables. Cognitive engagement can affect personal success because it is an intrinsic motivation [60,61]. Specifically, self-regulated learning, as a learning cycle, can help students engage in lifelong learning, and cognitive engagement, as an internal mechanism, will positively affect the learning, self-regulation, and career self-

efficacy of students. Finally, in our study, with hospitality college students who completed an internship as the research object, we extend career self-efficacy to hospitality education and investigate the DLA for off-campus internships using self-regulated learning as a mediator and cognitive engagement as a moderator in the effect of DLA and self-regulated learning on career self-efficacy for further discussion.

2. Conceptual Framework and Hypothesis Development

2.1. Relationship between Deep Learning Approach and Self-Regulated Learning

Learning is a process of knowledge construction, and learning strategy can be defined as the information-processing method of a learner to gain new knowledge and skills while learning [62,63]. The DLA represents an integrated and reflective mode of thinking. It is influenced by many factors, the most important of which are the learners' motivation and engagement with the topic [64,65]. The concept of learning approach was originated by Marton and Säljö [5]. Learning approach is composed of learning motive and learning strategy. Compared with the taxonomy of educational objectives from Bloom, DLA covers Level 5 (synthesis) and Level 6 (evaluation). On the other hand, surface learning involves Level 1 (knowledge) and Level 2 (comprehension) [66]. It is proposed that the individual's level of DLA can predict the level of Bloom's taxonomy; specifically, individuals with a high degree of DLA can have correct answers to Bloom's high-level questions [67]. Students who use DLA outperform those who use surface learning and have superior ability to integrate and deliver messages [68]. Scholars agree that the use of DLA can lead to high-quality effective learning [13]. DLA can provide more benefits than surface learning in terms of the absorption, learning path, class performance, problem solving, and learning interest of learners [13,68–71]. Furthermore, from the perspective of learning, self-regulation is a process of cyclical feedback [51,52,72]. In the process of learning, self-regulation is considered a learning cycle. Learners formulate behavior standards based on personal goals and will enhance or change their behavior based on rewards or punishments. Self-regulation, learning methods, and cognitive strategies are interrelated [15]. Students with self-regulation abilities will have a deep understanding of complex topics [20]. Thus, self-regulated learning is important because it enables students to manage their learning process, thereby gaining an improved state of learning to progress or pursue their goals. In off-campus internships, students typically choose their internship units, such as restaurants, hotels, bakeries, or banquets. Although the skills necessary in different fields vary, DLA and self-regulated learning, as an attitude and a strategy, can help students adjust to any environment. To extend the DLA to hospitality research, we propose the following hypothesis:

Hypothesis 1 (H1). *Deep learning approach has a positive influence on self-regulated learning.*

2.2. Relationship between Self-Regulated Learning and Career Self-Efficacy

Career self-efficacy involves the self-assessment of one's abilities when choosing a career and the confidence to complete tasks, which are also known as performance and persistence in one's career choice [23,24,73,74]. In the process of implementation, career-related attitudes and actions, such as behaviors and educational and occupational choices, can be considered as career self-efficacy [75]. Lack of career self-efficacy may induce a student to give up, which may lead to failure and, ultimately, poor career decisions. Conversely, individuals with high career self-efficacy will work hard to successfully achieve their life goals owing to their self-confidence [47,48,76].

In recent years, studies on career self-efficacy in the field of hospitality have increased. Off-campus internships exert a significant positive impact on career self-efficacy [56], which is consistent with the findings of previous research [77,78], and a positive impact on professional preparation. Career self-efficacy is considered to be an effective predictor of hospitality students' commitment to their career choices [79]. In higher education hospitality programs, off-campus internships are necessary as they can provide students with actual work experience. Internships can develop students' career self-efficacy, which

can affect their lives beyond the hospitality industry. If an individual maintains their positive and continuous development, then they will improve their career self-efficacy [80]. As an intrinsic individual motivation, self-regulated learning is typically discussed with self-efficacy. Although it was determined that self-regulated learning has a positive effect on self-efficacy [81–84], hospitality research rarely discussed the relationship between career self-efficacy and self-regulated learning. Hence, we propose the following hypothesis:

Hypothesis 2 (H2). *Self-regulated learning has a positive influence on career self-efficacy.*

2.3. Relationship between Deep Learning Approach and Career Self-Efficacy

Guerriero and Révai [69] pointed out the importance of the DLA. The changing environment and society urge students to develop abilities to solve problems and adapt to different situations. The dynamic nature of the hospitality industry increases students' difficulties in making career decisions [85], thereby emphasizing the importance of DLA, which can help students apply their knowledge to actual problems. The United States National Research Council [86] identified the DLA as an important approach promoting career and life development. Critical thinking, logical management, metacognition, and cooperation can enable individuals to perform effectively in life and in the workplace [87]. DLA can help learners convert experiences and knowledge in a complex society [50]. When hospitality students participate in off-campus internships, they must apply their knowledge flexibly to problems in various types of emergency situations. The conversion and application of knowledge are inseparable from the DLA. Students can gain a sense of accomplishment in solving problems successfully, which will be appreciated by their supervisors and develop their self-confidence. Tsai et al. [56] proposed that off-campus internships have a significant positive impact on career self-efficacy. However, whether students who use the DLA will develop high career self-efficacy to face their future career choices remains unknown. Therefore, we propose the following hypothesis:

Hypothesis 3 (H3). *Deep learning approach has a positive influence on career self-efficacy.*

2.4. Mediating Effect of Self-Regulated Learning

Self-regulated learning is a research hotspot, and promises fruitful results for both teachers and students [88]. Self-regulation is defined as the belief or ability of an individual to work toward an ideal goal [89,90] and is generally considered to mediate individuals and goals. Whether or not individuals achieve their goals is related to their adjustment and control abilities, including thinking, acting, adjusting, monitoring, and inspection. Thus, behaviors must be changed according to the environment to achieve goals. In previous studies, numerous scholars used self-regulation as a mediator. Dias and Cadime [91] used self-regulation as a mediator to examine interpersonal relationships. Individuals' cognitive strategies, such as observation, monitoring, and behavioral change, play a role in self-regulation [92]. Self-regulation is relevant to goal achievement because it can affect motivation to accomplish a goal. Zimmerman and Kitsantas [93] confirmed that self-regulation can positively predict academic performance. In education, the self-regulation cycle is an important factor. Self-regulation can affect students' motivation, behavior, results, and self-efficacy caused by results.

Choosing a career to begin the next stage of life is a daunting task in which various issues must be considered, such as personal abilities, life goals, expectations, and career preferences [94]. DLA can enable students to use their knowledge, including knowledge integration, critical thinking, and skills application, to face and accept challenges [50]. Schraw et al. [55] argued that self-regulation can enable individuals to use resources and skills flexibly to achieve their goals. Self-observation, evaluation, and supervision are essential in setting and pursuing goals. Self-regulation can enable individuals to pursue their goals actively. Hence, we propose that the DLA positively and significantly impacts self-efficacy and that self-regulated learning, as a mediator, can affect self-efficacy.

Generally, self-regulation, as a cycle, emphasizes self-monitoring and improves goal achievement [17,49,51,52]. Individuals with self-regulation abilities will have positive motivations to pursue their career goals. Self-regulation can also improve individuals' practices in the face of difficulties [53,55]. In terms of self-education, students with high self-regulation can choose relevant learning strategies, set high learning goals, and effectively absorb knowledge [20–22].

Hypothesis 4 (H4). *Self-regulated learning mediates the relationship between deep learning approach and career self-efficacy.*

2.5. Moderating Effect of Cognitive Engagement

As a subtype of student engagement in academic work, cognitive engagement involves the psychological investment and effort of individuals [95,96]. The level of cognitive engagement affects the degree of control over academic work [97]. Theory indicates that course value perception and engagement lead to the DLA. Self-regulated learning strategies and the DLA can improve goal achievement [98]. Cognitive engagement is one of the most important and widely researched factors affecting the course experience of students [99]. Greene [100] examined the concept of self-regulated learning and cognitive engagement and the two levels of cognitive engagement. Furthermore, the author developed a scale consisting of self-regulated learning, DLA, and surface learning strategies to evaluate the cognitive engagement of students in solving problems. Cognitive engagement generally revolves around the psychological investment of students in academic tasks, such as psychological effort [101]. According to Drysdale and McBeath [61], cognitive engagement is an essential factor in transitioning from school to the workplace, thereby impacting students' success. Cheng [60] likewise confirmed that cognitive engagement, as a mediator, will influence the effect of self-efficacy and learning motivation on academic achievement in the hospitality curriculum. Motivation encourages students to think and improve when facing challenges and tasks [59]. Previous research focused mostly on the effect of cognitive engagement on academic performance. Therefore, our study determines whether cognitive engagement will moderate the relationship between DLA and self-regulated learning, between self-regulated learning and career self-efficacy, and between DLA and career self-efficacy in the hospitality industry. We thus propose the following hypotheses:

Hypothesis 5 (H5). *Cognitive engagement positively moderates the relationship between deep learning approach and self-regulated learning.*

Hypothesis 6 (H6). *Cognitive engagement positively moderates the relationship between self-regulated learning and career self-efficacy.*

Hypothesis 7 (H7). *Cognitive engagement positively moderates the relationship between deep learning approach and career self-efficacy.*

3. Methodology

3.1. Research Framework

We established a model to verify the hypotheses. Specifically, DLA will influence the mediator, namely, self-regulated learning, and lead to career self-efficacy. We proposed the research framework to determine whether self-regulated learning mediates the effect of DLA on career self-efficacy. Furthermore, we used cognitive engagement as a moderator to examine the relationship between DLA and self-regulated learning, between self-regulated learning and career self-efficacy, and between DLA and career self-efficacy (Figure 1).

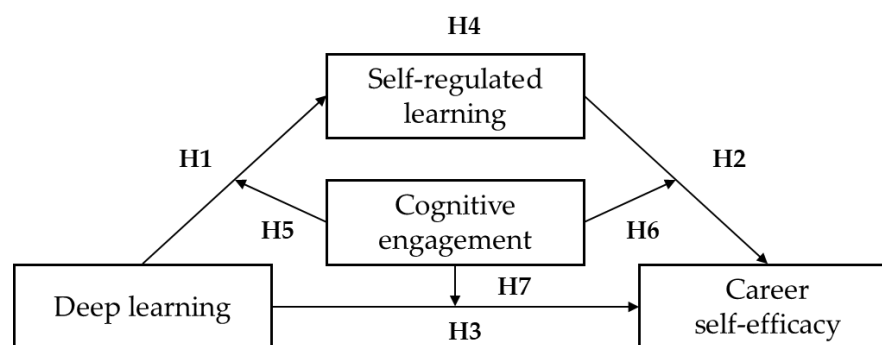


Figure 1. Research framework.

3.2. Pilot Test

In our study, the pilot test can support the identified elements of the instruments [102]. Although the original survey items of DLA, self-regulated learning, career decision-making self-efficacy, and cognitive engagement have all provided adequate reliability and validity of survey items [78,103–105], we also conducted the pilot test to support the feasibility. To ensure the accuracy and increase the validity of the instruments, we conducted a pilot test to evaluate the instruments before data collection. We also discussed our survey items with two experts with more than 10 years of experience in the industry and teaching experience of hospitality education in a university to ensure the quality of our survey. The sample for the pilot test comprised students who completed an internship in a hospitality unit in Taiwan. We selected 49 students for the pilot test. Although we obtained a high coefficient (0.88 to 0.91) for each construct, Bryant and Yarnold [106] suggested that the factor loading should be higher than 0.5. Hence, we omitted two items from the career self-efficacy measure.

3.3. Sample Frame and Data Collection

In our research, we used stratified sampling to collect the data, which we divided into northern, eastern, western, and southern Taiwan. All the participants are students who had completed the internship. They were requested to fill out the questionnaire within two months after their internship. We used email to contact and recruit the participants and collected data through a survey prepared in Google Forms. Furthermore, Potthoff [107] suggested that the size of the sample should be approximately 10 times larger than the number of items but not less than 300. Hence, we distributed 542 survey questionnaires and received 481 valid questionnaires, reaching an 88.7% response rate.

3.4. Construct Measurement

In our study, we adopted a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). First, we used the scale developed by Biggs [103] to measure the DLA. A sample item is, “I find that at times, studying gives me a feeling of deep personal satisfaction”. The Cronbach’s alpha of the scale was 0.88. Second, we measured self-regulated learning using the scale developed by Lee and Tsai [108]. The Cronbach’s alpha of the scale was 0.90, and a sample item is, “I will set my own learning goals”. Third, we measured career self-efficacy with the Career Decision-making Self-efficacy Scale Short Form [104]. The Cronbach’s alpha of the scale was 0.91, and a sample item is, “I can make a plan of my goals for the next five years”. Finally, we adopted the scale developed by Miller [109] to measure cognitive engagement. The Cronbach’s alpha of the scale is 0.81 and a sample item is, “I find that studying academic topics can, at times, be as exciting as reading a good novel or watching a movie”.

3.5. Analytic Approach

We adopted SPSS 24.0 and AMOS 24.0 for the data screening and questionnaire analysis. First, we analyzed the demographic profile of the respondents to obtain their personal

information. Second, we used structural equation modeling to examine all the hypotheses via maximum-likelihood estimation. Third, we employed the two-step approach suggested by Anderson and Gerbing [110]. Fourth, we conducted confirmatory factor analysis (CFA) to evaluate whether the measurements are appropriate. For the CFA, we conducted a goodness-of-fit test, convergent validity test, and discriminant validity test before performing the path analysis. To measure the model's goodness of fit, we evaluated the overall model fit criteria using the overall chi-square value (χ^2), chi-square value (χ^2/df), comparative fit index (CFI), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), standardized root means square residual (SRMR), non-normed fit index (NNFI), and root mean square error of approximation (RMSEA). Fifth, we performed path analysis to examine whether the data were consistent with the model and to test the hypotheses. Sixth, we confirmed the mediating effect using the bootstrap approach based on 5000 bootstrap samples, with a 95% confidence interval (CI). Finally, we regressed the dependent variable on the control variables and moderating variable to examine the main effects.

4. Results

4.1. Demographic Statistics

The demographic profile of the respondents included gender, age, education level, internship unit, and internship location in Table 1. Among the respondents ($n = 481$), 64% were female and 35.7% were male hospitality students. Most of the participants were between 21 and 30 years of age (95.6%). In terms of their education level, 96% of the participants were at the tertiary level. The participants who completed a hotel internship (53.2%) and those who completed a restaurant internship (39.5%) accounted for the majority. The internship location was distributed across the following regions in descending order: northern Taiwan (43.4%), western Taiwan (22.7%), eastern Taiwan (20.6%), southern Taiwan (11%), and others (2.3%).

Table 1. Respondents' profile.

Characteristics ($n = 481$)	Frequency (s)	Percentage (%)
Gender		
Female	309	64.2
Male	172	35.7
Age		
20 years or below	0	0
21–30 years	460	95.6
31–40 years	14	2.9
41–50 years	7	1.5
51–60 years	0	0
61 years or above	0	0
Education level		
Lower secondary	0	0
Upper secondary	4	.8
Tertiary	462	96
Master's degree or higher	15	3.1
Internship unit		
Hotel	256	53.2
Restaurant	190	39.5
Others	35	7.2
Internship location		
Northern Taiwan	209	43.4
Eastern Taiwan	99	20.6
Western Taiwan	109	22.7
Southern Taiwan	53	11

4.2. CFA

In social science research, CFA is generally conducted in Table 2 to examine the model fit via four methods, namely, (1) normality and offending estimate test, (2) goodness-of-fit test, (3) convergent validity, and (4) discriminant validity.

Table 2. Summary of model goodness-of-fit test.

Construct	χ^2	χ^2/df	GFI	AGFI	SRMR	CFI	NNFI	RMSEA
Deep learning approach	2.83	1.41	0.99	0.99	0.01	0.99	0.99	0.03
Self-regulated learning	22.58	2.51	0.98	0.96	0.02	0.99	0.98	0.06
Career self-efficacy	18	3.9	0.95	0.91	0.03	0.97	0.96	0.08
Overall model	550.68	3.7	0.89	0.85	0.06	0.93	0.92	0.08

Table 3 shows the discriminant validity results, which are used to verify whether a statistical difference exists in the correlation between two variables. We conducted chi-square difference tests to examine the discriminant validity of the constructs. First, we conducted 2-D CFA for each pair of constructs. Second, we collapsed all the items into a single-factor CFA model. If the single-factor CFA model demonstrates deterioration compared with the original constructs with two dimensions, then the discriminant validity is established [110]. As all the chi-square difference test results were significant ($\Delta\chi^2 > 6.64$, $p < 0.01$), discriminant validity was observed between the constructs.

Table 3. Discriminant validity with chi-square difference.

	1	2
Deep learning approach		
Self-regulated learning	293.71	
Career self-efficacy	382.04	464.54

Note: (1) Chi-square difference tests; $n = 481$; (2) $\Delta\chi^2 > 6.64$, $p < 0.01$.

Convergent validity refers to tests that have similar constructs should be highly correlated. Fornell and Larcker [111] suggested that average variance extracted (AVE) should exceed the 0.50 threshold values and that composite reliability (CR) has to be higher than 0.60. As shown in Table 4, the CR of each construct indicated the score to be around 0.88 to 0.93. Moreover, the AVE of all constructions ranged from 0.57 to 0.59, exceeding the 0.50 AVE threshold value [112]. Thus, the convergent validity of the study was acceptable.

Table 4. Results of convergent validity test.

Constructs	CR	AVE
Deep learning approach	0.85	0.59
Self-regulated learning	0.89	0.57
Career self-efficacy	0.92	0.57

The analysis provides support to the way the investigation was conducted. Hair [113] suggested that the square root AVE among each construct must be higher than the correlation, and the total number of qualified correlation values of each construct must at least account for 75%. Table 5 shows the total estimated correlations of variables resulting in a discriminant validity lower than the square root AVE in each construct. Thus, the proposed model demonstrated good significance and suitability for path analysis.

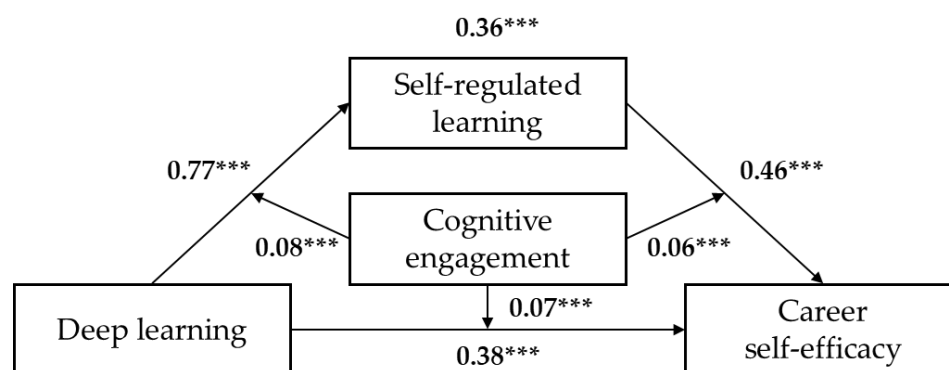
Table 5. Mean, standard deviation, and correlation coefficient.

	Mean	S.D.	1	2	3
Deep learning approach	5.29	0.85	(0.74)		
Self-regulated learning	5.49	0.77	0.68 **	(0.74)	
Career self-efficacy	5.03	0.91	0.71 **	0.72 **	(0.75)

Note: Number in the brackets represent the square root of AVE. ** $p < 0.01$.

4.3. Path Analysis

Path analysis is a type of multiple regression statistical analysis used to evaluate the magnitude and significance of the causal connections between variables. The results showed that DLA had a significant positive effect on self-regulated learning (path coefficient = 0.77, $p < 0.001$). Therefore, H1 was confirmed. The results also revealed that self-regulated learning had a significant direct effect on career self-efficacy (path coefficient = 0.46, $p < 0.001$) and that DLA had a significant positive effect on career self-efficacy (path coefficient = 0.38, $p < 0.001$). Hence, H2 and H3 were confirmed. The details of the standardized direct, indirect, and total effects of the hypothesized model are presented in Figure 2 and Table 6.

**Figure 2.** Path analysis; *** $p < 0.001$.**Table 6.** Moderating effect and standardized direct, indirect, and total effects.

Hypothesis	Path	Estimate	p-Value	Percentile 95% CI [Lower, Upper]	Result
H1	DLA→SR	0.77	$p < 0.001$	[0.53, 0.81]	Supported
H2	SR→CE	0.46	$p < 0.001$	[0.33, 0.69]	Supported
H3	DLA→CE	0.38	$p < 0.001$	[0.20, 0.52]	Supported
H4	DLA→SR→CE	0.36	$p < 0.001$	[0.24, 0.50]	Supported
H5	DLA × CG→SR	0.08	$p < 0.001$	[0.06, 0.09]	Supported
H6	SR × CG→CE	0.06	$p < 0.001$	[0.04, 0.09]	Supported
H7	DLA × CG→CE	0.07	$p < 0.001$	[0.09, 0.06]	Supported

DLA = deep learning approach in hospitality internships, SR = self-regulated learning, CE = career self-efficacy, CG = cognitive engagement.

Furthermore, the analysis investigated the indirect effect of DLA on career self-efficacy via self-regulated learning. We conducted percentile bootstrapping and bias-corrected percentile bootstrapping with 5000 bootstrap samples at the 95% CI level. The results showed that the indirect path of DLA affected career self-efficacy, and self-regulated learning had a mediating role in the relationship between DLA and career self-efficacy ($\beta = 0.36$, $p < 0.001$). The lower and upper bounds of the 95% CI did not comprise 0 (lower bound CI = 0.24, upper bound CI = 0.50). Therefore, H4 was supported. Meanwhile, for H5, we used cognitive engagement as a moderator to investigate the relationship between DLA and self-regulated learning. The results indicated that cognitive engagement had a positive effect on the relationship between DLA and self-regulated learning. When moderated by cognitive engagement, self-regulated learning increased rapidly as DLA increased. At high

levels of cognitive engagement, self-regulated learning increased rapidly as DLA increased (Figure 3).

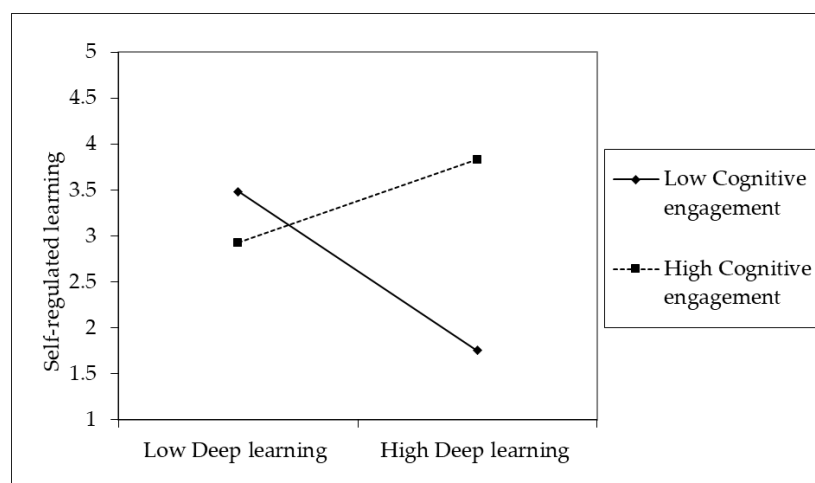


Figure 3. Moderating effect of cognitive engagement on the relationship between deep learning approach and self-regulated learning.

By contrast, for H6 of the crossed lines, it can be seen the interaction of self-regulated learning and career self-efficacy was affected by cognitive engagement (Figure 4). When students have a high level of cognitive engagement, their career self-efficacy will improve as their self-regulated learning increases (refer to Table 6 for details). Finally, in terms of the interaction effect for H7, the relationship between DLA and career self-efficacy was based on cognitive engagement. The effect of DLA on career self-efficacy was positive when cognitive engagement was high. The plot likewise shows that career self-efficacy is high with DLA when cognitive engagement is high. Conversely, career self-efficacy is low with DLA when cognitive engagement is low (Figure 5).



Figure 4. Moderating effect of cognitive engagement on the relationship between self-regulated learning and career self-efficacy.

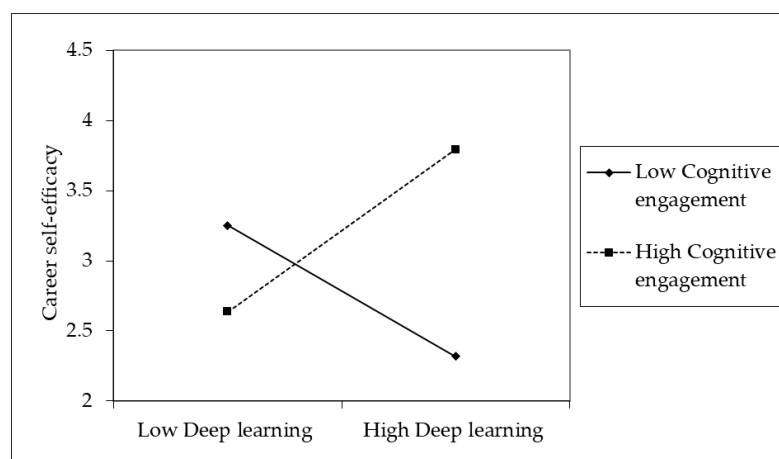


Figure 5. Moderating effect of cognitive engagement on the relationship between deep learning approach and career self-efficacy.

5. Discussion

5.1. Theoretical Implications

Our research extends the DLA of Duff [114] to hospitality education. DLA can be explained as an ability or attitude. In the dynamic hospitality industry, individuals must internalize their knowledge and skills. Moreover, DLA has a positive effect on career self-efficacy. Therefore, when students use the DLA, they can improve their grades and obtain a series of positive feedback. Self-regulation has long been a research hotspot as well. Our study determines that self-regulated learning mediates the relationship between DLA and career self-efficacy. According to previous studies, self-regulated learning, as a cyclical process, can help individuals achieve continuous progress. A high level of self-regulated learning can improve performance [21,49–52]. For internships in the dynamic domain of hospitality, self-regulated learning will have a positive impact on students' career self-efficacy, which can help them attain positive motivations to face their uncertain future [53–56]. Students with high self-regulated learning can use their skills flexibly and set high goals [22,57]. The positive influence of self-regulated learning can be used not only in school but also in hospitality internships.

Moreover, this research confirms that cognitive engagement is a critical moderator in the relationship between the three other variables. As cognitive engagement is an intrinsic motivation, it can affect personal success [60,61]. Specifically, self-regulated learning, as a learning cycle, can help students engage in lifelong learning, and cognitive engagement, as an internal mechanism, will positively affect the learning, self-regulation, and career self-efficacy of students. The results of our study accord with those of Corno and Mandinach [58] and Sesmiyanti et al. [59]. Cognitive engagement also indicates students' degree of commitment to tasks or challenges and is a type of motivation encouraging students to improve. The empirical results indicate that the moderating effect of cognitive engagement can influence the indirect relationship between DLA and self-regulated learning. Similarly, the moderating effect of cognitive engagement on the relationship between self-regulated learning and career self-efficacy and between DLA and career self-efficacy is significant. Most importantly, our study extends DLA research to hospitality education as well as proves that the DLA is a key factor in hospitality internships and influences self-regulated learning and career self-efficacy.

5.2. Managerial Implications

Career decisions are necessary in people's lives. Although not everyone will be able to find a suitable career immediately, high career self-efficacy will enable individuals to explore, without fear of failure, until they succeed. Therefore, in teaching, DLA, as an influencing factor, is worthy of attention. Teachers can guide students to develop and use

DLA for continuous development (e.g., encourage students to explore meanings, such as meanings behind ingredients, and replace traditional evaluation methods to motivate students to develop diverse skills). More specifically, teachers can engage in meaningful dialogue with students and critically examine their own teaching. Both outcomes can improve the DLA [115]. Therefore, students can use the DLA in different situations. Problem-based learning (PBL) can also facilitate students' DLA by changing the role of teachers and students. Information exchange and debates on PBL will allow students to acquire meaningful knowledge from their surroundings [116]. Students can also form co-learning groups, which may increase their DLA [117]. Schools can provide students with sufficient information (e.g., pre-departure briefings, senior sisters' experience sharing, etc.) before internships to remind them that positive and negative experiences can improve their efficacy. DLA can increase students' expectations of themselves to enhance their learning motivation and will have a positive impact on their internship experience [118,119].

Moreover, in the arrangement of the course, the current situation of the industry can serve as the main axis for teaching. Hospitality educators link internship or work experience with teaching, which can help students build self-efficacy [120]. If students feel that they have acquired the skills necessary for the workplace from the course, then they will have confidence to join the hospitality industry [121]. For the student, self-regulated learning has a positive impact on their career self-efficacy and mediates the relationship between DLA and career self-efficacy. Students can set and achieve their goals step by step and use the roll planning method in their studies or internships. There are many ways to increase self-regulated learning [36,122–124]. Student independent practice, teacher modeling, and explanation are all effective strategies to encourage students to apply self-regulated learning. Students can better understand the process during the demonstration [125]. Although not every student needs direct instruction to increase self-regulated learning, it has been shown to be an initial strategy to promote more self-regulated learning [126]. With the help of teachers, students can repeatedly think and improve in the learning process and increase their degree of self-regulated learning. Moreover, cognitive engagement has a moderating effect on the relationship between DLA and self-regulated learning, between self-regulated learning and career self-efficacy, and between DLA and career self-efficacy. These findings show that the amount of time and effort students are willing to spend and exert on a task will significantly impact their results. Owing to the volatile nature of the hospitality industry, hospitality students must invest considerable amounts of time to gain experience. Regardless of their talents or abilities, engagement is an integral part of an individual's success.

Lastly, internship units can give interns time to gain new skills in their own way using the DLA to increase their self-regulated learning and career self-efficacy. Specifically, the cycle will have a positive impact on interns or students and will enable them to gain high career self-efficacy from the internship experience. Ultimately, the high career self-efficacy of students will enable them to achieve the objectives of the hospitality internship program.

5.3. Research Limitations and Future Studies

Our study extends the DLA to hospitality internships but is not without certain limitations. This research uses only the DLA to investigate the relationships between the three other constructs. Subsequent research can use and compare different learning methods, as well as link the three other types of engagement, namely, academic engagement, behavioral engagement, and psychological engagement. Furthermore, the long timeframes between internship completion and survey completion could have led to recall bias. Common method variance may impact the results as well, given that the students self-reported their level of DLA, self-regulated learning, career self-efficacy, and cognitive engagement. Future studies can use empirical approaches, such as gathering data on occupation situation or employment rate, to effectively understand practical comprehensively. Lastly, DLA and self-regulated learning may have two-way relationships. The causal relationship between

these two variables can be further investigated, or whether the context of cause and effect will have an impact in different situations can be discussed.

6. Conclusions

The relationship between DLA, self-regulated learning, career self-efficacy, and cognitive engagement was investigated in our research. The results revealed that DLA positively influenced career self-efficacy as mediated by self-regulated learning. The empirical results also indicated that learning was a critical element promoting the career self-efficacy of hospitality students in internships. Furthermore, cognitive engagement, as a moderator, affected the relationship between DLA, self-regulated learning, and career self-efficacy. The results revealed that educators should guide students to use appropriate learning methods and encourage cognitive engagement in internships. The positive effect of an individual's high career self-efficacy is not limited to their academics and can extend to their psychological state in life and sustainable self-development.

Author Contributions: The proposed research framework was conceptualized by C.-J.W. The structure of this study was discussed by C.-J.W. and H.-Y.H. This article was written by H.-Y.H. and C.-J.W. All authors have read and agreed to the published version of the manuscript.

Funding: This research was financially supported by the major research plan of the Ministry of Science and Technology in Taiwan (Grant no. MOST 109-2511-H-020-002-MY3).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data are available upon request due to the participants' privacy.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Horng, J.-S.; Lee, M.-H. Tourism and hospitality higher education in Taiwan: Past, present, and future. *J. Teach. Travel Tour.* **2006**, *5*, 167–196. [\[CrossRef\]](#)
2. Lugosi, P.; Jameson, S. Challenges in hospitality management education: Perspectives from the United Kingdom. *J. Hosp. Tour. Manag.* **2017**, *31*, 163–172. [\[CrossRef\]](#)
3. Stierand, M.; Zizka, L. Reflecting on hospitality management education through a practice lens. *Qual. Assur. Educ.* **2015**, *23*, 353–363. [\[CrossRef\]](#)
4. Whitelaw, P.A.; Wrathall, J. Developing practice oriented undergraduate courses in a quality framework: A case study: Bachelor of event management. *Qual. Assur. Educ.* **2015**, *23*, 395–409. [\[CrossRef\]](#)
5. Marton, F.; Säljö, R. On qualitative differences in learning: I—Outcome and process. *Br. J. Educ. Psychol.* **1976**, *46*, 4–11. [\[CrossRef\]](#)
6. LeCun, Y.; Bengio, Y.; Hinton, G. Deep learning. *Nature* **2015**, *521*, 436–444. [\[CrossRef\]](#)
7. Sultan, H.H.; Salem, N.M.; Al-Atabany, W. Multi-classification of brain tumor images using deep neural network. *IEEE Access* **2019**, *7*, 69215–69225. [\[CrossRef\]](#)
8. Zhou, B.L.; Lapedriza, A.; Khosla, A.; Oliva, A.; Torralba, A. Places: A 10 Million Image Database for Scene Recognition. *IEEE Trans. Pattern Anal. Mach. Intell.* **2018**, *40*, 1452–1464. [\[CrossRef\]](#)
9. Shi, D.; Irwin, D.; Du, P. Linguaging dynamics in interactive lecturing: Exploring an embodied approach to deep learning in L2 higher education contexts. *Classr. Discourse*, 2022; *in press*. [\[CrossRef\]](#)
10. Offir, B.; Lev, Y.; Bezalel, R. Surface and deep learning processes in distance education: Synchronous versus asynchronous systems. *Comput. Educ.* **2008**, *51*, 1172–1183. [\[CrossRef\]](#)
11. Aguiar-Castillo, L.; Clavijo-Rodriguez, A.; Hernández-López, L.; De Saa-Pérez, P.; Pérez-Jiménez, R. Gamification and deep learning approaches in higher education. *J. Hosp. Leis. Sport Tour. Educ.* **2021**, *29*, 100290. [\[CrossRef\]](#)
12. Golightly, A.; Raath, S. Problem-based learning to foster deep learning in preservice geography teacher education. *J. Geogr.* **2015**, *114*, 58–68. [\[CrossRef\]](#)
13. Hall, M.; Ramsay, A.; Raven, J. Changing the learning environment to promote deep learning approaches in first-year accounting students. *Account. Educ.* **2004**, *13*, 489–505. [\[CrossRef\]](#)
14. Biggs, J.B. *Student Approaches to Learning and Studying*. Research Monograph; Australian Council for Educational Research: Hawthorn, Australia, 1987.
15. Heikkilä, A.; Lonka, K. Studying in higher education: Students' approaches to learning, self-regulation, and cognitive strategies. *Stud. High. Educ.* **2006**, *31*, 99–117. [\[CrossRef\]](#)
16. Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychol. Rev.* **1977**, *84*, 191. [\[CrossRef\]](#)

17. Zimmerman, B.J. Attaining self-regulation: A social cognitive perspective. In *Handbook of Self-Regulation*; Elsevier: Amsterdam, The Netherlands, 2000; pp. 13–39.
18. Yan, Z. Self-assessment in the process of self-regulated learning and its relationship with academic achievement. *Assess. Eval. High. Educ.* **2020**, *45*, 224–238. [\[CrossRef\]](#)
19. DiBenedetto, M.K.; Bembenutty, H. Within the pipeline: Self-regulated learning, self-efficacy, and socialization among college students in science courses. *Learn. Individ. Differ.* **2013**, *23*, 218–224. [\[CrossRef\]](#)
20. Greene, J.A.; Azevedo, R. A macro-level analysis of SRL processes and their relations to the acquisition of a sophisticated mental model of a complex system. *Contemp. Educ. Psychol.* **2009**, *34*, 18–29. [\[CrossRef\]](#)
21. Perkins, D. The many faces of constructivism. *Educ. Leadersh.* **1999**, *57*, 6–11.
22. Wang, S.-L.; Wu, P.-Y. The role of feedback and self-efficacy on web-based learning: The social cognitive perspective. *Comput. Educ.* **2008**, *51*, 1589–1598. [\[CrossRef\]](#)
23. Betz, N.E.; Hackett, G. The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *J. Couns. Psychol.* **1981**, *28*, 399. [\[CrossRef\]](#)
24. Lent, R.W.; Hackett, G. Career self-efficacy: Empirical status and future directions. *J. Vocat. Behav.* **1987**, *30*, 347–382. [\[CrossRef\]](#)
25. Chen, M.-L. Influence of grade level on perceptual learning style preferences and language learning strategies of Taiwanese English as a foreign language learners. *Learn. Individ. Differ.* **2009**, *19*, 304–308. [\[CrossRef\]](#)
26. Fuchs, L.S.; Fuchs, D.; Prentice, K.; Burch, M.; Hamlett, C.L.; Owen, R.; Schroeter, K. Enhancing third-grade student's mathematical problem solving with self-regulated learning strategies. *J. Educ. Psychol.* **2003**, *95*, 306. [\[CrossRef\]](#)
27. Guterman, O.; Neuman, A. Not all paths lead to success: Learning strategies and achievement among undergraduate students. *J. Furth. High. Educ.* **2021**, *46*, 115–127. [\[CrossRef\]](#)
28. Kadioglu-Akbulut, C.; Uzuntiryaki-Kondakci, E. Implementation of self-regulatory instruction to promote students' achievement and learning strategies in the high school chemistry classroom. *Chem. Educ. Res. Pract.* **2021**, *22*, 12–29. [\[CrossRef\]](#)
29. Rosário, P.; Núñez, J.C.; Valle, A.; González-Pienda, J.; Lourenço, A. Grade level, study time, and grade retention and their effects on motivation, self-regulated learning strategies, and mathematics achievement: A structural equation model. *Eur. J. Psychol. Educ.* **2013**, *28*, 1311–1331. [\[CrossRef\]](#)
30. Panadero, E.; Alonso Tapia, J. How do students self-regulate?: Review of Zimmerman's cyclical model of self-regulated learning. *An. De Psicol.* **2014**, *30*, 450–462.
31. Khat, H. Using automated time management enablers to improve self-regulated learning. *Act. Learn. High. Educ.* **2019**, *23*, 3–15. [\[CrossRef\]](#)
32. Broekkamp, H.; Van Hout-Wolters, B.H. Students' adaptation of study strategies when preparing for classroom tests. *Educ. Psychol. Rev.* **2007**, *19*, 401–428. [\[CrossRef\]](#)
33. Panadero, E.; Fraile, J.; Fernández Ruiz, J.; Castilla-Estévez, D.; Ruiz, M.A. Spanish university assessment practices: Examination tradition with diversity by faculty. *Assess. Eval. High. Educ.* **2019**, *44*, 379–397. [\[CrossRef\]](#)
34. García-Pérez, D.; Fraile, J.; Panadero, E. Learning strategies and self-regulation in context: How higher education students approach different courses, assessments, and challenges. *Eur. J. Psychol. Educ.* **2021**, *36*, 533–550. [\[CrossRef\]](#)
35. Yang, J.; Schneller, C.; Roche, S. *The Role of Higher Education in Promoting Lifelong Learning*; UNESCO Institute for Lifelong Learning: Hamburg, Germany, 2015.
36. Dignath, C.; Büttner, R. Components of fostering self-regulated learning among students. A meta-analysis on intervention studies at primary and secondary school level. *Metacognition Learn.* **2008**, *3*, 231–264. [\[CrossRef\]](#)
37. Dignath, C.; Büttner, G.; Langfeldt, H.-P. How can primary school students learn self-regulated learning strategies most effectively?: A meta-analysis on self-regulation training programmes. *Educ. Res. Rev.* **2008**, *3*, 101–129. [\[CrossRef\]](#)
38. Lord, R.G.; Diefendorff, J.M.; Schmidt, A.M.; Hall, R.J. Self-regulation at work. *Annu. Rev. Psychol.* **2010**, *61*, 543–568. [\[CrossRef\]](#)
39. Sitzmann, T.; Ely, K. A meta-analysis of self-regulated learning in work-related training and educational attainment: What we know and where we need to go. *Psychol. Bull.* **2011**, *137*, 421. [\[CrossRef\]](#)
40. Panadero, E. A review of self-regulated learning: Six models and four directions for research. *Front. Psychol.* **2017**, *8*, 422. [\[CrossRef\]](#)
41. Zimmerman, B.J.; Moylan, A.R. Self-Regulation: Where Metacognition and Motivation Intersect. In *Handbook of Metacognition in Education* (hlm. 299–316); Dalam Hacker, D.J., Ed.; Routledge: New York, NY, USA, 2009.
42. Chen, C.-P.; Guo, J.-F.; Shih, J.-L. The impacts of computer literacy and learning enthusiasm on cognitive load in instructional pervasive game. In Proceedings of the 2013 IEEE 13th International Conference on Advanced Learning Technologies, Beijing, China, 15–18 July 2013; pp. 388–392.
43. Liu, C.-C.; Liu, K.-P.; Chen, W.-H.; Lin, C.-P.; Chen, G.-D. Collaborative storytelling experiences in social media: Influence of peer-assistance mechanisms. *Comput. Educ.* **2011**, *57*, 1544–1556. [\[CrossRef\]](#)
44. Edelheim, J.; Ueda, D. Effective use of simulations in hospitality management education—A case study. *J. Hosp. Leis. Sport Tour. Educ.* **2007**, *6*, 18–28. [\[CrossRef\]](#)
45. Kahraman, O.C.; Alrawadieh, D.D. The impact of perceived education quality on tourism and hospitality students' career choice: The mediating effects of academic self-efficacy. *J. Hosp. Leis. Sport Tour. Educ.* **2021**, *29*, 100333. [\[CrossRef\]](#)
46. Blustein, D.L. The role of goal instability and career self-efficacy in the career exploration process. *J. Vocat. Behav.* **1989**, *35*, 194–203. [\[CrossRef\]](#)

47. Lent, R.W.; Brown, S.D.; Hackett, G. Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *J. Vocat. Behav.* **1994**, *45*, 79–122. [\[CrossRef\]](#)
48. Nachmias, S.; Walmsley, A. Making career decisions in a changing graduate labour market: A hospitality perspective. *J. Hosp. Leis. Sport Tour. Educ.* **2015**, *17*, 50–58. [\[CrossRef\]](#)
49. Baumeister, R.F.; Vohs, K.D. Self-Regulation, ego depletion, and motivation. *Soc. Personal. Psychol. Compass* **2007**, *1*, 115–128. [\[CrossRef\]](#)
50. Bellanca, J.A. *Deeper Learning: Beyond 21st Century Skills*; Solution Tree Press: Bloomington, IN, USA, 2014.
51. Schunk, D.H. *Self-Regulation of Self-Efficacy and Attributions in Academic Settings*; Lawrence Erlbaum Associates, Inc.: Mahwah, NJ, USA, 1994.
52. Zimmerman, B.J. Self-regulating academic learning and achievement: The emergence of a social cognitive perspective. *Educ. Psychol. Rev.* **1990**, *2*, 173–201. [\[CrossRef\]](#)
53. Creed, P.A.; King, V.; Hood, M.; McKenzie, R. Goal orientation, self-regulation strategies, and job-seeking intensity in unemployed adults. *J. Appl. Psychol.* **2009**, *94*, 806. [\[CrossRef\]](#)
54. Kautish, P.; Hameed, S.; Kour, P.; Walia, S. Career beliefs, self-efficacy and VUCA skills: A study among generation Z female students of tourism and hospitality. *J. Hosp. Leis. Sport Tour. Educ.* **2021**, *30*, 100340. [\[CrossRef\]](#)
55. Schraw, G.; Crippen, K.J.; Hartley, K. Promoting self-regulation in science education: Metacognition as part of a broader perspective on learning. *Res. Sci. Educ.* **2006**, *36*, 111–139. [\[CrossRef\]](#)
56. Tsai, C.-T.S.; Hsu, H.; Yang, C.-C. Career decision self-efficacy plays a crucial role in hospitality undergraduates' internship efficacy and career preparation. *J. Hosp. Leis. Sport Tour. Educ.* **2017**, *21*, 61–68. [\[CrossRef\]](#)
57. Yu, H.-H.; Hu, R.-P.; Chen, M.-L. Global Pandemic Prevention Continual Learning—Taking Online Learning as an Example: The Relevance of Self-Regulation, Mind-Unwandered, and Online Learning Ineffectiveness. *Sustainability* **2022**, *14*, 6571. [\[CrossRef\]](#)
58. Corno, L.; Mandinach, E.B. The role of cognitive engagement in classroom learning and motivation. *Educ. Psychol.* **1983**, *18*, 88–108. [\[CrossRef\]](#)
59. Sesmiyanti, S.; Antika, R.; Yulmiati, Y. Persepsi Mahasiswa Tentang Pendidikan Karakter pada Buku Teks Reading di Perguruan Tinggi Swasta. *Pena J. Pendidik. Bhs. Dan Sastra* **2018**, *7*, 1–19. [\[CrossRef\]](#)
60. Cheng, S. An empirical investigation of the effectiveness of project-based course learning within hospitality programs: The mediating role of cognitive engagement. *J. Hosp. Leis. Sport Tour. Educ.* **2013**, *13*, 213–225. [\[CrossRef\]](#)
61. Drysdale, M.T.; McBeath, M. Motivation, self-efficacy and learning strategies of university students participating in work-integrated learning. *J. Educ. Work* **2018**, *31*, 478–488. [\[CrossRef\]](#)
62. Mayer, R.E. Learning strategies: An overview. In *Learning and Study Strategies*; Elsevier: Amsterdam, The Netherlands, 1988; pp. 11–22.
63. Shuell, T.J. Learning Theories and Educational Paradigms. In *International Encyclopedia of the Social and Behavioral Sciences*; Smelser, N.J., Baltes, B., Eds.; Pergamon: Oxford, UK, 2001; Volume 13, p. 8613.
64. Marton, F.; Saljo, R. Approaches to Learning. In *The Experience of Learning. Implications for Teaching and Studying in Higher Education*, 2nd ed.; Marton, F., Hounsell, D., Entwistle, N.J., Eds.; Scottish Academic Press: Edinburgh, UK, 1997; pp. 39–58.
65. Warburton, K. Deep learning and education for sustainability. *Int. J. Sustain. High. Educ.* **2003**, *4*, 44–56. [\[CrossRef\]](#)
66. Goldman, J.D. Student teachers' learning about child sexual abuse strategies for primary school: An exploratory study of surface and deep learning. *Sex Educ.* **2005**, *5*, 79–92. [\[CrossRef\]](#)
67. Newton, G.; Martin, E. Blooming, SOLO taxonomy, and phenomenography as assessment strategies in undergraduate science education. *J. Coll. Sci. Teach.* **2013**, *43*, 78–90. [\[CrossRef\]](#)
68. Laird, T.F.N.; Shoup, R.; Kuh, G.D.; Schwarz, M.J. The effects of discipline on deep approaches to student learning and college outcomes. *Res. High. Educ.* **2008**, *49*, 469–494. [\[CrossRef\]](#)
69. Guerriero, S.; Révai, N. Knowledge-Based Teaching and the Evolution of a Profession. In *Pedagogical Knowledge and the Changing Nature of the Teaching Profession*; OECD iLibrary: Paris, France, 2017; pp. 253–269.
70. Entwistle, N.; Ramsden, P. *Understanding Student Learning*; Croom Helm.; Routledge: London, UK, 1983.
71. Senemoglu, N. College of Education students' approaches to learning and study skills. *Egit. Bilim* **2011**, *36*, 65.
72. Bandura, A. Social foundations of thought and action. *Englewood Cliffs* **1986**, *1986*, 23–28.
73. Papaioannou, A.; Papavassiliou-Alexiou, I.; Moutiaga, S. Career resilience and self-efficacy of Greek primary school leaders in times of socioeconomic crisis. *Int. J. Educ. Manag.* **2022**, *36*, 164–178. [\[CrossRef\]](#)
74. Li, D.; Lindo, N.A. Acculturation moderating between international students' career decision-making difficulties and career decision self-efficacy. *Career Dev. Q.* **2022**, *70*, 38–51. [\[CrossRef\]](#)
75. Betz, N.E.; Hackett, G. Applications of self-efficacy theory to the career assessment of women. *J. Career Assess.* **1997**, *5*, 383–402. [\[CrossRef\]](#)
76. Niles, S.G.; Sowa, C.J. Mapping the nomological network of career self-efficacy. *Career Dev. Q.* **1992**, *41*, 13–21. [\[CrossRef\]](#)
77. Barrows, C.W.; Johan, N. Hospitality management education. In *The SAGE Handbook of Hospitality Management*; SAGE: New York, NY, USA, 2008; pp. 146–162.
78. Lee, D.-C.; Chen, C.-F.; Hung, L.-M.; Chen, C.-C. Effects of labor conditions, socialization and personality upon student interns working willingness in hospitality industry. *Afr. J. Bus. Manag.* **2011**, *5*, 11813–11825.

79. Chuang, N.-K.; Goh, B.K.; Stout, B.L.; Dellmann-Jenkins, M. Hospitality undergraduate students' career choices and factors influencing commitment to the profession. *J. Hosp. Tour. Educ.* **2007**, *19*, 28–37. [\[CrossRef\]](#)
80. Xin, L.; Tang, F.; Li, M.; Zhou, W. From school to work: Improving graduates' career decision-making self-efficacy. *Sustainability* **2020**, *12*, 804. [\[CrossRef\]](#)
81. Pajares, F. Gender and perceived self-efficacy in self-regulated learning. *Theory Into Pract.* **2002**, *41*, 116–125. [\[CrossRef\]](#)
82. Pajares, F.; Valiante, G. Students' self-efficacy in their self-regulated learning strategies: A developmental perspective. *Psychologia* **2002**, *45*, 211–221. [\[CrossRef\]](#)
83. Agustiani, H.; Cahyad, S.; Musa, M. Self-efficacy and self-regulated learning as predictors of students academic performance. *Open Psychol. J.* **2016**, *9*, 1–6. [\[CrossRef\]](#)
84. Cho, M.-H.; Shen, D. Self-regulation in online learning. *Distance Educ.* **2013**, *34*, 290–301. [\[CrossRef\]](#)
85. Lipshits-Braziler, Y.; Gati, I.; Tatar, M. Strategies for coping with career indecision. *J. Career Assess.* **2016**, *24*, 42–66. [\[CrossRef\]](#)
86. Council, N.R. *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*; National Academies Press: Washington, DC, USA, 2012.
87. Griffin, P.; Care, E.; McGaw, B. The changing role of education and schools. In *Assessment and Teaching of 21st Century Skills*; Springer: Berlin/Heidelberg, Germany, 2012; pp. 1–15.
88. Artino, A.R.; Simons, R.J.; Konopasky, A. Self-regulated learning. In *An Introduction to Medical Teaching*; Springer: Berlin/Heidelberg, Germany, 2022; pp. 25–43.
89. Martin, J.; McLellan, A.-M. The educational psychology of self-regulation: A conceptual and critical analysis. *Stud. Philos. Educ.* **2008**, *27*, 433–448. [\[CrossRef\]](#)
90. Neal, D.J.; Carey, K.B. A follow-up psychometric analysis of the self-regulation questionnaire. *Psychol. Addict. Behav.* **2005**, *19*, 414. [\[CrossRef\]](#)
91. Dias, P.C.; Cadime, I. Protective factors and resilience in adolescents: The mediating role of self-regulation. *Psicol. Educ.* **2017**, *23*, 37–43. [\[CrossRef\]](#)
92. Gestsdottir, S.; Lerner, R.M. Positive development in adolescence: The development and role of intentional self-regulation. *Hum. Dev.* **2008**, *51*, 202–224. [\[CrossRef\]](#)
93. Zimmerman, B.J.; Kitsantas, A. Homework practices and academic achievement: The mediating role of self-efficacy and perceived responsibility beliefs. *Contemp. Educ. Psychol.* **2005**, *30*, 397–417. [\[CrossRef\]](#)
94. Fabio, A.D.; Palazzeschi, L.; Asulin-Peretz, L.; Gati, I. Career indecision versus indecisiveness: Associations with personality traits and emotional intelligence. *J. Career Assess.* **2013**, *21*, 42–56. [\[CrossRef\]](#)
95. Appleton, J.J.; Christenson, S.L.; Furlong, M.J. Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychol. Sch.* **2008**, *45*, 369–386. [\[CrossRef\]](#)
96. Marks, H.M. Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *Am. Educ. Res. J.* **2000**, *37*, 153–184. [\[CrossRef\]](#)
97. Smiley, W.; Anderson, R. Measuring Students' Cognitive Engagement on Assessment Tests: A Confirmatory Factor Analysis of the Short Form of the Cognitive Engagement Scale. *Res. Pract. Assess.* **2011**, *6*, 17–28.
98. Richardson, M.; Abraham, C.; Bond, R. Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychol. Bull.* **2012**, *138*, 353. [\[CrossRef\]](#) [\[PubMed\]](#)
99. Floyd, K.S.; Harrington, S.J.; Santiago, J. The Effect of Engagement and Perceived Course Value on Deep and Surface Learning Strategies. *Inf. Sci. Int. J. Emerg. Transdiscipl.* **2009**, *12*, 181–190.
100. Greene, B.A. Measuring cognitive engagement with self-report scales: Reflections from over 20 years of research. *Educ. Psychol.* **2015**, *50*, 14–30. [\[CrossRef\]](#)
101. Fong, C.J.; Dillard, J.B.; Hatcher, M. Teaching self-efficacy of graduate student instructors: Exploring faculty motivation, perceptions of autonomy support, and undergraduate student engagement. *Int. J. Educ. Res.* **2019**, *98*, 91–105. [\[CrossRef\]](#)
102. Haynes, S.N.; Richard, D.; Kubany, E.S. Content validity in psychological assessment: A functional approach to concepts and methods. *Psychol. Assess.* **1995**, *7*, 238. [\[CrossRef\]](#)
103. Biggs, J.; Kember, D.; Leung, D.Y. The revised two-factor study process questionnaire: R-SPQ-2F. *Br. J. Educ. Psychol.* **2001**, *71*, 133–149. [\[CrossRef\]](#)
104. Hampton, N.Z. Testing for the structure of the career decision self-efficacy scale-short form among Chinese college students. *J. Career Assess.* **2005**, *13*, 98–113. [\[CrossRef\]](#)
105. Greene, B.A.; Miller, R.B. Influences on achievement: Goals, perceived ability, and cognitive engagement. *Contemp. Educ. Psychol.* **1996**, *21*, 181–192. [\[CrossRef\]](#)
106. Bryant, F.B.; Yarnold, P.R. Principal-Components Analysis and Exploratory and Confirmatory Factor Analysis. In *Reading and Understanding Multivariate Statistics*; Grimm, L.G., Yarnold, P.R., Eds.; American Psychological Association: Washington, DC, USA, 1995; pp. 99–136.
107. Potthoff, P. Measurement theory for the behavioral sciences: Edwin E. Ghiselli, J.P. Campbell and S. Zedeck, San Francisco: W.H. Freeman and Company, 1981, pp.491, \$27.95. *Math. Soc. Sci.* **1983**, *4*, 319–320. [\[CrossRef\]](#)
108. Lee, S.W.-Y.; Tsai, C.-C. Students' perceptions of collaboration, self-regulated learning, and information seeking in the context of Internet-based learning and traditional learning. *Comput. Hum. Behav.* **2011**, *27*, 905–914. [\[CrossRef\]](#)

109. Miller, W.R.; Brown, J.M. Self-Regulation as a Conceptual Basis for the Prevention and Treatment of Addictive Behaviours. In *Self-Control and the Addictive Behaviours*; Heather, N., Miller, W.R., Greeley, J., Eds.; Maxwell Macmillan Publishing: Sydney, Australia, 1991; pp. 3–79.
110. Anderson, J.C.; Gerbing, D.W. Structural equation modeling in practice: A review and recommended two-step approach. *Psychol. Bull.* **1988**, *103*, 411. [\[CrossRef\]](#)
111. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [\[CrossRef\]](#)
112. Bagozzi, R.P.; Yi, Y. On the use of structural equation models in experimental designs. *J. Mark. Res.* **1989**, *26*, 271–284. [\[CrossRef\]](#)
113. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E.; Tatham, R. *Multivariate Data Analysis*; Pearson Prentice Hall: Uppersaddle River, NJ, USA, 2006.
114. Duff, A. A note on the reliability and validity of a 30-item version of Entwistle & Tait's Revised Approaches to Studying Inventory. *Br. J. Educ. Psychol.* **1997**, *67*, 529–539.
115. Smith, T.W.; Colby, S.A. Teaching for deep learning. *Clear. House A J. Educ. Strateg. Issues Ideas* **2007**, *80*, 205–210. [\[CrossRef\]](#)
116. Clausen, H.B.; Andersson, V. Problem-based learning, education and employability: A case study with master's students from Aalborg University, Denmark. *J. Teach. Travel Tour.* **2019**, *19*, 126–139. [\[CrossRef\]](#)
117. Chan, K.-w. Hong Kong teacher education students' epistemological beliefs and approaches to learning. *Res. Educ.* **2003**, *69*, 36–50. [\[CrossRef\]](#)
118. Koc, E.; Yumusak, S.; Ulukoy, M.; Kilic, R.; Toptas, A. Are internship programs encouraging or discouraging?—A viewpoint of tourism and hospitality students in Turkey. *J. Hosp. Leis. Sport Tour. Educ.* **2014**, *15*, 135–142. [\[CrossRef\]](#)
119. Stansbie, P.; Nash, R.; Chang, S. Linking internships and classroom learning: A case study examination of hospitality and tourism management students. *J. Hosp. Leis. Sport Tour. Educ.* **2016**, *19*, 19–29. [\[CrossRef\]](#)
120. Liu, Y.; Draper, J.; Dawson, M. The Relationship between Work Experience and Career Expectations: Career Decision-Making Self-efficacy as Mediator. *J. Hosp. Tour. Educ.* **2022**; *in press*. [\[CrossRef\]](#)
121. Wang, C.-J. Should I Stay or Should I Go? Linking Career Decision-Making Self-Efficacy to Intention to Stay in the Hospitality Industry Based on Internship Experience. *Sustainability* **2021**, *13*, 10571. [\[CrossRef\]](#)
122. Harris, K.R.; Graham, S.; Mason, L.H.; Saddler, B. Developing self-regulated writers. *Theory Pract.* **2002**, *41*, 110–115. [\[CrossRef\]](#)
123. Zimmerman, B.J.; Schunk, D.H. *Handbook of Self-Regulation of Learning and Performance*; Routledge/Taylor & Francis Group: Abingdon, UK, 2011.
124. Zumbrunn, S.; Tadlock, J.; Roberts, E.D. *Encourage Self Regulated Learning in the Classroom: A Review of the Literature*. Metropolitan Educational Research Consortium (MERC); Virginia Commonwealth University: Richmond, VA, USA, 2011.
125. Boekaerts, M.; Corno, L. Self-regulation in the classroom: A perspective on assessment and intervention. *Appl. Psychol.* **2005**, *54*, 199–231. [\[CrossRef\]](#)
126. Levy, N.R. Teaching analytical writing: Help for general education middle school teachers. *Interv. Sch. Clin.* **1996**, *32*, 95–103. [\[CrossRef\]](#)