



Research article

Reflective teaching and academic optimism as correlates of work engagement among university instructors

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ABSTRACT

As teaching is a complex and demanding activity especially in university and higher education contexts, exploring the correlates of work engagement in university contexts seems to be a promising research area. As an attempt to further clarify this research area, this study sought to examine the significance of reflective teaching and academic optimism as correlates of work engagement among university instructors in Iran. Having been selected via convenience sampling, a sample of 289 Iranian English as a foreign language (EFL) university instructors participated in this survey. The electronic versions of the scales of teacher academic optimism, reflective teaching, and work engagement were administered to the participants. Initially, the construct validity of the scales was verified for the university contexts via performing confirmatory factor analysis. Then the hypothesized structural relationships among the constructs were tested using structural equation modelling (SEM). The results demonstrated that both reflective teaching and academic optimism significantly predicted work engagement among English university instructors. Some notable implications are finally discussed based on these findings.

1. Introduction

Universities are organizations targeted on dual functions of knowledge transmission and knowledge creation via the processes of teaching and research [1]. Universities together with other academic organizations or institutions represent fundamental emblems where teaching and research merge in order to give life to the process of exchange of knowledge, while research is also a starting point for lessons [2,3]. University professors, as the main members and actors in universities and colleges, play influential roles in promoting the quality of instruction [4], social service, and scientific research. As leaders in the learning process, the role of instructors is multi-faceted and complex. They are exemplars and mentors in a shared path in the pursuit of knowledge rather than relegated simply to assist learners in the acquisition of facts and wisdom [5].

One key factor influencing instructors' life-long professional growth and psychological well-being is reflection [6,7]. As a salient component of professional development and education, reflective teaching is believed to promote the professional competence of lecturers and teachers [8–10]. Reflective teaching is considered as a crucial process in teacher education and has been widely discussed

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and researched in the educational literature [11–13] after the introduction of reflective practice by John Dewey [6]. Via reflective teaching, teachers are also able to delve into teaching and question various language teaching routines and clichés, have a deeper and better understanding of teaching [14], and promote more practices related to teaching [15]. In second language (L2) teacher education, teacher reflection is of pivotal significance in bridging the existing gap between practice and theory, which puts great emphasis on providing high-quality instructors [16].

Moreover, available evidence has proved that a critical element of effective teaching is psychological and behavioral aspects of instructors [17–19]. Educational effectiveness investigations have emphasized the importance of teachers' attitudes and beliefs for student learning [20,21]. Beliefs determine teachers' actions and thoughts and ultimately affect student achievement, although they may act so indirectly [22]. From this perspective, teachers need to be aware of the ways their perceptions shape learners' achievement and engagement [23]. They would perceive the effect of their attitudes and beliefs if they are given an opportunity to articulate them or reflect on them [24]. In the field of education, it is also crucial that optimistic instructors look on the bright side of their job, find solutions to the barriers, maneuver over the positive features of learners as well as their strengths [25]. The construct of academic optimism appears to be a strong notion in explaining teachers' professional learning [26] and students' outcomes [27,28]. The academic optimism concept combines three crucial components with respect to professional creed of teachers: teachers' attitude of self-efficacy regarding their own instructional skills, an emphasis on academic learning and achievement, and trust in learners and their parents [29]. The model regarding academically optimistic instructors reflects individuals with a trustworthy and humanitarian approach to dealing with learners, helping them grow, assess their own work, and benefit from informal evaluations [30]. Such instructors are overworked, willing to accept parents in class, energize their learners, and have tendency to bond and cooperate with learners rather than punish them [31].

In order to develop and prosper in today's ever-changing and competitive environment, most organizations need engaged instructors. Work engagement is characterized with a fulfilling, positive, and occupational state of mind which is associated with dedication, absorption, and vigor [32]. In work engagement dominant models [32,33], the concept of engagement represents the volitional allocation of affective, physical, and cognitive resources to job-related tasks [32,33]. In the domain of teaching, this reflects the fact that teachers who are physically and cognitively engaged maintain concentration on their career and put effort and energy into instructional-related tasks, while emotionally engaged teachers experience affective responses to their profession. As Fredrickson [34] maintained positive affective experiences would develop personal resources for engagement since people sustain explorations of the environment via repeated experiences of positive affect throughout work tasks. Studies have demonstrated that instructors' work engagement has a negative correlation with their intention to quit and job burnout [35,36]. Therefore, enhancing teachers' engagement with their profession is crucial and might serve to decrease costs correlated with higher absenteeism, illness, and productivity [37,38].

Despite the growing research into employee engagement since the 1990's [33], little evidence is available with respect to work engagement among university instructors. Additionally, although teacher engagement has gained momentum in recent years [39–43], no research has been done so far to investigate its association with academic optimism and reflective teaching, especially in EFL contexts. Moreover, despite the abundance of many theoretical studies regarding reflective teaching, there is a dearth of empirical research into gauging university professors' reflective teaching. Additionally, little attention has been paid to the concept of academic optimism in the EFL context. To fill these gaps, the current study strived to examine the issues and to inquire into the correlation between these three variables among university instructors in an EFL context. As such, the following research questions were formulated for this study.

1. Does reflective teaching significantly predict work engagement of university instructors?
2. Does academic optimism significantly predict work engagement of university instructors?
3. Which variable is a more powerful predictor of work engagement of university instructors?

2. Literature review

2.1. Academic optimism

Academic optimism has been conceptualized as a construct for how instructors affect learner outcomes [44]. According to McGuigan and Hoy [45], academic optimism is related to a shared attitude among faculty that academic achievement is valued, that the students can be helped by the faculty, and that both parents and students can play a role in cooperating with faculty in this endeavor. In accordance with the further refinements that have been made to academic optimism, the construct comprises of three teacher-level variables: trust in students and their parents, academic emphasis, and sense of efficacy [46,47]. Trust denotes instructors' ability to build positive bonds with students and their parents. Such trust includes instructors' perceptions that students and their parents are competent, trustworthy, receptive, and truthful. Teacher academic emphasis represents the degree to which instructors highlight the significance of academic achievement, and plan to execute various learning activities in order to achieve this aim. Lastly, sense of efficacy is instructors' belief in their abilities to support successful learning and engage students in activities. In other words, instructors' sense of efficacy reflects the judgment of their abilities to achieve the favorable outcomes of students learning and classroom participation [48]. In this case, instructors can overcome difficulties and focus on learning and teaching with their trust in students and their parents' partnership as well as faith in their efficiency and ability in teaching.

Academic optimism concept has been investigated in relation to teacher professional learning [26], student achievement [49,50], work engagement [42] and distributed leadership [51,52]. This research evidence reveals first, that distributed leadership has a

positive influence on academic optimism [51,52] and second, that academic optimism is related with students' learning achievement as well as teacher professional learning [26,50]. Previous studies have indicated that in those schools with higher academic optimism, a strong trust exists among instructors, parents, and learners toward each other, and the existing trust which might create empathy among them could result in learners' academic achievement [53]. In such schools, greater emphasis is placed on student academic achievement and perceptions that learners and their parents are helpful and trustworthy [46]. In association with this line of research, Fathi et al. [54] revealed that teacher academic optimism was significantly and positively correlated with self-efficacy among EFL teachers. This is, teachers' trust in learners, teacher efficacy, and academic emphasis were the predictors of teacher self-efficacy. Furthermore, Dong, and Xu's [42] mini-review study demonstrated that EFL teachers' optimism was strongly associated with their degree and quality of work engagement.

2.2. Reflective teaching

The reflective teaching concept is contributed to the seminal works of Dewey [6] and Schön [7]. The most pioneering character in the domain of reflection, Dewey [6] conceptualized reflective thinking as a persistent, careful, and intentional action done in the light of questioning or supporting an idea or action. There are other terms to define thinking at higher level, a more complex concept than rote levels, such as productive, reflective, and critical [55]. According to Norton [56], reflective thinking is associated with practices of analyzing, making judgment, and thinking about what is happening and what has happened. In general, reflection involves both reflection-on-action and reflection-in-action [7]. The former is referred to contemplating an action after its occurrence. The purposes of this type are to expand and develop individuals' understanding of an event as well as examine and evaluate their knowledge base. The later involves contemplating what individuals are doing when doing the action based on their professional knowledge base [57].

According to Zeichner and Liston [58], a teacher cannot be considered as engaged in reflective teaching if they do not make inquiries about the value or philosophy behind their work and the perceptions they hold towards learning and teaching. It is stated that teaching is not only the product of skill and knowledge acquired by instructors, but also it is the outcome of teachers' conceptualization, thinking processes, and beliefs with regard to teaching events occurring in the classroom. Based on the model proposed by Schön [7], teachers are able to think reflectively about the various teaching practices they apply in the classroom whether before the class, during teaching, or after holding their class lessons. He also mentioned that by practicing reflective thinking, teachers become more aware of their classroom practices, which leads them to comprehend the importance of critical thinking, analysis, and self-assessment. Reflective teaching is defined as individuals' practice of recalling, considering, and evaluating an experience often regarding a broader purpose [59]. In the field of language teaching, reflective teaching refers to examining teaching practices critically, recommending ideas in order to promote teaching practices, and turning the ideas into practice [60–62]. Farrell [61] further pointed that reflective teaching enables instructors to think critically in order to make logical decisions and question their teaching activities and practices. It is also found that reflective teaching practices help pre-service instructors harness their teaching agency and identity when they are combined with structured professional tasks [63].

Accordingly, research investigations during the past decades have inspected the association between reflective teaching and other teacher variables, such as job performance [12], resilience [64], emotion regulation [65], and work engagement [66]. For instance, Han and Wang [66] conducted a study to explore the relationship between work engagement and teacher reflection among Chinese EFL teachers. The results of their study supported the positive role of reflection in fostering engagement at work. In a study carried out in the context of the current research, Soodmand Afshar and Moradifar [12] examined the relationship between reflective teaching and job performance among 300 Iranian EFL teachers. Adopting a SEM analysis, they found that EFL teachers' job performance was predicted by reflective teaching. In the same vein, Soodmand Afshar and Hosseini Yar [67] explored the relational pattern between reflective teaching and the job performance of Iranian EFL teachers. The results indicated a significant positive link between the participants' job performance and reflective teaching. This is, teachers who think critically about their teaching practices have a better job performance. In another work conducted on reflective teaching in the EFL context of Iran, Ayoobiyan and Rashidi [64] investigating the correlation between reflective teaching and teacher resilience among 75 Iranian English teachers from private institutions, revealed that teachers' reflection predicted their resilience. It was also found that although both two subscales of metacognitive reflection and cognitive reflection predicted teacher resilience, the metacognitive subscale was a more powerful predictor of teacher resilience. In conjunction with the link between reflection and teacher variables, Fathi et al. [65] probed into the effect of reflective teaching on teachers' emotion regulation among Iranian EFL instructors. They suggested that teacher reflection was a positive predictor of emotion regulation. In a very recent investigation, Abdar and Shafaei [68] took the initiative to investigate the relationship between Iranian EFL instructors' teaching style and reflective teaching. The findings demonstrated a positive link between the two variables.

2.3. Work engagement

Kahn [33] conceptualized the notion of disengagement and personal engagement utilizing the grounded theory approach through understanding the experiences, behavior, and perceptions of employees. After Kahn's [33] seminal study on employee engagement, this concept has received growing attention from both practitioners and scholars [69,70]. Since engaged employees are regarded as key components of any organizations' competitive advantage [71], researchers have reported a number of positive results of engaged employees, such as lower turnover intention [40,72], organizational commitment [73], and job satisfaction [74]. According to a famous definition of work engagement developed by Schaufeli and his colleagues [32], this concept is referred to as a fulfilling and positive job-related state of mind characterized by dedication, vigor, and absorption. *Dedication* is defined as being actively engaged in

work as well as experiencing a sense of enthusiasm, challenge, and significance. *Vigor* pertains to high degrees of mental resilience and energy during the work. *Absorption* represents a time when one is happily engrossed in work and fully concentrated so that time passes quickly [32,72].

Researchers have frequently investigated work engagement via Bakker and Demerouti's [75] job demands-resources model [76]. This model suggests that there are particular risk factors that are categorized in the classifications of job resources and job demands in every career or job. Job demands refer to social, organizational, or physical aspects of one's career that require sustained psycho-logical (i.e., emotional or cognitive) and/or physical energy and effort to succeed, whereas job resources involve psychological, organizational, physical, or social aspects of one's career that stimulate learning, development, and personal growth [75]. Previous studies have shown that job resources, including work development opportunities and perceived job assistance are positively correlated to work engagement [77]. It is also reported that engaged employees are more willing to increase their professional knowledge and develop themselves in their occupational roles [78]. In the realm of teaching, the related literature has witnessed that engaged teachers have higher job satisfaction [35]. The perception that individuals are engaged at work and are motivated to make progress towards goals is regarded instrumental in their development of work satisfaction [79]. The regulation of effort and attention towards completing tasks related to work among engaged teachers might lead to multiple favorable job conditions with valued extrinsic and intrinsic rewards, which increases the experience of work satisfaction [79]. It is also commonly agreed that teachers' high self-efficacy generalizes engagement to their work [39,80,81]. From this perspective, the more an EFL teacher believes in his/her abilities regarding teaching, the more they are engaged at work [43]. In other words, when EFL instructors are so sure of their pedagogical expertise, they put more energy and time into teaching and passionately engage in their profession.

According to the relevant data, work engagement is also a positive predictor of teacher immunity among EFL teachers [82,83]. A research study, very recently carried out in an EFL context, was that done by Azari Noughabi et al. [82], which focused on the impact of work engagement on Iranian EFL teachers' immunity. The results obtained from SEM indicated that engaged EFL teachers were more likely to be immune to occupational challenges and stressors. Consistent with this finding, Azari Noughabi et al. [83] underscored the influential role of work engagement in promoting EFL teachers' immunity.

Reviewing the existing body of literature reveals that despite a growing body of research regarding work engagement, reflective teaching, and academic optimism, no empirical study has explored the three variables at a time, especially among university instructors. Furthermore, the concept of academic optimism has received little attention in the Iranian EFL context. As such, this study aimed to investigate reflective teaching and academic optimism as correlates of work engagement among university instructors in the Iranian EFL context. Developing a conceptualization of how university instructors' reflective teaching and optimism affect their engagement would lead to greater awareness by which their sense of satisfaction increases. Given the significance of the three constructs, the findings from this study may add new insights and contribute to the existing literature.

3. Method

3.1. Participants

A total number of 289 Iranian English university instructors participated in this survey study. Utilizing convenience sampling procedure, the researchers invited English language instructors from various universities to take part in the research by responding to the items of an electronic survey. The participants comprised of 167 male instructors and 122 female ones. These instructors were engaged in teaching general and specialized English courses in various provinces and cities of Iran. Their ages ranged from 29 to 51 years old ($M = 35.71$, $SD = 9.13$). They also reported to have had teaching experiences ranging from 6 to 22 years ($M = 8.34$, $SD = 2.89$). Apart from university teaching experience, the vast majority of them stated that they had the experience of teaching English at language institutions/schools previously. This study involving human participants was reviewed and approved by the research ethics committee of the University of Kurdistan (No: 14,012,736) and the participants provided their written informed consent to participate in this research.

3.2. Instruments

3.2.1. Teacher academic optimism scale

EFL university instructors' academic optimism was evaluated using the scale validated by Hoy et al. [29]. This questionnaire includes 11 statements which tap into three underlying facets of a) *Academic Emphasis* (AE, 4 items), b) *Teacher Trust* for learners and parents (TT, 4 items), and c) *Teacher Efficacy* (TE, 3 items). Each item is assessed on a Likert scale ranging from 1 (never) to 5 (always). The greater total score on this scale indicates higher degrees of academic optimism.

3.2.2. Teacher reflection scale

Teachers' level of reflective teaching was evaluated using the scale designed and validated by Akbari et al. [84]. This 29-item questionnaire evaluates five dimensions of teacher reflection including *Practical* (Pr), *Cognitive* (Co), *Affective* (Af), *Metacognitive* (Me), and *Critical* (Cr) dimensions of reflection. The items are assessed on a five-point Likert scale ranging from 1 (never) to 5 (always). Akbari et al. (2010) reported a high level of internal consistency ($\alpha = 0.91$) for the whole scale. Also, the psychometric properties of this scale have been verified by Xiaojing et al. [85].

3.2.3. Work engagement scale

University instructors' work engagement was evaluated employing a self-report measure validated by Schaufeli et al. [32]. This questionnaire consists of 17 statements which measure three dimensions of *Vigor (VI)*, *Dedication (DE)*, and *Absorption (AB)*. The items are assessed on a 7-point Likert scale, ranging from 0 (*never*) to 6 (*always*). The respondents were asked to manifest their degree of engagement in their work by marking the box options of each item.

3.3. Procedure

One of the researchers posted an announcement message of the project in addition to a voice message regarding the purpose of the study on a Telegram channel whose subscribers were English university instructors from various parts of the country. After that, the online survey was created using Google Docs application. The survey included the online items of the questionnaires measuring academic optimism, reflective teaching, and work engagement. The link of the survey was posted on the Telegram channel and other virtual groups including English instructors. Some university instructors also cooperated by sharing the links with their colleagues. The online survey included introductory statements stating the purpose of the study and highlighting the fact that participation was quite voluntary and the respondents could give up at any stage that they wished. They were also assured regarding the confidentiality of their collected information. The data were gathered in March 2022 and it lasted about six weeks to collect all the data.

4. Data analysis and results

The data analysis was carried out using SPSS and AMOS programs. At first, we verified the construct validity of the used questionnaires via running confirmatory factor analysis (CFA). More specifically, measurement models of the three latent models were tested. Afterwards, the structural associations between the constructs were examined using structural equation modelling (SEM).

As the preliminary analyses, outliers, missing data, and non-normal values were identified and discarded. The missing data were addressed using Expectation–Maximization algorithm [86]. The outliers (i.e., univariate and multivariate) were detected using standard scores and Mahalanobis D^2 . After this preliminary screening, 8 cases were eliminated from the analyses, leading to 281 valid cases. A number of widely used fit indices were used for the measurement and structural model testing. These indices were Chi-square divided by degree of freedom (χ^2/df), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). With reference to Kline [86]'s recommendations, the criteria for acceptability were $\chi^2/df < 3$, CFI and TLI > 0.90 , and RMSEA < 0.08 .

The investigations of the measurement models demonstrated the adequacy of the fit indices of the models (see Table 1), lending support to the construct validity of the questionnaires. Additionally, the internal consistency indices were computed with Cronbach's Alpha formula and the obtained values revealed that the three scales enjoyed acceptable reliability (see Table 1). Following that, the descriptive statistics (i.e., mean and standard deviations) and correlations were calculated (see Table 2).

The SEM analyses was then used to test the structural relations between the latent variables using the AMOS program. Full information maximum likelihood procedure was used as an estimation method. The results indicated that all the hypothesized coefficients turned out to be significant and the goodness-of-fit indices were all acceptable. Therefore, it was concluded that the hypothesized interconnections of the structural model were all confirmed (see Fig. 1).

As Fig. 1 shows, instructors' reflection had a moderate effect on their work engagement ($\beta = 0.34$, $R^2 = 0.11$). Moreover, it was found that academic optimism was a stronger correlate of instructors' work engagement ($\beta = 0.41$, $R^2 = 0.16$). Additionally, there was a slight bi-directional association between reflection and academic optimism of instructors ($\beta = 0.24$, $R^2 = 0.05$).

5. Discussion

The primary purpose of this study was to investigate the associations among reflective teaching, academic optimism, and work engagement. More particularly, the significance of reflective teaching and academic optimism as the correlates of work engagement among a sample of Iranian university instructors was explored. The results of SEM analysis indicated that teachers' academic optimism could substantially predict their work engagement. This supports the claim made by Dong and Xu [42], highlighting the salient role of teachers' academic optimism in influencing the quality and degree of their work engagement. One possible explanation for this finding is that academic optimism influences work engagement through self-efficacy. The positive correlation between academic optimism and self-efficacy is confirmed by Fathi et al.'s [54] findings. This outcome might be justified in light of the conceptualization of teacher efficacy as one of the components of academic optimism construct, which is concerned with teachers' judgment of their ability in teaching and developing successful leaning. From this perspective, university professors with higher academic optimism perceive themselves as competent practitioners in managing their classrooms, promoting students' learning, using effective learner engagement

Table 1
Measurement model of the variables.

	χ^2	df	χ^2/df	CFI	TLI	RMSEA	α
Reflection	24.38	13	1.87	.98	.97	.03	.86
Optimism	58.17	30	1.93	.94	.93	.05	.91
Engagement	120.13	60	2.00	.92	.91	.06	.88

Table 2
Descriptive statistics and correlations.

	M (SD)	1	2	3
(1) Reflection	3.26 (.89)	1.00		
(2) Optimism	3.66 (.92)	.22*	1.00	
(3) Engagement	4.08 (1.17)	.46**	.39**	1.00

* $p < .05$. ** $p < .01$.

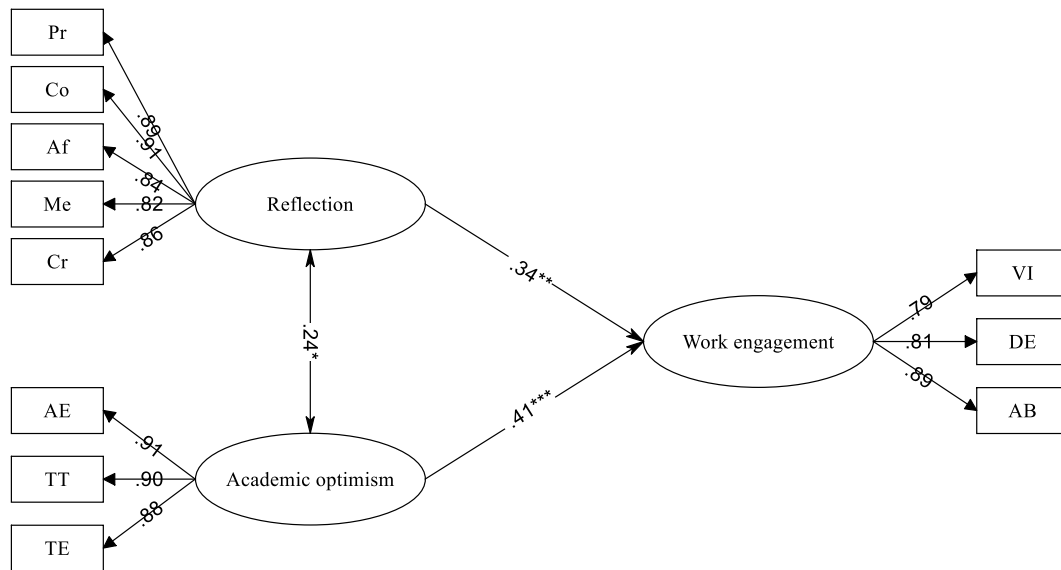


Fig. 1. The model of academic optimism, reflection, and work engagement for university instructors. * $P < .05$. ** $P < .01$. *** $P < .001$.

strategies, and employing useful instructional strategies. Thus, efficacious university instructors who believe in their ability to execute teaching tasks successfully would experience a feeling of enthusiasm, fulfilment, and gratification. As Burić and Macuka [87] asserted, teachers with more self-efficacy experience higher levels of pride, love, and joy towards their learners, but less fatigue and hopelessness. Hence, it can be argued that university instructors with a strong sense of efficacy who experience higher positive feelings and less job burnout are more likely to be engaged in their work. Prior studies have also supported the role of teacher self-efficacy in increasing work engagement [38,43,81].

The findings of this research also demonstrated that reflective teaching was significantly effective in predicting work engagement of EFL university instructors. A possible reason for this finding could be that university instructors with more levels of teacher reflection are continuously questioning their pedagogical beliefs and are deeply obsessed with promoting teaching quality. In the process of implementing reflection, university instructors are concerned with identifying problems and finding solutions for them through sharing ideas with regard to teaching practices with other instructors working in the same university or instructional milieu. In this case, they stay more engaged and committed at work even in the face of setbacks and stressors. This finding resonates with that of Han and Wang [66], revealing a positive association between reflective teaching and work engagement among teachers. In this light, Han and Wang [66] maintained that EFL teachers get more immersed and engaged in their work when they constantly reflect on their actions and teaching practices, and this results in obtaining more positive outcomes. As reflective teachers are endowed with the capability to appreciate the interpersonal and intrapersonal dimensions of their teaching activities, they are more emotionally and cognitively attached to their work [65]. Such teachers are also more capable of overcoming the daily challenges and stressors by being actively engaged in reflective practices, thereby enhancing their devotion to teaching practices [88]. Another possible justification for the positive effect of teacher reflection on work engagement is the fact that reflective instructors usually have a greater sense of professional identity, efficacy perceptions, and emotional bond [89], resulting in their heightened work engagement.

6. Conclusions

Overall, the results of this study underscored the significant role of reflective teaching and academic optimism in predicting work engagement of EFL university instructors. Additionally, the results of the current study make practical and theoretical contributions to the growing literature on university professors' work engagement. Concerning the implications of the findings, initiatives can be undertaken to enhance instructors' reflective teaching, which in turn fosters work engagement. To this end, universities are recommended to set institutional policies as stimuli in order to support instructors to enhance their participation in reflective teaching. A

series of workshops and seminars, for instance, would offer professional development platforms where university instructors are given ample opportunities to reflect on their teaching practices through executing various reflective teaching techniques and to share their instructional experiences with educators and colleagues. In light of another finding of this study and in order to empower the key role of academic optimism in increasing work engagement, university principals/administers could encourage professors to immerse and engage in their profession by cultivating a positive environment. Furthermore, principals' endeavors to distribute responsibility, power, and authority leadership within the university would increase professors' sense of academic optimism. University professors could gain more chances to feel the increased sense of trust and collective efficacy, cultivate higher academic emphasis, and participate in the process of decision-making. This is supported by previous studies [51,52] which substantiated the positive association between distributed leadership and academic optimism. This research provides useful and worthy insights for university contexts. More specifically, these findings add more knowledge to the teacher education field by depicting those areas on which educators need to focus in order to develop university professors' work engagement. These findings suggest university professors to reflect deeply on their teaching practices, question their pedagogical beliefs and behaviors regarding their instructional method, and maintain high levels of academic optimism in order to enhance their work engagement and performance.

W the limitations of the current research, it is argued that the findings obtained from this study might not be generalizable to other university instructors in various contexts and in other disciplines. The convenience sampling which was recruited for the present study might also limit the generalizability of results. It is possible that university instructors with more reflective teaching and academic optimism participated in the study. Future studies could do well to replicate the correlations reported herein with a larger representative sample of university instructors. Another limitation of this study is concerned with the reliance on self-report scales. Moreover, certain variables in relation to the participants, such as their social, psychological, and economic backgrounds could not be controlled and so would have affected their responses. Even though, arguably, the self-report questionnaires might be one of the most valid methods to infer teacher-level variables, it could be profitably indexed administering various methods, such as multiple-informant reports and observer rating. It is also recommended that interviews with a number of selected participants would be advantageous to understand the issues involved more deeply. Any future studies could also use longitudinal approach to best apprehend the developmental process by closely considering the number of measurement occasions and the timing of measurement. Exploring the longitudinal interplay between these concepts might yield pivotal insights into whether instructors' academic optimism (i.e., teacher trust, teacher efficacy, academic emphasis), reflective teaching, and work engagement mutually reinforce one another across time.

Author contribution statement

Fangyuan Li: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Farnoosh Mohammaddokht; Hamed Mohammad Hosseini: Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Jalil Fathi: Conceived and designed the experiments; Analyzed and interpreted the data; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interest's statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2023.e13735>.

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