Article

Enhancing lifelong learning and professional growth: Exploring the role of self-directed learning for university educators

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Abstract

This study examines lifelong learning as it pertains specifically to professional growth for university educators in Kuwait. Moreover, it looks at how self-directed and lifelong learning are interrelated. The findings of this study indicate a significant direct relationship between lifelong learning factors, including motives, attitudes, and conditions, and the professional development of educators, except for the attitude with the reflection activities. The current study employs a deductive and quantitative research approach through a questionnaire survey. Partial least square-structural equation modelling (PLS-SEM) was used to analyze the data. The findings underscore the effectiveness of self-directed lifelong learning in meeting educators' professional development needs and improving their practice. Educational institutions should prioritize and support lifelong learning initiatives to foster educators' growth and enhance teaching and learning in post-compulsory education settings.

Keywords

Lifelong learning, professional growth, self-directed learning, university educators

Introduction

Rapid changes and developments in science and technology worldwide directly affect all aspects of life, including education (Karatas et al., 2021). Educators encounter numerous demands and challenges in their professional lives stemming from implementing novel

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curricula, technological advancements, and evolving student learning requirements (Kolenc Kolnik, 2010). These developments require educators to be lifelong learners to maintain proficiency and expertise by staying current with the latest knowledge and competencies (Thwe & Kálmán, 2023). Karataş and Arpacı (2021) argue that the commitment to lifelong learning is a defining characteristic of university educators, setting them apart in the dynamic landscape of academia. Faced with the ever-evolving nature of academic disciplines, educators must actively engage in ongoing education to remain abreast of discoveries, changing paradigms, and emerging trends (Newmann et al., 2000). They must learn continuously to stay updated with new trends and learn fresh strategies, techniques, and methods to meet new classroom challenges (Cheetham & Chivers, 2001), improve themselves (Stoll et al., 2006), and respond to educational change (Fullan, 2007).

In this context, educational institutions must train educators to be lifelong learners (Karatas et al., 2021). However, certain higher education institutions may provide educators with restricted opportunities for professional growth or engagements outside their requirements. Training on the job and pre-employment training have shown their inability to cause significant improvements (Irgatoglu, 2021). Educators frequently express dissatisfaction with the standardized professional development programs, which are usually short and infrequent, as they fail to effectively facilitate the acquisition of new teaching strategies (Darling-Hammond, 2009; Irgatoglu, 2021). During such occasions, concepts are commonly conveyed broadly and theoretically without considering the experience and knowledge of the involved educators and without affording them the chance to engage in experimentation, discussion, and reflection (Borko, 2004). According to various studies by Freidus et al. (2009) and Darling Darling-Hammond (2009), traditional professional development methods are frequently considered insufficient and fail to provide substantial benefits for participants, resulting in minimal impact on their professional practices. Therefore, a new approach must be introduced for educators' training that will eventually lead to successful lessons, ensuring that educators do not anticipate passive learning but take the initiative in learning and are responsible for themselves (Torabi et al., 2013). The basic idea of our concept is that for professional development to have a significant impact and bring about positive change, it must be tailored to meet educators' motivations, needs, and preferences. Their perspectives should always be considered one of the main starting points (Irgatoglu, 2021). It is well understood that professional development planning involves various factors and practical limitations, such as the availability of resources, policy guidelines, and curriculum mandates. Additionally, educators may not possess comprehensive knowledge of the opportunities to enhance their learning. Because of this, educators are required to allocate resources toward their professional growth to effectively manage the demands of their teaching responsibilities (Mushayikwa, 2013) and become lifelong learners by following contemporary educational practices. Educators self-direct their learning in this way to advance their professional careers both within and outside of the classroom, either alone or with other instructors. They decide where, when, and why to pursue their professional development. The decision to learn independently and take charge of one's learning results is possibly the most powerful learning experience (Tekkol & Demirel, 2018). Irgatoglu (2021) posits

that self-directed learning supports learners' ongoing knowledge and skill development to successfully handle new opportunities and demands in their personal and professional lives. The dynamic and research-intensive nature of higher education, coupled with the autonomy and academic freedom afforded to university professors, makes self-directed learning a highly relevant and applicable method for professional development (Newmann et al., 2000). It aligns seamlessly with professors' multifaceted roles and responsibilities, enabling them to engage in lifelong learning practices that contribute to their individual growth and the advancement of knowledge within the academic community (Aljassar & Altammar, 2020).

Despite the consistent growth in private universities and colleges in Kuwait, concerns persist regarding attaining the desired standards in Kuwait's higher education system. The World Economic Forum highlights Kuwait's disadvantaged position, particularly in research and training services. Notably, Altammar and Aljassar (2021) discuss weaknesses in the training content for educators in Kuwait, hindering them from meeting global standards for professional development success. Higher education and public research success rely heavily on well-trained and motivated staff (Jolley et al., 2019). Therefore, a vital aspect of the reform process in Kuwait is to enhance the professional development of educators' abilities (Alhashem & Alhouti, 2021). Acknowledging instructors as catalysts for personal growth is essential to promote enhanced student learning outcomes (Newmann et al., 2000). To improve the quality of education in Kuwait, it is crucial to prioritize educators' training and professional development. This will ensure that educators are provided with the necessary skills and knowledge to meet global standards and address the highlighted areas of improvement.

This research aims to facilitate improvements in teaching and learning within post-compulsory education settings. It focuses on lifelong professional development that is self-directed and not imposed on educators by someone, which is considered an instance of people taking responsibility for identifying and attending to all types of learning needs of themselves and their institutions (Zhou & Tu, 2021). Therefore, the main goal of this research study is to examine how higher education instructors in Kuwait perceive and use self-directed learning as a tool for lifelong professional development. It also looks at how self-directed learning and lifelong learning are interrelated, as well as the advantages of self-directed lifelong learning that could improve these instructors' capacities and abilities for self-growth.

Literature review

Adult learning

Knowing what is essential for adult learners, how they best learn, and what they expect from their professional development experience helps us decide how to create a more effective learning experience. The birth of the adult learning theory 'Andragogy' as a form of teaching and learning in the workplace has opened new possibilities for self-directed learning (Steinke, 2012). Adult learning theory was initially developed in the 1920s and, more recently, has been formulated as 'Andragogy' by Knowles as the science of

supporting adult learners to learn (Merriam & Brockett, 2011). Knowles (1980) Lists the six critical andragogy assumptions for adult learners. The six assumptions underlying andragogy, as theorized by Knowles, are self-concept transformation from dependency to self-direction, experiences that serve as a valuable source of knowledge, readiness to learn depends on need, problem-centred focus rather than subject-centred, internal motivation, and adults need to know why they need to know something.

Both Knowles and McClusky provide the theoretical framework for self-directed learning. While Knowles' theory of andragogy explains what needs to be taken into consideration when teaching adults, McClusky's theory of margin more explicitly states how adults function through 'margin in life', which is defined by Merriam (2007, p. 93) as 'the ratio of load to power'. McClusky's concept of 'margin in life' suggests adults manage learning based on their available 'margin', referring to their capacity to handle the 'load' of responsibilities with their available 'power' to do so. For educators burdened by heavy responsibilities, self-directed learning enables them to learn within their schedules, fitting education into their available margin.

Knowles (1980) presents the theoretical foundation for self-directed learning. The six assumptions of andragogy proposed by Knowles are evident in self-directed learning. According to Knowles (1984), adult learning provides a break from traditional teaching methods by enabling adults to engage in learning experiences that align with and improve upon their existing knowledge and experience. This aspect of self-directed learning empowers adults to have agency in their learning process, as Lucas (2005) highlighted. Additionally, Merriam and Brockett (2011) emphasize the importance of adults understanding the purpose behind their learning endeavours, a central aspect of self-directed learning. Both theories are at the heart of an educator's professional growth as educators take control of the teaching, including what, when, and how about their needs and experience. Self-directed learning allows adults to align their learning with their experiences, understand the purpose of their learning, and learn at their own pace (Knowles, 1984).

Lifelong learning

In the 21st century, lifelong learning is essential for people to establish a fulfilling career or profession and achieve their goals over an extended period (Karatas et al., 2021). Irrespective of their level of experience, educators should keep up with new technologies and educational approaches to better themselves to train people in society following the needs of the time and use these technologies and techniques for more effective teaching and to better prepare their students for life (Thwe & Kálmán, 2023). Therefore, lifelong and self-directed learning are crucial to professional growth (Selvi, 2011). However, Lewis (1998, p. 63) defines lifelong learning as 'all learning activity is undertaken throughout life, to improve knowledge, skills, and competence, within a personal, civic, social, and employment-related perspective'. Lifelong learning is the lifelong, life-wide, voluntary, and self-motivated pursuit of knowledge for personal or professional reasons (Fisher et al., 2001). This study investigated lifelong learning factors from the professional development perspective. Numerous studies have identified motives, conditions, and attitudes as critical in shaping individuals' engagement in lifelong learning (Aspin & Chapman, 2007; Deci & Ryan, 2008; Field, 2006).

Motives. Educational research highlights the essential role of educator motivation in implementing change or enhancing practice. Motivation fuels lifelong learning by driving individuals to acquire new knowledge and skills, establishing objectives, and sustaining a commitment to continuous learning (Deci & Ryan, 2000; Pelletier et al., 2002; Ryan & Deci, 2019).

Conditions. The availability of favourable conditions facilitates lifelong learning significantly. Individuals' capacity to engage in ongoing learning is facilitated by learning-friendly environments, resources (technological resources, mentoring, flexible learning options), and opportunities (Field, 2006).

Attitude. An attitude refers to a psychological construct that encompasses an individual's opinions, feelings, and behaviours toward a particular object, person, event, or concept (Eagly & Chaiken, 2005). Lifelong learning requires a positive attitude toward education. Possessing an open mind, embracing challenges, being willing to investigate new ideas, and believing in one's ability to learn all contribute to the success and enjoyment of lifelong learning. A positive attitude assists people in overcoming obstacles and adapting to the ever-changing demands of lifelong learning (Aspin & Chapman, 2007). Therefore, to become successful lifelong learners, individuals must be willing to acquire knowledge from various resources and cultivate a positive attitude toward learning (Figel, 2006; Tüfekçi & Demirel, 2009).

Self-directed learning

'Self-directed learning is a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes' (Knowles, 1975, p. 11). Self-directed learning is the easiest and most natural method to learn because it allows educators to improve their knowledge in line with their professional identities and requirements (Benson & Cooker, 2013; Guglielmino & Guglielmino, 2008; Porter & Freeman, 2020). Baden and Major (2004) argue that self-directed learning can help educators become free, evolved, and authentic. The self-directed learning readiness scale was initially developed by Fisher et al. (2001). This scale comprehensively assesses an individual's readiness for self-directed learning by evaluating their self-management skills, desire for learning, and self-control.

   Self-Management measures individuals' ability to independently manage their learning process. It evaluates abilities such as goal setting, planning, resource management, and monitoring progress. Individuals with high self-management scores demonstrate the ability to initiate and maintain self-directed learning activities (Fisher et al., 2001).

   Desire for Learning measures an individual's motivation and enthusiasm for learning. It investigates their intrinsic motivation, curiosity, and learning enjoyment. High scores in this section indicate a strong desire to learn, a positive attitude toward

acquiring new information, and an innate passion for personal development and growth (Fisher et al., 2001).

Self-control focuses on an individual's self-discipline and ability to regulate learning behaviours. It evaluates self-discipline, perseverance, time management, and distraction-resistance characteristics. Individuals with high self-control scores demonstrate self-discipline and the ability to surmount obstacles, maintain concentration, and manage their learning activities effectively (Fisher et al., 2001).

Professional growth

Educators shape their professional growth through active learning, reflection, and participation in practice and professional development programs (Opfer & Pedder, 2013). Several studies support the idea that updating, reflective, and collaborative activities contribute to measuring educator's professional growth (Darling-Hammond, 2009; Desimone, 2009; Lieberman & Pointer Mace, 2008; Zepke & Leach, 2002).

Updating activities. Darling-Hammond (2009) emphasizes the significance of educators updating activities, such as attending seminars, conferences, and professional development programs, to improve their knowledge and teaching practices. So, de Vries et al. (2013) maintain that participation in updating activities can enhance educator's content knowledge, pedagogical strategies, and student outcomes.

Reflective activities. Engaging in reflective activities, such as analyzing classroom experiences and critically reflecting on teaching practices, is essential for professional growth and development (de Vries et al., 2013). Educators can evaluate their teaching practices, identify areas for improvement, and make informed decisions regarding instructional adjustments as a result of reflective activities (Playsted, 2019). Kolb (2007) argues that the process of acquiring knowledge through the transformation of experience is learning; and this process enables people to reflect on, analyze, and reconstruct their experiences in comprehending their world and what is occurring.

Collaborative activities. Zhou and Tu (2021) investigate the benefits of cooperative activities for the professional growth of educators and emphasize that participation in collaborative activities, such as professional learning communities or lesson study, promotes shared learning, peer support, and the exchange of innovative ideas. Collaborative activities provide supportive and satisfying benefits, reduce stress, increase self-confidence (Cheetham & Chivers, 2001), and provide feedback, new ideas, and challenges (Kwakman, 2003; Putnam & Borko, 2000). In addition, collaborative activities provide tremendous enthusiasm for collaborative working and a framework for shaping the learning environment and, thus, directly and indirectly influencing student performance.

These sources offer evidence and insight regarding the efficacy of updating, reflective, and collaborative activities as indicators of educator growth. Educational institutions can

support and assess the continuous development of educator's knowledge, skills, and teaching practices by incorporating these elements into professional development programs and evaluating their participation in such activities.

Interrelation between self-direct learning and lifelong learning

In the 21st century, lifelong learning demands that individuals become highly self-directed. Individuals need to be able to adapt to change, re-evaluate their path, and assess their needs because workplace environments are constantly changing to adapt to various ongoing innovations in science and technology (KILINC, 2023). Highly self-directed individuals can self-regulate to accomplish set goals and self-develop. Self-directed learning is a crucial feature of lifelong learning competencies (Atta & Alghamdi, 2018; Van Rensburg & Botma, 2015).

According to Tekkol and Demirel (2018), self-directed learning is a prerequisite for lifelong learning. Therefore, self-directed learning serves as a means for individuals to stay updated and adapt to changes within the context of lifelong learning. It plays a central role in independent learning endeavours, empowering individuals to continue their 'self-education' beyond completing formal schooling (Loyens et al., 2008). Numerous studies have explored the connection between lifelong and self-directed learning, consistently revealing a clear relationship between the two. Manning (2007) claimed that there is a reciprocal relationship between self-directed learning and lifelong learning. Self-directed learning is considered a method for lifelong learning, whereas lifelong learning provides students with the skills and competencies necessary to pursue their self-education after formal institutional education. In addition, Dynan et al. (2008) claim that lifelong learning is frequently coupled with individual responsibility for learning. Therefore, acquiring self-directed learning skills equips adults to become lifelong learners and compels adult learners to engage in lifelong learning by fostering numerous competencies that increase individuals' capability and capacity to apply knowledge and skills to problem-solving. Simultaneously, according to Murray (2015), active involvement in self-directed learning activities enables adult learners to obtain and enhance the essential skills of self-directed learning and self-regulation. These skills are crucial for engaging in lifelong learning and personal development.

Conceptual framework, variables, and hypotheses

The conceptual framework encompasses the comprehensive and coherent orientation, connections, and variables that constitute the fundamental principles, structures, strategies, and execution of a research endeavour (Kivunja, 2018). A research hypothesis is a particular statement that predicts the path an investigation will take and the kind of information it will uncover (Connelly, 2015). Table 1 shows the research variables based on the theoretical framework. The research hypothesis and conceptual framework were based on these variables.

The research hypotheses are formulated based on the variables that have been adopted, which are as follows:

Table 1. Variables and their sources.

Variable type	Variables	Sources
Independent variables	**Lifelong learning (LLL)**	
	Motives	Hemmington (2000)
	Conditions	
	Attitudes	Torff et al. (2005)
Dependent variables	**Professional growth (PG)**	
	Update learning	de Vries et al. (2013)
	Reflective learning	
	Collaborative learning	
Mediator variables	**Self-directed learning (SDL)**	
	Self-management learning	Fisher et al. (2001)
	Self-control learning	
	Desire learning	

Source: (Authors).

- **H1:** Lifelong learning positively impacts the professional growth among faculty staff of Kuwaiti universities.
- **H2:** Lifelong learning moderated by self-directed learning positively impacts the professional growth among faculty staff of Kuwaiti universities.
- **H3:** Lifelong learning sub-variables (motives, conditions, and attitudes) positively impact the professional growth sub-variables (update learning, reflective learning, and collaborative learning) among faculty staff of Kuwaiti universities.
- **H4:** Lifelong learning sub-variables (motives, conditions, and attitudes) moderated by self-directed learning positively impact the professional growth sub-variables (update learning, reflective learning, and collaborative learning) among faculty staff of Kuwaiti universities.

In this way, Figure 1 presents the conceptual framework of the present study.

Methods

Measurement tools

The current study employs a deductive and quantitative research approach through a questionnaire survey. The present study used various sources of questionnaires (de Vries et al., 2013; Fisher et al., 2001; Hemmington, 2000; Torff et al., 2005) to assess the relationships among dependent, independent, and mediator variables. The questionnaire consisted of four sections, with the first section capturing participants' demographic characteristics, including gender, age, experience, and position. The second section pertains to the independent construct. It encompasses a total of 13 items that gauge the opinions and beliefs of university educators regarding their motivations for engaging in lifelong learning (5 items), the requisite conditions that must be present for them to undertake lifelong learning activities (5 items), and the attitudes
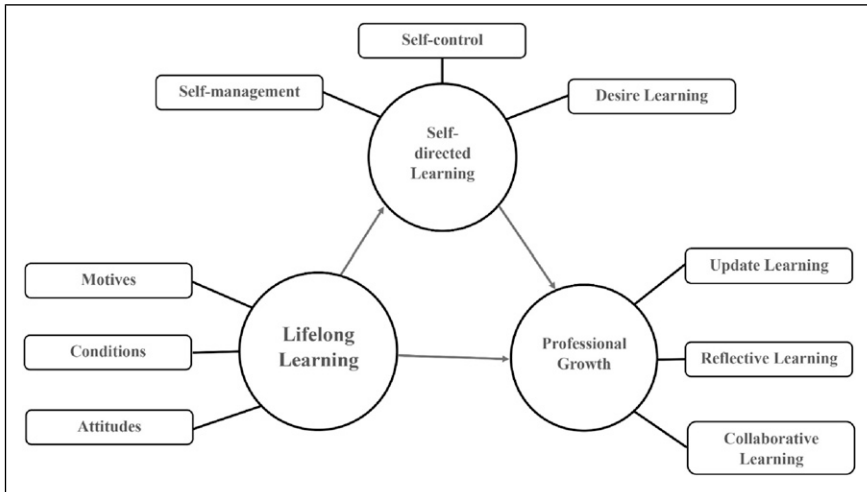
Figure 1. Conceptual Framework.

necessary for lifelong learning (3 items). The third section pertains to the dependent variables, encompassing three variables and nine items that gauge the degree of educator's involvement in professional growth activities. The variables above contain updating activities (3 items), reflective activities (3 items), and collaborative activities (3 items). The final section pertains to the mediator construct, consisting of three variables and nine items related to the self-directed learning scale. This section aims to determine whether university educators possess the necessary skills and readiness to engage in self-directed learning activities, enabling this approach for professional development. The variables under consideration comprise self-management, desire for learning, and self-control, each consisting of (3 items). The survey questions are assessed using a 5-point Likert scale, encompassing the following response options: strongly disagree, disagree, neither disagree nor agree, agree, and strongly agree. Furthermore, the questionnaire was accompanied by a cover letter that provided details regarding the research objectives, guidelines for questionnaire completion, and ethical considerations about confidentiality and anonymity.

Pilot study. To ensure the clarity of the questions, a survey was distributed to eight university educators. The pilot study results in adjusted specific questions before their inclusion in the final version. However, the data obtained from the eight educators in the pilot study should have been excluded in subsequent analyses.

Sampling and population

The research employed a convenience sampling technique to collect data from educators and instructors working in public and private universities located in Kuwait. This

sampling method is used due to its simplicity, brief data-collection technique, and low cost. The scope of this study includes educators and instructors from both public and private universities in Kuwait as the target population. This cohort is deemed representative and will be employed to collect data through online surveys to tackle the research issue. As per the 2021 report published by the Kuwait Education Sector, the combined count of academic personnel and instructors engaged in both public and private universities of Kuwait is roughly 2,900 educators. Smart-PLS 4 can handle small sample sizes, as it is the software for data analysis. The study's recommended sample size of 110–150 educators was established based on a confidence level of 95% and a margin of error of 5%.

Data screening and collection

A cross-sectional time frame was utilized in this study, with the questionnaire being created on Google Forms. The questionnaire link was emailed and WhatsApp to 300 educators across Kuwait's private and public universities. Data collection occurred over two months, specifically from March to April 2023. A cover letter was included with the questionnaire, providing details about the study's objectives and clear instructions for completing the survey.

Data analysis procedures

The demographic characteristics data were subjected to analysis using Microsoft Excel version 13. The present investigation employed Partial Least Square-Structural Equation Modelling (PLS-SEM) to evaluate the reliability and validity of the developed questionnaire and scrutinize the interconnections among the independent, dependent, and moderator variables. The SmartPLS4 software was utilized to conduct the computational analysis. Abdallah et al. (2019) assert that employing PLS-SEM offers a flexible methodology for assessing the structural interdependence among diverse variables. The tool enables the use of formative and reflective measurement constructs. The Hierarchical Component Model (HCM) was used to represent complex systems as a hierarchy of interconnected components. Implementing an HCM within PLS-SEM could decrease the number of interrelationships present within the structural model. This reduction in complexity can result in an enhanced level of comprehensibility for the PLS-SEM. The current investigation employed a two-stage data analysis approach. During the initial stage, the validity and reliability of the questionnaire were assessed, and the measurement model was analyzed to illustrate the relationship between variables and their respective items. The subsequent stage of the study involved an assessment of the structural model, which depicts the interrelationship among the independent, dependent, and mediator variables. During the initial phase, the reliability and validity of the measurement model were evaluated for reflective variables using Cronbach alpha, composite reliability, and outer loading. Concurrently, we utilized the average variance extracted (AVE), Fornell-Larcker Criterion, and heterotrait-monotrait ratio (HTMT) to assess the discriminant and convergent measurement validity. The evaluation of the formative variables was

conducted through the utilization of variance inflation factor (VIF), outer weight, and the corresponding *p*-values. In the second stage, the path coefficient, *p*-value, and R2 were employed to assess the relationship between variables and establish the statistical significance of the hypotheses. Also, we utilized the explorative model to thoroughly analyze the relationships between the lifelong learning and professional growth variables. The multi-group analysis technique tests the statistically significant differences between two groups and more by assessing the path coefficient of these groups (Hair Jr. et al., 2017). A multi-group analysis was employed using the demographic characteristics to determine the presence of statistically significant disparities.

Results

Demographic characteristics

Of the aggregate 300 questionnaires dispatched to the educators, 117 questionnaires were accomplished and remitted, thereby constituting a response rate of 39.0%. Table 1 displays the demographic characteristics of the study participants (Table 2). The data reveals that most participants were female, constituting 78% of the sample. Concurrently, it was noted that a majority of the participants possessed a work experience of 16 years or more, comprising 44% of the sample. Moreover, a significant proportion of the respondents constituted assistant professors, accounting for 39% of the total sample.

Descriptive analysis

Table 3 displays the descriptive statistics of the variables, encompassing the measures of central tendencies, such as mean, and measures of variability, such as standard deviation, as well as the measures of distribution shape, such as skewness and kurtosis. The findings suggest a positive reaction to each variable, as evidenced by mean scores exceeding the 3.5 threshold. 'Desire learning' scored 4.2. This involves one's desire to learn. A strong performance in this domain indicates a strong desire to understand, assimilate new knowledge, and grow. Standard deviation implies conceptual coherence across variables. Skewness and kurtosis within +3 and −3 imply a normal distribution.

Measurement models

The model is typically evaluated through reflective and formative measurement modelling, as elaborated in the following section (Sarstedt et al., 2021).

Reflective measurement analysis. Table 4 presents the outcomes of the reflective measurement model, indicating the reliability and validity of all the variables. Concerning the outcomes of outer loading, excluding one element (AT1) was deleted due to its inadequate loading. Despite some loadings falling slightly below the critical threshold of 0.7, the MT4, MT5, and CA3 constructs were incorporated in the measurement due to their

Table 2. Demographic profile.

Respondents characteristics	Frequency	Percentage (%)
Gender		
Female	91	78
Male	26	22
Total	117	100
Age		
20–30	16	14
31–40	35	30
41–50	34	29
51–60	28	24
61–70	4	03
Total	117	100
Position		
Professor	8	07
Associate professor	15	13
Assistant professor	46	39
Senior lecturer	29	25
Lecturer	19	16
Total	117	100
Teaching experience		
1–5 years	24	21
5–10 years	23	20
11–15 years	18	15
16 and more years	52	44
Total	117	100

Source: Authors.

Table 3. Descriptive analysis.

Variable	Mean	Standard deviation	Skewness	Kurtosis
Self-management	4.197	0.787	0.249	−0.793
Desire learning	4.282	0.941	1.26	−1.28
Self-control	4.094	0.978	0.73	−1.079
Motives	4.054	1.083	1.31	−1.375
Conditions	3.735	1.29	−0.431	−0.798
Attitudes	3.503	1.067	−0.366	−0.421
Update activities	3.766	1.109	0.801	−1.189
Reflective activities	4.077	1.014	1.889	−1.402
Collaborative activities	4.051	1.003	1.052	−1.185

Source: Authors.

Table 4. Reflective measurement results.

Variables	Items	Outer loading >0.7	Cronbach alpha >0.7	Composite reliability >0.7	Average variance extracted >0.5
Self-management (SM)	SM1	0.714			
	SM2	0.884	0.714	0.841	0.639
	SM3	0.792			
Desire learning (DL)	DL1	0.862			
	DL2	0.896	0.703	0.796	0.583
	DL3	0.706			
Self-control (SC)	SC1	0.736			
	SC2	0.839	0.737	0.831	0.656
	SC3	0.850			
Motives (MT)	MT1	0.768			
	MT2	0.879	0.835	0.885	0.608
	MT3	0.856			
	MT4	0.687			
	MT5	0.689			
Conditions (CD)	CD1	0.801			
	CD2	0.703	0.773	0.834	0.505
	CD3	0.759			
	CD4	0.688			
	C5	0.731			
Attitudes (AT)	AT1	Deleted			
	AT2	0.889	0.701	0.709	0.658
	AT3	0.859			
Update activity (UA)	UA1	0.809			
	UA2	0.835	0.739	0.852	0.657
	UA3	0.787			
Reflective activity (RA)	RA1	0.871			
	RA2	0.893	0.852	0.899	0.775
	RA3	0.870			
Collaborative activity (CA)	CA1	0.798			
	CA2	0.847	0.711	0.811	0.592
	CA3	0.648			

Source: Authors.

acceptable values for composite reliability and the AVE. All Cronbach alpha values exceed the threshold of 0.7. Moreover, composite reliability values surpassed 6. Furthermore, it is imperative to acknowledge that all AVE values exceed the threshold of 5.

Regarding the discriminant validity results, Table 5 presents the outcomes of the Fornnell–Larcker criterion. The study findings indicate that the square root of the AVE for each construct exhibited a higher value than its maximum correlation with any other construct.

Table 5. Fornell-Larcker criterion.

	AT	CA	CD	DL	MT	RA	SC	SM	UA
AT	0.811								
CA	0.345	0.769							
CD	0.140	0.476	0.711						
DL	0.406	0.380	0.254	0.764					
MT	0.467	0.506	0.450	0.442	0.780				
RA	0.276	0.608	0.318	0.520	0.332	0.878			
SC	0.291	0.345	0.476	0.626	0.441	0.473	0.810		
SM	0.341	0.478	0.320	0.715	0.509	0.478	0.744	0.800	
UA	0.626	0.232	0.039	0.363	0.466	0.185	0.226	0.318	0.810

Source: Authors.

In addition, Table 6 displays the results of the HTMT analysis, which assesses the discriminant validity of the variables. The analysis indicates that none of the correlations between the variables exceed the threshold value of 0.9.

Formative measurement. The results of the formative measurement model indicate that all the external weights of the variables are statistically significant and exceed zero, the p-value is less than 0.05, and the VIF values for all variables are less than 3, indicating their lack of multi-collinearity issues as presented in (Table 7).

Structural model

The present study employed the structural model to evaluate the statistical significance of the first two hypotheses, H1 and H2. The study evaluated the path coefficient and p-value of all variables to examine their direct and indirect relationships, as elaborated below.

The findings presented in Table 8 demonstrate that there exists a significant relationship between lifelong learning and professional growth, as evidenced by the path coefficient (0.476), the p-value (0.001), and the R2 value of the dependent variable (0.460). The study reveals a partially significant indirect relationship between lifelong learning and professional growth, mediated by self-directed learning. The path coefficient for this relationship is 0.644, and the p-value is (0.000).

Explorative model

The H3 and H4 variables of lifelong learning and professional growth, influenced by self-directed learning, were examined directly and indirectly. The results of an exploratory model used to understand this relationship are below.

Most of the explorative model's lifelong learning sub-variables (motives, conditions, and attitudes) have a statistically significant direct influence on the professional growth sub-variables (update learning, reflective learning, and collaborative learning). The coefficient and p-value in Table 9 show an essential relationship between the sub-

Table 6. HTMT

	AT	CA	CD	DL	MT	RA	SC	SM	UA
AT									
CA	0.426								
CD	0.280	0.574							
DL	0.600	0.567	0.376						
MT	0.571	0.657	0.555	0.635					
RA	0.340	0.793	0.319	0.743	0.389				
SC	0.360	0.469	0.538	0.728	0.557	0.599			
SM	0.439	0.653	0.391	0.893	0.646	0.600	0.824		
UA	0.845	0.369	0.283	0.552	0.592	0.237	0.310	0.439	

Source: Authors.

Table 7. Formative model results.

Variable	Outer weight	*p*-value	VIF
Self-management (SM)	0.497	0.008	2.049
Desire learning (DL)	0.482	0.000	1.205
Self-control (SC)	0.294	0.013	1.703
Motives	0.405	0.000	2.301
Conditions	0.315	0.000	2.432
Attitudes	0.203	0.000	2.386
Update activities	0.366	0.000	1.881
Reflective activities	0.477	0.000	1.989
Collaborative activities	0.351	0.000	2.012

Source: Authors.

Table 8. Structural model (direct and indirect relationship).

Relationship	Path coefficient direct effect	Path coefficient indirect effect	T-values	*p*-values
Lifelong learning → professional growth	0.476	-	7.554	0.000
Lifelong learning → self-directed learning → professional growth	-	0.644	10.668	0.000

Source: Authors.

variables of lifelong learning – motives, conditions, and attitudes – and those of professional growth – update learning, reflective learning, and collaborative learning. Attitude had the most significant influence on updating activity, with a path coefficient of 0.472 and a *p*-value of 0.000. The second most prominent and statistically significant

Table 9. Explorative model (direct effect).

Relationship	Path coefficient	T-values	p-values
Attitude - > collaborative activity	0.207	1.875	0.041
Attitude - > reflective activity	0.128	1.295	0.195
Attitude - > updating activity	0.472	5.957	0.000
Conditions - > collaborative activity	0.373	4.705	0.000
Conditions - > reflective activity	0.256	2.456	0.014
Conditions- > updating activity	0.273	2.544	0.011
Motives - > collaborative activity	0.271	3.903	0.004
Motives - > reflective activity	0.185	2.044	0.032
Motives - > updating activity	0.369	2.261	0.002

Source: Authors.

effect was conditioning on collaborative activity, with a path coefficient of 0.373 and a
p-value of 0.000. Attitudes have no substantial impact on reflective activity.

As indicated in Table 10, the utilization of self-learning as the mediating factor
demonstrated a notable enhancement in most outcomes, suggesting that self-directed
learning partially impacts the indirect association between lifelong learning and pro-
fessional growth.

Multi-group analysis

The multi-group analysis of the demographic characteristics revealed significant sta-
tistical disparities between males and females. The results suggest that the influence of
gender on the relationship between lifelong learning and professional growth is more
pronounced in males than females, as demonstrated by a path coefficient of 0.645 and a
p-value of 0.020. At the same time, the other demographic variables of age, experience,
and position do not significantly impact the model.

Discussion and implications

Discussion

The current study investigates how higher education faculty members perceive self-
directed learning as a lifelong learning professional development tool. It also examines the
connections between lifelong learning, professional growth, and self-directed learning. To
our knowledge, this study represents the inaugural investigation of its nature in Kuwait.

The findings of this study indicate a significant direct relationship between lifelong
learning factors, including motives, attitudes, and conditions, and the professional de-
velopment of educators. These results align with previous research suggesting that ed-
ucators who exhibit intrinsic motivation, maintain positive attitudes toward learning, and
access supportive learning environments are more likely to experience significant

Table 10. Explorative model (indirect effect).

Relationship	Path coefficient	T-values	p-values
Attitude - > self-direct learning - > reflective activity	0.092	0.837	0.090
Attitude - > self-direct learning - > collaborative activity	0.202	0.998	0.025
Conditions - > self-direct learning - > collaborative activity	0.398	1.910	0.000
Conditions - > self-direct learning - > reflective activity	0.307	1.271	0.003
Attitude - > self-direct learning - > update activity	0.491	5.838	0.000
Conditions - > self-direct learning - > update activity	0.414	4.901	0.000
Motives - > self-direct learning - > update activity	0.393	3.431	0.000
Motives - > self-direct learning - > collaborative activity	0.296	2.640	0.002
Motives - > self-direct learning - > reflective activity	0.315	3.257	0.000

Source: Authors.

professional growth and career advancement. (Aspin & Chapman, 2007; Deci & Ryan, 2000; Field, 2006).

Concerning the association between lifelong learning and professional growth factors, our study findings revealed a significant correlation between a positive attitude and increased engagement in updating activities. However, educators who displayed a proactive and enthusiastic attitude towards professional growth were more likely to actively seek out and participate in activities such as workshops, conferences, and online courses to enhance their knowledge and skills. Their positive attitude influenced their willingness to adopt new teaching strategies, embrace educational technology, and stay updated with the latest research and best practices. Educators with a growth mindset and a belief in the importance of continuous learning were more likely to actively participate in professional development opportunities and adapt their practices to meet evolving educational needs. Our findings align with the research on professional development by Figel (2006) and Tüfekçi and Demirel (2009). Similarly, Aspin and Chapman (2007) asserted the positive relationship between attitude and the ability to overcome obstacles and adapt to the ever-changing demands of lifelong learning. The review demonstrated that a positive attitude towards professional growth strongly predicted engagement in activities to enhance knowledge and skills. At the same time, it was found that attitudes have an insignificant effect on reflective activities, which can be attributed to the requirement of specific knowledge, skills, and training for engaging in such activities. Also, the findings of this study indicate a direct and positive relationship between educators' motives and their engagement in updated activities. Previous research consistently demonstrates that educators who possess intrinsic and extrinsic motives are more likely to actively participate in professional development programs aimed at updating their instructional practices. For instance, studies conducted by Kennedy (2016) and Opfer et al. (2011) found that intrinsically motivated educators, driven by a genuine interest in improving their teaching methods and enhancing student outcomes, were more engaged in seeking out and adopting updated instructional strategies. Similarly, Bennell and Akyeampong (2007) reported that educators who were extrinsically motivated, influenced by external factors such as recognition, incentives, or career advancement, showed a

higher level of engagement in updating their practices through participation in technology-focused training programs. Also, Alhouti (2022) maintained that educators need to be motivated to undertake professional development activities. These findings underscore the importance of educators' motives in fostering their active engagement in updated activities. In addition, the findings of this study suggest a direct relationship between the work condition factor and the collaborative activities of educators. Previous research supports this notion, indicating that favourable work conditions increase educator collaboration. For instance, Mezirow (2000) found that educators who perceived their work conditions as supportive and conducive to collaboration were likelier to engage in collaborative activities such as professional learning communities, team teaching, and joint lesson planning. Similarly, Edmondson et al. (2012) and Riggle et al. (2009) reported that positive work conditions, including strong administrative support, ample resources, and opportunities for professional development, were significantly associated with higher levels of collaboration among educators. These findings highlight the importance of creating a supportive work environment that fosters collaboration among educators.

Regarding the relationship between lifelong learning factors and an educator's professional growth with the influence of self-directed learning as a mediator. Our findings indicate that self-directed learning has enhanced the relationship between lifelong learning factors and professional development among educators. The path coefficient of the indirect relationship between lifelong learning and professional growth mediated by self-directed learning increased from 0.476 to 0.644 compared to the direct relationship without a mediator. These findings are substantiated by multiple studies conducted by Merriam and Brockett (2011) and Hiemstra (2003). The findings revealed that when educators embraced self-directed learning, the positive effects of motives, attitudes, and learning conditions on professional growth were amplified. Educators with a strong sense of autonomy and ownership of their learning journey exhibited enhanced professional development outcomes, including increased knowledge acquisition, improved teaching strategies, and higher job satisfaction (Loyens et al., 2008). Self-directed learning empowers educators to take control of their learning. Therefore, by incorporating self-directed learning into professional development initiatives, educational institutions can foster a more effective and impactful growth environment for educators.

Implications

Lifelong learning is crucial for educators to keep up with rapid science, technology, and education changes. Educational institutions should prioritize lifelong learning and provide educators with the necessary support and resources to engage in continuous learning throughout their careers. This includes creating learning-friendly environments, providing access to technological resources, offering flexible learning options, and more learning opportunities for educators to foster their motivation, confidence, and autonomy for conducting learning. By promoting a culture of lifelong learning, institutions can ensure that educators remain proficient and adaptable in their teaching practices.

This research contributes to the assertion that colleges and universities should also encourage and support educators in becoming self-directed learners by empowering them to take the initiative in identifying their learning needs, setting goals, and choosing appropriate learning strategies. This can be achieved through self-directed professional development programs that consider educators' motivations, conditions, and preferences to allow them to select topics of interest, set their own pace, engage in collaborative discussions, and learn from peers. By promoting self-directed learning, colleges and universities can facilitate educators' personal growth and improve their capacities and abilities for self-growth. This research additionally contributes to the limited body of literature that investigates the perspectives of higher education faculty members on self-directed learning as a tool for lifelong professional growth within the specific context of Kuwait.

Further studies will be required to determine the impact of new technology tools, such as artificial intelligence, on lifelong learning, professional growth, and self-directed learning. This study focuses mainly on university educators in Kuwait. As a result, the findings may not be readily generalizable to other cultural or educational contexts.

Conclusion

This study highlighted the importance of lifelong learning for educators' professional growth. It emphasizes the positive relationship of the demonstrated variables (motives, conditions, and attitudes) in shaping educators' engagement in lifelong learning. A significant positive relationship was found between influential lifelong factors and educators' professional growth, and it was concluded that readiness for self-directed learning had a partial mediating role in this relationship. The findings also demonstrated that self-directed learning could individualize educators' professional development experiences to satisfy their professional learning needs and interests. It stressed the importance of self-directed learning for educators in Kuwait as a practical approach to professional growth. This study also confirmed other research findings regarding the potential effectiveness of self-directed lifelong learning in providing meaningful learning experiences that result in educators' professional development and improvements in their practice. Therefore, educational institutions must prioritize supporting and promoting lifelong and self-directed learning among educators.

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Data Availability Statement

The data supporting this study's findings are available on request from the corresponding author, [W.A].

References

Abdallah, W., Johnson, C., Nitzl, C., & Mohammed, M. A. (2019). Organizational learning and patient safety: Hospital pharmacy settings. *Journal of Health Organization and Management*, *33*(6), 695–713. https://doi.org/10.1108/JHOM-11-2018-0319

Alhashem, F., & Alhouti, I. (2021). Endless education reform: The case of Kuwait. In *Annual review of comparative and international education 2020* (*40*, pp. 345–367). International Perspectives on Education and Society. https://doi.org/10.1108/S1479-367920210000040019

Alhouti, I. (2022). *The politics of teacher policies reforms in the Arab Gulf States: A comparative study*, [Doctoral dissertation, UCL (University College London)].

Aljassar, S., & Altammar, J. (2020). A framework for the professional development of in-service teachers in Kuwait. *Journal of Turkish Science Education*, *17*(3), 364–386. https://doi.org/10.36681/tused.2020.33

Altammar, J., & Aljassar, S. (2021). The effect of microteaching on the enhancement of female mathematics and social studies teachers' skills in the College of Education at Kuwait University. *International Journal of Knowledge and Learning*, *14*(4), 324–344. https://doi.org/10.1504/ijkl.2021.118558

Aspin, D. N., & Chapman, J. D. (2007). Lifelong learning: Concepts and conceptions. In *Philosophical perspectives on lifelong learning* (*11*, pp. 19–38). Netherlands: Springer.

Atta, I. S., & Alghamdi, A. H. (2018). The efficacy of self-directed learning versus problem-based learning for teaching and learning ophthalmology: A comparative study. *Advances in Medical Education and Practice*, *9*, 623–630. https://doi.org/10.2147/AMEP.S171328

Baden, M. S., & Major, C. H. (2004). *Ebook: Foundations of problem-based learning*. McGraw-hill education (UK).

Bennell, P., & Akyeampong, K. (2007). *Teacher motivation in sub-Saharan Africa and south Asia* (Vol. 71). DfID London.

Benson, P., & Cooker, L. (2013). *The applied linguistic individual: Sociocultural approaches to identity, agency and autonomy*. Equinox Sheffield.

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, *33*(8), 3–15. https://doi.org/10.3102/0013189x033008003

Cheetham, G., & Chivers, G. (2001). How professionals learn in practice: An investigation of informal learning amongst people working in professions. *Journal of European Industrial Training*, *25*(5), 247–292. https://doi.org/10.1108/03090590110395870

Connelly, L. M. (2015). Research questions and hypotheses. *Medsurg Nursing*, *24*(6), 435–436.

Darling-Hammond, L. (2009). Recognizing and enhancing teacher effectiveness. *The International Journal of Educational and Psychological Assessment*, *3*(1), 1–4.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/s15327965pli1104_01

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, *49*(3), 182–185. https://doi.org/10.1037/a0012801

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, *38*(3), 181–199. https://doi.org/10.3102/0013189x08331140

de Vries, S., Jansen, E. P., & van de Grift, W. J. (2013). Profiling teachers' continuing professional development and the relation with their beliefs about learning and teaching. *Teaching and Teacher Education*, *33*(1), 78–89. https://doi.org/10.1016/j.tate.2013.02.006

Dynan, L., Cate, T., & Rhee, K. (2008). The impact of learning structure on students' readiness for self-directed learning. *The Journal of Education for Business*, *84*(2), 96–100. https://doi.org/10.3200/joeb.84.2.96-100

Eagly, A. H., & Chaiken, S. (2005). Attitude Research in the 21st Century: The Current State of Knowledge. In *The handbook of attitudes* (pp. 743–767). Lawrence Erlbaum Associates Publishers.

Edmondson, D. R., Boyer, S. L., & Artis, A. B. (2012). Self-directed learning: A meta-analytic review of adult learning constructs. *International Journal of Educational Research*, *7*(1), 40–48.

Field, J. (2006). Lifelong learning as a design for the future. In *Lifelong learning and the new educational order*. United Kingdom: Trentham Books, Ltd., Westview House.

Figel, J. (2006). Searching for a new balance: The next frontier for higher education in Europe. *Higher Education in Europe*, *31*(4), 415–420. https://doi.org/10.1080/03797720701303731

Fisher, M., King, J., & Tague, G. (2001). Development of a self-directed learning readiness scale for nursing education. *Nurse Education Today*, *21*(7), 516–525. https://doi.org/10.1054/nedt.2001.0589

Freidus, H., Baker, C., Feldman, S., Hirsch, J., Stern, L., Sayres, B., Sgouros, C., & Wiles-Kettenmann, M. (2009). Insights into self-guided professional development: Teachers and teacher educators working together. *Studying Teacher Education*, *5*(2), 183–194. https://doi.org/10.1080/17425960903306948

Fullan, M. (2007). Change theory as a force for school improvement. In *Intelligent leadership: Constructs for thinking education leaders* (pp. 27–39). Springer.

Guglielmino, L. M., & Guglielmino, P. J. (2008). Productivity in the workplace: The role of self-directed learning and the implications for human resource management. *International Journal of Human Resources Development and Management*, *8*(4), 293–305. https://doi.org/10.1504/ijhrdm.2008.019541

Hair, J. F. Jr., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*. Sage publications.

Hemmington, N. (2000). Barriers and drivers to continuing professional development; the case of the hospitality industry. *Continuing Professional Development*, *3*(1), 23–32.

Hiemstra, R. (2003). More than three decades of self-directed learning: From whence have we come? *Adult Learning*, *14*(4), 5–8. https://doi.org/10.1177/104515950301400402

Irgatoglu, A. (2021). Exploring the relationship between professional development attitudes, activities and self-directed learning readiness of EFL instructors. *International Journal of Progressive Education*, *17*(4), 122–134. https://doi.org/10.29329/ijpe.2021.366.8

Jolley, A., Hampton, S. J., Brogt, E., Kennedy, B. M., Fraser, L., & Knox, A. (2019). Student field experiences: Designing for different instructors and variable weather. *Journal of Geography in Higher Education*, *43*(1), 71–95. https://doi.org/10.1080/03098265.2018.1554632

Karataş, K., & Arpacı, İ. (2021). *The role of self-directed learning, metacognition, and 21st century skills predicting the readiness for online learning* (*13*, pp. 1–13). Contemporary Educational Technology. https://doi.org/10.30935/cedtech/10786

Karatas, K., Senturk, C., & Teke, A. (2021). The mediating role of self-directed learning readiness in the relationship between teaching-learning conceptions and lifelong learning tendencies. *Australian Journal of Teacher Education (Online)*, *46*(6), 54–77. https://doi.org/10.14221/ajte.2021v46n6.4

Kennedy, M. M. (2016). How does professional development improve teaching? *Review of Educational Research*, *86*(4), 945–980. https://doi.org/10.3102/0034654315626800

Kilinc, H. H. (2023). Investigation of the relationship between teachers' lifelong learning tendencies and professional development self-efficiencies. *International Online Journal of Educational Sciences*, *15*(1), 27. https://doi.org/10.15345/iojes.2023.01.003

Kivunja, C. (2018). Distinguishing between theory, theoretical framework, and conceptual framework: A systematic review of lessons from the field. *International Journal of Higher Education*, *7*(6), 44–53. https://doi.org/10.5430/ijhe.v7n6p44

Knowles, M. (1984). *The adult learner: A neglected species*. Gulf Publishing.

Knowles, M. S. (1975). *Self-directed learning: A guide for learners and teachers* (p. 135). New York: Association Press.

Knowles, M. S. (1980). *The modern practice of adult education: from pedagogy to andragogy.* (Vol. 43). The Adult Education Company.

Kolb, D. A. (2007). *The Kolb learning style inventory.* Hay Resources Direct Boston.

Kolenc Kolnik, K. (2010). Lifelong learning and the professional development of geography teachers: A view from Slovenia. *Journal of Geography in Higher Education*, *34*(1), 53–58. https://doi.org/10.1080/03098260902982542

Kwakman, K. (2003). Factors affecting teachers' participation in professional learning activities. *Teaching and Teacher Education*, *19*(2), 149–170. https://doi.org/10.1016/s0742-051x(02)00101-4

Lewis, M. (1998). Lifelong learning: Why professionals must have the desire for and the capacity to continue learning throughout life. *Health Information Management*, *28*(2), 62–66. https://doi.org/10.1177/183335839802800209

Lieberman, A., & Pointer Mace, D. H. (2008). Teacher learning: The key to educational reform. *Journal of Teacher Education*, *59*(3), 226–234. https://doi.org/10.1177/0022487108317020

Loyens, S. M., Magda, J., & Rikers, R. M. (2008). Self-directed learning in problem-based learning and its relationships with self-regulated learning. *Educational Psychology Review*, *20*(4), 411–427. https://doi.org/10.1007/s10648-008-9082-7

Lucas, R. E. (2005). Time does not heal all wounds: A longitudinal study of reaction and adaptation to divorce. *Psychological Science*, *16*(12), 945–950. https://doi.org/10.1111/j.1467-9280.2005.01642.x

Manning, G. (2007). Self-directed learning: A key component of adult learning theory. *Business and Public Administration Studies*, *2*(2), 104.

Merriam, S. B. (2007). Adult learning from a confucian way of thinking. In *Non-Western perspectives on learning and knowing*. Krieger Pub. Co.

Merriam, S. B., & Brockett, R. G. (2011). *The profession and practice of adult education: An introduction*. John Wiley and Sons.

Mezirow, J. (2000). *Learning as transformation: Critical perspectives on a theory in progress*. The Jossey-Bass Higher and Adult Education Series. ERIC.

Murray, H. (2015). *Lifelong learning in the twenty-first century: An investigation of the interrelationships between self-directed learning and lifelong learning*. Union Institute and University.

Mushayikwa, E. (2013). Teachers' self-directed professional development: Science and mathematics teachers' adoption of ICT as a professional development strategy. *African Journal of Research in Mathematics, Science and Technology Education*, *17*(3), 275–286. https://doi.org/10.1080/10288457.2013.848540

Newmann, F. M., King, M. B., & Youngs, P. (2000). Professional development that addresses school capacity: Lessons from urban elementary schools. *American Journal of Education*, *108*(4), 259–299. https://doi.org/10.1086/444249

Opfer, V. D., & Pedder, D. (2013). Teacher change and changing teachers via professional development. *Teachers learning: Professional Development in Education*, 93–117.

Opfer, V. D., Pedder, D. G., & Lavicza, Z. (2011). The role of teachers' orientation to learning in professional development and change: A national study of teachers in england. *Teaching and Teacher Education*, *27*(2), 443–453. https://doi.org/10.1016/j.tate.2010.09.014

Pelletier, L. G., Séguin-Lévesque, C., & Legault, L. (2002). Pressure from above and pressure from below as determinants of teachers' motivation and teaching behaviors. *Journal of Educational Psychology*, *94*(1), 186–196. https://doi.org/10.1037/0022-0663.94.1.186

Playsted, S. (2019). Reflective practice to guide teacher learning: A practitioner's journey with beginner adult English language learners. *Iranian Journal of Language Teaching Research*, *7*(3), 37–52. http://doi.org/10.2139/ssrn.3690211

Porter, B. D., & Freeman, M. K. (2020). Experienced outcomes of a self-directed professional development program. *Professional Educator*, *43*(1), 36–47.

Putnam, R. T., & Borko, H. (2000). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher*, *29*(1), 4–15. https://doi.org/10.2307/1176586

Riggle, R. J., Edmondson, D. R., & Hansen, J. D. (2009). A meta-analysis of the relationship between perceived organizational support and job outcomes: 20 years of research. *Journal of Business Research*, *62*(10), 1027–1030. https://doi.org/10.1016/j.jbusres.2008.05.003

Ryan, R. M., & Deci, E. L. (2019). *Research on intrinsic and extrinsic motivation is alive, well, and reshaping 21st-century management approaches: Brief reply to* (pp. 291–294). Motivation Science. https://doi.org/10.1037/mot0000128

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587–632). Springer.

Selvi, K. (2011). Teachers' lifelong learning competencies. *Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi*, *1*(1), 61–69.

Steinke, K. (2012). Implementing SDL as professional development in K-12. *International Forum of Teaching and Studies*, *8*(1), 54–63.

Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change*, *7*(4), 221–258. https://doi.org/10.1007/s10833-006-0001-8

Tekkol, İ. A., & Demirel, M. (2018). An investigation of self-directed learning skills of undergraduate students. *Frontiers in Psychology*, *9*, 2324. https://doi.org/10.3389/fpsyg.2018.02324

Thwe, W. P., & Kálmán, A. (2023). The regression models for lifelong learning competencies for teacher trainers. *Heliyon*, *9*(2), Article e14268. https://doi.org/10.1016/j.heliyon.2023.e14268

Torabi, N., Aslani, G., & Bahrami, A. (2013). A study on self-directed learning among preliminary School teachers in Esfahan. *Procedia - Social and Behavioral Sciences*, *83*, 219–223. https://doi.org/10.1016/j.sbspro.2013.06.043

Torff, B., Sessions, D., & Byrnes, K. (2005). Assessment of teachers' attitudes about professional development. *Educational and Psychological Measurement*, *65*(5), 820–830. https://doi.org/10.1177/0013164405275664

Tüfekçi, S., & Demirel, M. (2009). The effect of brain based learning on achievement, retention, attitude and learning process. *Procedia - Social and Behavioral Sciences*, *1*(1), 1782–1791. https://doi.org/10.1016/j.sbspro.2009.01.316

Van Rensburg, G. H., & Botma, Y. (2015). Bridging the gap between self-directed learning of nurse educators and effective student support. *Curationis*, *38*(2), 1–7. https://doi.org/10.4102/curationis.v38i2.1503

Zepke, N., & Leach, L. (2002). Contextualised meaning making: One way of rethinking experiential learning and self-directed learning? *Studies in Continuing Education*, *24*(2), 205–217. https://doi.org/10.1080/0158037022000020992

Zhou, H., & Tu, C.-C. (2021). Influential factors of university teachers' lifelong learning in professional development. *Australian Journal of Adult Learning*, *61*(2), 267–297. https://search.informit.org/doi/10.3316/informit.074470318555343