

## **An Investigation of the Structural Model of Online Course Satisfaction, Online Learning Self-Efficacy, and Online Learning Climate in the EFL Context**

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### **Abstract**

The ever-increasing emergence of online courses has affected students' learning outcomes as well as their participation in and satisfaction with the courses. As a result, exploring the factors which influence students' online course satisfaction might be exigent. As an attempt to fill this lacuna, the purpose of this study was to test a model of online course satisfaction in which online learning self-efficacy and online learning climate served as the variables affecting online course satisfaction in the English as a Foreign Language (EFL) context. For this aim, 186 Iranian intermediate EFL learners took part in an online survey. Structural equation modelling was utilized to analyze the structural model of online course satisfaction. The data analysis showed that although both online learning self-efficacy and online learning climate significantly predicted online course satisfaction, online learning climate was a stronger predictor. In addition, it was revealed that the online learning climate had a small substantial influence on online course satisfaction. The outcomes of this study are useful for online EFL practitioners.

*Keywords:* learning climate, online learning self-efficacy, online course satisfaction, EFL context

### **Introduction**

With the advent of new technology devices, especially the proliferation of information and communication technologies (ICTs), a surge in various types of online classes has been noticed (Fathi & Torabi, 2019; Tratnik et al., 2019). Faced with a new learning environment, instructors and learners are pushed to discard the inveterate habits

of traditional courses and deal with the unique requirements of the new circumstance to function more effectively (Abdous, 2019). However, virtual classes are not without their challenges. Negative feelings including anxiety appear to be a significant hindrance to online learners' success and retention (Abdous, 2019). Furthermore, lack of preparation for online learning and disconnection with peers might result in a higher dropout rate as does lack of interest and motivation. Therefore, it is imperative to explore the features and causal variables of learning and teaching underlying the usefulness or non-success of online instruction (Wei & Chou, 2020).

Parallel to the increasing popularity of online courses, a major concern regarding their quality has also emerged. As a result, scholars have strived to discover whether the constructs traditionally investigated concerning face-to-face (f2f) classes apply to the context of online learning. One main strand of research in this area has sought learner-related factors determining the success of online learning. Of these characteristics, learning satisfaction with the course, which is concerned with learners' perception of their experience, is recognized as a key factor calling for further exploration (Kuo et al., 2014). According to Landrum et al. (2021), online learning satisfaction is the "gearing together of student concerns and student expectations regarding the time and space of online learning, the demands of self, the role of others, including fellow students and the teacher" (p. 82). As asserted by Willging and Johnson (2009), student satisfaction is the principal variable contributing to the effectiveness of online courses. Student satisfaction is claimed to involve learners and affect their learning outcomes and effectiveness (Wickersham & McGee, 2008). Studies have also linked learners' satisfaction levels to academic success and their higher grades (e.g., Puzziferro, 2008).

To develop quality online instruction, the effect of pedagogic communicative variables on learning should not be disregarded (Kaufmann et al., 2016; Rahimi & Fathi, 2022) owing to their focus on "the study of the communicative factors in the teaching-learning process" (Myers, 2010, p. 149). One such construct is learning climate which is conceptualized as the observed bond, rapport, or interaction between learners, instructors, and course structure (Kaufmann & Vallade, 2020). Upon the scrutiny of the relayed literature, Kaufmann et al. (2016) proposed four components for online learning, namely teacher behavior, student connectedness, course clarity, and course structure. Previous studies exploring online learning have also suggested variables that affect a positive learning climate. For example, instructor confirmation behavior including showing interest in student learning and giving detailed feedback to students' questions have positive effects on learners' emotion and their perception of the class (Goldman & Goodboy, 2014). Instructor-learner and learner-learner communication behavior is another feature affecting the learning climate since collaboration works against learners' feelings of isolation through the construction of a unique community (Cole et al., 2021).

Given the amount of autonomy and self-regulation needed from learners in online instruction, a sense of efficacy as an intriguing affective variable is of special importance (Warden et al., 2020). Self-efficacy is the task-specific appraisal that individuals have of what they are capable of doing (Bandura, 2007). Based on this definition, Zimmerman and Kulikowich (2016) conceptualized online self-efficacy as "an individual's perceptions of his or her abilities to complete specific tasks required of online learners" (p. 181). Preliminary studies have suggested five components for online learning self-efficacy such as efficacy in (a) completing an online course, (b) having social interaction with peers, (c) managing instruments in a learning management system, (d) having

interaction with teachers, and (e) maintaining interaction with peers for academic objectives (Tsai et al., 2020). Individuals' perceptions of their capabilities begin to shape when they encounter a new unpredictable situation (Bandura, 2007). Accordingly, learners experiencing an online learning context for the first time are likely to process efficacy information in relation to the new context, thereby generating efficacy beliefs regarding online learning. As such, in the online learning setting, efficacy beliefs function as a self-regulatory mechanism that influences learners' feelings, motivation, and choice of behavior concerning using or avoiding such environments (Bandura, 2007).

Notwithstanding the bulk of studies that have identified the variables viewed to be effective in students' content in online learning environments (e.g., Bervella et al., 2020; She et al., 2021; Wei & Chou, 2020), relatively less scholarly attention has been directed to the exploration of online learner-related correlates and online learning satisfaction predictors. This gap seems to be more noticeable as far as EFL contexts are concerned. To redress the shortage of studies in this area, the present study employs structural equation modelling (SEM) analysis to answer previous studies' calls (Firat et al., 2018; Herrador-Alcaide et al., 2019; Huang & Zhang, 2021) to investigate how online learning climate and online learning self-efficacy contribute to learners' online course satisfaction. The study outcomes can benefit administrators, course designers, and teachers since they can create more effective online learning programs and provide more efficient pedagogic environments, thus rendering online courses more satisfactory (Cidral et al., 2018).

## Literature Review

### Online course satisfaction

As one of the main determinants of learners' success or failure, satisfaction represents the degree of congruence between learners' beliefs, anticipations, their real experience, and the subsequent feeling of sufficiency. In the context of online learning, this multifaceted attitude is one of the key favorable results while exploiting novel devices in instructional contexts (Jung, 2014). According to Landrum et al. (2021), online learning satisfaction is composed of a tangible insight into the compatibility of learners' anticipations concerning course goals, expectations of the class in their lives and world, and perceptions of the teacher. Satisfaction is an element that contributes to the acceptance and quality of courses delivered online (Sampson et al., 2010). As such, learning satisfaction along with learning effectiveness, faculty satisfaction, scale, and access has been identified by the Online Learning Consortium as essential elements for evaluating the quality of online courses.

Past research has explored various factors influencing learner online course satisfaction which could be categorized as related to technology (e.g., ease of use), pedagogy (e.g., course structure), instructional practices (e.g., feedback), perceived enjoyment (e.g., usefulness), and self-motivation (e.g., control) (Eichelberger & Ngo, 2018). For example, the significance of perceived usefulness and ease of use in affecting higher education students was investigated by Jiang et al. (2021). They found both factors to be critical indicators of online course satisfaction, with perceived usefulness being a stronger predictor. Similar studies have also found satisfaction is anchored on comfort

with using the Internet and on the perceived usefulness. Employing SEM, She et al. (2021) found that interaction predicted student online learning satisfaction via the mediation of engagement and self-efficacy. Likewise, Bervella et al. (2020) found that three kinds of interaction, namely, learner-learner, learner-teacher, and learner-material affected students' degree of satisfaction with the online course. Regarding the influence of course structure, Eom et al. (2006) showed this construct is a vital indicator of student satisfaction in university online education. In addition, Cobb (2011) noted that social presence is a crucial variable in predicting the overall satisfaction and perceived learning of nursing students. This position accords with the findings proposed by Strong et al. (2012), who reported that social presence and learning environment significantly impact students' online learning satisfaction. Marks et al. (2005) further observed that the perceived student learning outcome contributed to learner satisfaction in online courses. In an attempt to explore the association between students' personality traits and their content with online courses, Cohen and Baruth (2017) suggested an openness to experience and conscientiousness as precursors to course satisfaction. In a comprehensive, cross-country study focusing simultaneously on the antecedents of learners' perception of their learning quality and students' content with the course, Baber (2020) found the following antecedents: course structure, motivation, interaction in class, instructor knowledge, and facilitation. Furthermore, Wu et al. (2010) tested a hypothesized model consisting of six factors determining learning satisfaction. The empirical findings indicated that performance expectations and learning climates were direct predictors of learning satisfaction while the remaining factors were found to indirectly influence satisfaction.

The study of online course satisfaction is of real significance because it is a vital indicator of student- and program-related outcomes (Çimen, 2022; Willging & Johnson, 2009). Prior studies have shown satisfaction is one of the main considerations influencing teaching quality (Alebaikan & Troudi, 2010), drop-out rate (Park & Choi, 2009), dedication to finishing a course (Alqurashi, 2019), learning achievement (Ke & Kwak, 2013), and continuity of online learning (Parahoo et al., 2016). Furthermore, the level of satisfaction informs officials of the areas of online programs needing improvement and enables them to develop strategic planning particular to online courses (Kayacan et al., 2020; Noel-Levitz, 2011). Given these potential benefits, online course satisfaction and its antecedents justify more exploration to develop a more in-depth insight into the construct within stake-holders so that they can improve the quality of online learning.

### **Online learning climate**

Borrowed from meteorology into education, the construct of climate is defined by Seif et al. (2012) as “the social, emotional, and physical conditions under which one acquires knowledge” (p. 554). According to Reid and Radhakrishnan (2003), learning climate describes how learners perceive the quality of their academic experience. This perception emanates primarily from the interconnection between teacher and learners as well as course structure. A favorable learning climate in traditional f2f contexts is a factor determining learners' success and satisfaction (e.g., Barksdale et al., 2021) and is also related to a number of positive outcomes. For example, Dwyer et al. (2004) have articulated a relationship between positive climate and positive evaluation of learners from instructor and course. Moreover, in the literature, a positive learning climate has

been noted to be linked with positive learning outcomes like a higher achievement (Vinchristo, 2022) and affects the instructor, peers, and the course.

Notwithstanding, online courses have their climates (Cole et al., 2021) as they feature components and accessibility considerations different from f2f courses, rendering modality a crucial factor when developing and delivering online courses (Kaufmann & Vallade, 2020). From Kaufmann et al.'s (2016) perspective, an online classroom climate is characterized as “a perceived connection to, rapport for, or affinity with teacher and students within a mediated or online class” (p. 318). More precisely, Kaufmann et al. (2016) proposed a four-component model which contributes to the perception of the online learning climate: *Instructor behavior* includes such instructor qualities as supportiveness, responsiveness, and being understanding; *Student connectedness* accounts for learners' engagement and respectful peer interactions; *Course clarity* refers to the clearness with which assignments, directions, and organization of the course are communicated; and *Course structure* pertains to learners' perception of the opportunities for interaction with each other. Interaction is an essential component in the ecology of classes, especially online courses. However, in online courses, unlike f2f classes, interactions among learners and instructors are computer-mediated, which raises a concern about the sufficiency of student-student and student-teacher interactions. The importance of interaction in online education lies in the fact that it fosters a greater degree of social presence which in turn leads to building a supportive encouraging learning climate through affective expression, open communication, and group cohesion. Also, providing learners with opportunities to interact with others in an online setting is beneficial since it fosters a communal sense of belonging, and in doing so protects learners from feelings of isolation and loneliness, as well as being baffled by course content (Montebello, 2018; Rabe-Hemp et al., 2009).

Although a remarkable body of research has explored the learning climate in conventional courses, less knowledge exists on the learning climate in online education contexts regarding its antecedents, its impact on learning, and how it is achieved (Ni, 2013). In a study investigating how instructor behavior impacts students' perceived outcomes, Vallade and Kaufmann (2020) found that the online learning climate mediates the inter-connectedness of misbehavior assessments and learning perceptions. Kaufmann and Vallade (2020) explored the impact of rapport and climate on learners' perception of loneliness in online contexts. The results of multiple regression partially supported the hypothesis that a negative association existed between online learning climate and loneliness although only two dimensions of learning climate, namely student connectedness and course structure were significantly associated with loneliness. Further, they found that instructor behaviors, course clarity, and course structure were significantly associated with instructor rapport. Attempting to explore the plausible correlates of online learner engagement, Cole and colleagues (2021) suggested that student assessment of active learning practices and online learning climate could substantially predict learners' online engagement.

Though studies have proved the positive role of learning climate in traditional f2f education, a glance at the literature reveals the scarcity of such studies in the context of online learning, particularly in the realm of EFL. Given that course, satisfaction is related to student-student interaction, student-instructor interaction, course structure, and student-content interaction (Eom et al., 2006; Owusu-Agyeman & Larbi-Siaw, 2018; Rahimi & Fathi, 2021; She et al., 2021) all of which are components of online learning

climate, it seems that uncovering the association between course satisfaction and learning climate in online setting deserves further clarification.

### **Online learning self-efficacy**

With the rise of online instruction over recent decades, exploring self-efficacy as a potential correlate of a successful outcome in online language learning has attracted much research interest (e.g., Alqurashi, 2016). This construct, grounded in socio-cognitive theory, is defined as a multi-faceted mental process constituting learners' perceptions, assurance, and anticipations (Bandura, 2007). In other words, self-efficacy determines learners' self-assurance in orchestrating their learning process and affects their apprehension of cognitive and mental growth (Jeong et al., 2021).

As far as language learning is concerned, the construct of self-efficacy has been argued to be effective in shaping learners' capability in actuating and sustaining cognitive, affective, and physiological resources to accomplish their learning objectives (Lin et al., 2017). A greater sense of efficacy, as an illustration, impacts students' mastery of language skills and components since a positive attitude might result in lower apprehension, reduced burden, and further achievements (Wang & Pape, 2007).

Self-efficacy is believed to be context-bound (Zimmerman et al., 2016). In online learning, some scholars (e.g., Chu & Tsai, 2009) have highlighted the significance of efficacy beliefs because of the absence of interactions and the existence of further distractors in comparison with a f2f context. With these potential psychical and psychological challenges, learners with a higher sense of efficacy are good at managing their competencies and do not hold unfavorable perceptions, whereas learners with a less degree of self-efficacy, who are not very competent in dealing with difficult situations, might be more anxious while accomplishing goals (Hodges, 2008). Shen et al. (2013) proposed three general perspectives concerning self-efficacy in online learning: (1) *self-efficacy with technology* (e.g., students' perceptions of their ability to use the applications effectively for online learning), (2) *self-efficacy in learning* (e.g., students' belief in their ability to learn more effectively in online courses), and (3) *self-efficacy to interaction* (e.g., students' eagerness to interact with their instructors as well as their peers socially and academically).

Some recent studies have pointed to the significance of efficacy perceptions in online learning. Some have even argued that learners' online self-efficacy might be the most influential variable contributing to retention, overall student learning, and achievement in an online learning environment (Liaw, 2008; Prior et al., 2016). Kuo et al. (2014) commented students with less self-efficacy in online learning might be reluctant to have active participation in online learning at all because of their absence of self-assurance. Furthermore, this less degree of self-efficacy might also reduce students' motivation to keep their online learning going, which, in turn, would affect their learning outcomes. This might be because students with a greater degree of efficacy beliefs maintain that online learning context could aid them in participating more effectively in collaborative online activities and develop pertinent metacognitive strategies to learn more effectively through carrying out online tasks (Lin et al., 2017).

Studies on online self-efficacy have also shown its link to other variables. Zhu (2019) found a positive correlation between this construct and self-esteem in an online course. Chang et al. (2013) studied the impact of online self-efficacy on learners'

performance and motivation and found learners with higher online self-efficacy performed better than those with a lower sense of efficacy on the post-test. They also noted significant differences between genders, with males having a greater level of online self-efficacy than females. Kim and Shin (2021) reported an indirect impact of efficacy perceptions on language learning gains via the mediation of integrative motivation. In another study, Wang and Newlin (2002) found a connection between learners' self-efficacy and their desire to take an online course. Bradley et al. (2017) also found a strong association between efficacy beliefs and self-regulation in both online and f2f learning contexts, suggesting that high scores in both areas are strong predictors of success in online learning environments. Teng et al. (2021) proposed a theoretical framework for language learners' achievement in an online learning context which required self-efficacy as one of the core elements of the model. Their findings revealed that self-efficacy was the most influential causal variable for participants' language achievement.

As learners' might be different in their self-efficacy, which makes them substantially different in their own experiences and competencies in online courses, exploring EFL learners' self-efficacy in online English learning seems to be essential to better understand the mechanism that affects the association between online self-efficacy, online learning climate, and satisfaction with the online course. Given this importance and due to little research on this issue, the present study examines the relationship among these three variables.

### **The Hypothesized Model**

According to the theoretical background of the three constructs and the literature reviewed above, a model of online course satisfaction based on online learning climate and online learning self-efficacy was hypothesized for EFL learners. The model postulates the relations among the three latent variables. Following Cole et al.'s (2021) conceptualization of online learning climate, Wei and Chou's (2020) definition of online course satisfaction, and Tsai et al.'s (2020) model of online self-efficacy, we formulated the following hypotheses (see Figure 1).

- H1: Online learning climate positively affects online learning self-efficacy.
- H2: Online learning climate positively affects online course satisfaction.
- H3: Online learning self-efficacy positively affects online course satisfaction.

## **Methodology**

### **Participants**

The sample of participants contained a number of 186 intermediate Iranian EFL learners from BayaneBartar Education Centre in Tehran, Iran. BayaneBartar Education Centre is a nonprofit organization with over 250 teaching and operational staff to provide effective academic English services, including online and face-to-face courses for Iranian students who need English for work, study, migration, or travel. These participants were reported to be intermediate (B1) as measured by the placement test of the institute and they were selected based on a convenience sampling procedure. The

sample included both male ( $n = 83$ ) and female ( $n = 103$ ) participants and their ages ranged from 20 to 26 ( $M = 21.08$ ,  $SD = 1.84$ ).

## **Instruments**

### **Online Learning Self-Efficacy Scale (OLSS)**

OLSS has been designed and validated by Tsai et al. (2020) and includes 25 items measuring five components: 1) Self-efficacy to complete an online course, 2) Self-efficacy to interact socially with classmates, 3) Self-efficacy to handle tools in a Course Management System (CMS), 4) Self-efficacy to interact with instructors in an online course, and 5) Self-efficacy to interact with classmates for academic purposes. The respondents were required to show their degree of agreement with each item. The items were in the form of a 5-point Likert scale, varying from 1 (*strongly disagree*) to 5 (*strongly agree*). In this study, the reliability coefficient of the total questionnaire estimated through Cronbach's alpha was .79.

### **Online Course Satisfaction Scale (OCSS)**

The OCSS was developed by Wei and Chou (2020) to measure learners' satisfaction with an online course. OCSS consists of 7 items that assess respondents' perception or satisfaction regarding teachers and the design of the course. Each item is assessed on a five-point Likert scale, varying from *strongly disagree* (1) to *strongly agree* (5). The reliability coefficient of the scale was .82, as estimated via Cronbach's alpha formula.

### **Online Learning Climate Scale (OLCS)**

OLC which was validated by Kaufmann et al. (2016) was employed to examine students' perception of the online learning climate. OLC is a 15-item self-report scale that measures four underlying components: instructor behaviors, course structure, course clarity, and student connectedness. This scale was assessed on a five-point Likert scale, ranging from *strongly disagree* (1) to *strongly agree* (5). The internal consistency of the scale, measured via Cronbach's alpha formula, showed good reliability ( $\alpha = .88$ ).

## **Procedure**

Because of the pandemic breakout, all the data were gathered via an online survey. To this end, the self-report scales for measuring the three variables (i.e., online learning self-efficacy, online learning climate, & online course satisfaction) were inserted into the Google Docs application. Employing convenience sampling procedures, the researchers asked intermediate Iranian EFL learners from BayaneBartar Education Centre to fill out the online survey. The participation was quite voluntary. The data collection started at the beginning of the Fall Semester of 2021 and took about four weeks to gather the data.

## **Analytic procedure**

The proposed model was investigated by employing SEM. SEM is a powerful multivariate procedure that is a combination of regression and factor analysis. Before performing SEM, confirmatory factor analysis (CFA) was utilized to check the measurement models, which is considered as confirmation of the construct validity of measures. As for the model evaluation, various goodness-of-fit indices were used. The used indices included Chi-square divided by degree of freedom ( $\chi^2/df$ ), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). According to Tseng and Schmitt (2008), a model is fit if  $\chi^2/df < 3$ , CFI and TLI  $> .90$ , and RMSEA  $< .08$ .

Table 1  
*Number of Cases for Each Measure*

	No of original cases	No of outliers	No of missing cases	No of valid cases
Climate	186	2	2	182
Self-efficacy	186	1	1	184
Course satisfaction	186	1	2	183

## Results

### Preliminary analyses

Prior to evaluating the hypothesized model of online course satisfaction, data screening was carried out using SPSS 22. Expectation-Maximization (EM) algorithm was employed to address the missing data (Kline, 2011). EM is a kind of imputation technique in which missing data will be replaced with values. Skewness and kurtosis indices were employed to test the normal distribution of data and the values exceeding  $\pm 2.0$  were considered non-normal. Also, univariate and multivariate outliers were checked by employing standard scores and Mahalanobis  $D^2$ , respectively (Tabachnick & Fidell, 2007). The non-normal values and outliers were discarded before running CFA and SEM. Table 1 indicates the number of valid cases for each construct.

### Validity of the questionnaires

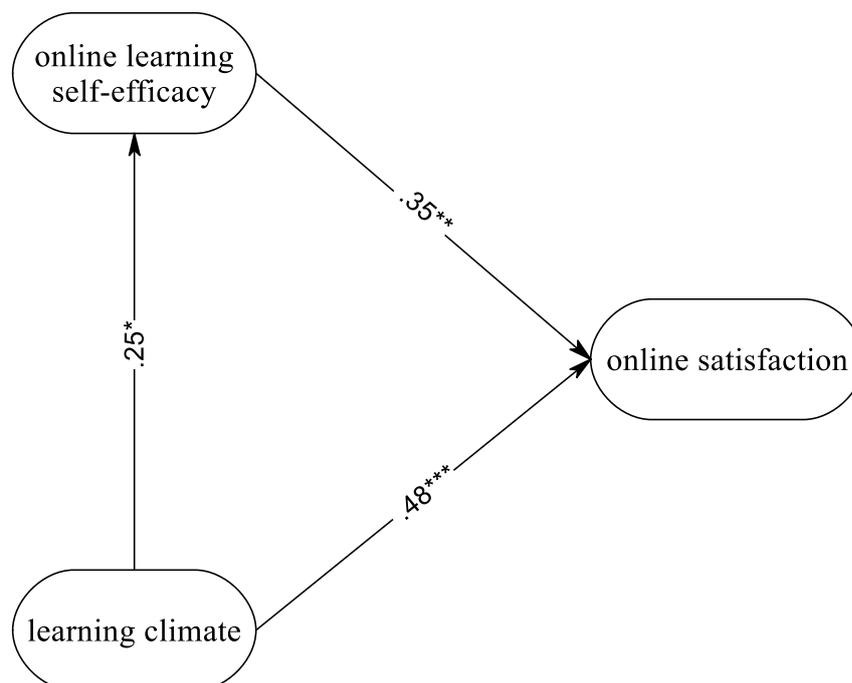
Afterward, the validity of the measurement models was examined via performing CFA. The fit indices were employed to test the adequacy of the measurement models (see Table 2). To this end, measurement models of online course satisfaction, online learning climate, and online learning self-efficacy were tested. Initially, indices for some models were not acceptable. As a result, some modifications were made. In so doing, two items from online learning self-efficacy and one item from online learning climate were discarded as their factor loadings were below .40. The final models demonstrated a good fit to the data (see Table 3). Then descriptive statistics and correlations were calculated for all the constructs (Table 4).

## SEM analyses

The hypothesized model was tested with AMOS with variance-covariance matrices as input and the maximum likelihood procedure. Coefficients for all paths were significant ( $p < .05$ ) and the fit indices were good. Results of SEM approved all the hypotheses in the final model (see Figure 1). To interpret the data more meaningfully, effect size (ES) (Cohen's  $f^2$ ) was measured for all the latent constructs (Table 5).

Figure 1

*The Final Model of Online Learning Climate, Online Learning Self-Efficacy, and Online Course Satisfaction*



\* $p < .05$ . \*\*\* $p < .001$ .

Table 2

*Measurement Model of the Latent Constructs*

	$\chi^2$	df	$\chi^2/\text{df}$	CFI	TLI	RMSEA
Climate	5.38	3	1.79	.98	.97	.06
Self-efficacy	3.48	3	1.16	.99	.98	.02
Course satisfaction	5.57	4	1.39	.98	.98	.03

Table 3

*Fit Indices for the Initial and Final Models*

	$\chi^2$	df	$\chi^2/\text{df}$	CFI	TLI	RMSEA
Initial model	352.13	209	1.68	.96	.95	.05
Model after removing some items	350.16	210	1.66	.97	.98	.04

Table 4  
*Descriptive Statistics and Correlations*

	<i>M</i> ( <i>SD</i> )	1	2	3
(1) Climate	3.36 (1.09)	1.00		
(2) Self-efficacy	2.96 (0.87)	.36**	1.00	
(3) Course satisfaction	3.42 (1.24)	.62**	.44**	1.00

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

Table 5  
*Standardized Parameter Estimates for the Structural Model*

	$R^2$	$f^2$
(1) Climate	.23	.29
(2) Self-efficacy	.11	.12

As illustrated in Figure 1, online learning climate had a small effect on online learning self-efficacy ( $\beta = .25$ ,  $R^2 = .06$ ,  $f^2 = .06$ , small effect size). Also, it was demonstrated that online learning climate was a stronger predictor of online course satisfaction ( $\beta = .48$ ,  $R^2 = .23$ ,  $f^2 = .29$ , large effect size). Online learning self-efficacy significantly predicted online course satisfaction ( $\beta = .35$ ,  $R^2 = .12$ ,  $f^2 = .13$ , medium effect size).

## Discussion and Conclusions

This research aimed to explore a model of online course satisfaction in which online learning self-efficacy and online learning climate served as the predictors of online course satisfaction. The results of SEM analyses yielded three significant findings.

First, it was demonstrated that the online learning climate had the greatest predictive influence on online course satisfaction. The online learning climate emphasizes the students' interactions with the instructor, course design, and their classmates. Such interactions preclude learners' isolation in online courses which is considered a frequent source of dissatisfaction in online instruction (Cole et al., 2021; Rabe-Hemp et al., 2009). One plausible justification might be the fact that students' further interactions with the course, teacher, and peers foster their engagement and active learning which in turn result in their greater satisfaction with the course (Chiu & Cheng, 2017; Cole et al., 2021). Consequently, it might be argued that the online learning climate has significantly contributed to online course satisfaction via the mediation of student engagement. This is in line with Wallace's (2003) argument that learners need to acknowledge and appreciate interactions with instructors and peers for their knowledge construction.

In addition, more favorable social, contextual, and affective circumstances under which online learners gain knowledge influence their course satisfaction. Following Reid and Radhakrishnan (2003), learning climate which is characterized as learners' perception of their academic experience quality and their interaction with the teacher and their classmates as well as course structure can contribute to how satisfied they will be with the course. Concerning online learning context and sticking to Kaufmann et al.'s (2016) model of online classroom climate, we may argue that instructor behavior, student connectedness, course clarity, and course structure are likely to have affected online

course satisfaction, characterized as learners' perception of technology use, course structure, usefulness, and self-directed interest (Eichelberger & Ngo, 2018).

This outcome is consistent with those of a significant bulk of the research that gave credit to interactions in affecting students' satisfaction in online classes. For instance, Tratnik et al. (2019) mentioned learner-learner interaction and learners' engagement in the course as one key element of learner satisfaction in online courses. Similarly, Vonderwell and Turner (2005) reported that course satisfaction is highly associated with learner-learner and learner-instructor interaction, instructor support and feedback, and the nature of assigned tasks. The main frequent Achilles heel of online instruction is students' perceptions of loneliness and isolation because of their less interaction compared with traditional f2f classes (Ali & Smith, 2015; Kaufmann & Vallade, 2020). However, a favorable online learning climate that necessitates further interactions among learners and teachers can mitigate this sense of loneliness and isolation, thereby enhancing students' satisfaction with the online course. If students have interaction and communication with their classmates and the teacher, they can alleviate the sense of isolation and get more engaged in their learning (Ali & Smith, 2015). In a similar vein, Taghizadeh and Hajhosseini (2021) pointed to various kinds of interactions as significant predictors of online course satisfaction. It is worth noting that student-teacher interaction, as an element of the online learning climate, has been acknowledged as one key variable affecting online learners' satisfaction (Ekwunife-Orakwue & Teng, 2014; Teng et al., 2021).

Furthermore, the findings of this research partially support Kuo et al. (2013) who reported that student-teacher interaction, student-content interaction, and digital self-efficacy significantly predicted learner satisfaction, but student-student interaction fell short of significance in their study. Likewise, Wu et al. (2010) revealed that the interaction between student and teacher affected the online learning climate, which in turn enhanced online learners' satisfaction. Lewis (2011) also pointed out the absence of student-student interaction was mentioned as a stumbling block in online courses. From Ekwunife-Orakwue and Teng's (2014) perspective, interactions between learners could have an influence on learners' satisfaction but not on their scores. As far as the related literature is concerned, it seems that student-teacher interactions have a substantial impact on learners' satisfaction in online courses (Song et al., 2016).

The positive impact of the online learning climate on course satisfaction also aligns with the findings of Wei and Chou (2020) who spotlighted the significance of online learning contexts. From their viewpoints, online learning perceptions are highly correlated with synchronous and asynchronous interactions with classmates and teachers, absence of time and place constraints, and convenience in using various online knowledge and materials. This positive impact of learning climate on course satisfaction can be also discussed in light of learner-content interaction. As another underlying component of the online learning climate, student-content interaction is argued to positively affect satisfaction in online instruction (Zhang & Lin, 2020). The contribution of learners' interaction with the content to enhancing their satisfaction has been widely acknowledged in the literature (Hawkins et al., 2013).

Second, the results of SEM analyses showed that online learning self-efficacy significantly influenced online course satisfaction. This finding supports the previous studies which verified the significant effect of self-efficacy on learning perception and course satisfaction in online classes (Alqurashi, 2019; Puzziferro, 2008). Self-efficacy in online contexts is claimed to affect online learning satisfaction (Shen et al., 2013). As

evidenced in the literature, computer or e-learning self-efficacy affects learners' satisfaction, participation, and learning outcomes (Lin et al., 2008). More self-efficacious learners devote further time and attention to what they do, hold positive perceptions towards learning and show higher satisfaction with online instruction (Tsai et al., 2020). However, students with lower self-efficacy levels may not exert adequate effort in their activities, do not persevere in difficult situations, and are less satisfied with online courses. Evidence shows that if learners believe that they lack the requisite competencies to succeed in online learning, they may not take the course or finish it (Moore & Kearsley, 2005). As the construct of online learning self-efficacy appears to hinge on learners' self-efficacy in using the Internet or computers, the interconnection between online learning self-efficacy and online course satisfaction might be warranted in the sense that students who are more capable and confident in using technology are probably more content with the online course. This outcome is following some previous studies (e.g., Bolliger & Halupa, 2012; Wei & Chou, 2020). The contribution of online learning self-efficacy supports the existing literature which underscores the positive effect of self-efficacy on improved learning outcomes and satisfaction (Alqurashi, 2016). Subscribing to Bandura's (2007) notion of self-efficacy, grounded in socio-cognitive theory, we may argue that learners' self-beliefs and self-confidence affect their development of online learning strategies and management techniques, which in turn affect their online course satisfaction.

Also, it might be argued that learners with greater online learning self-efficacy are more motivated to do online activities, participate in the discussion board, interact with their peers, and finish the assignments, resulting in their increased online course satisfaction. In other words, it can be claimed that online learning self-efficacy might have enhanced online course satisfaction through the mediation of online learning motivation. Additionally, the lower effect of online learning self-efficacy on learners' satisfaction might be justified in light of the significance of self-efficacy in a new learning context (Doo & Bonk, 2020). Following Shea and Bidjerano (2010), we may argue that the less predictive power of self-efficacy in an online learning setting may be attributed to learners' doubt and confusion in this unfamiliar learning context (i.e., online course). In other words, the unfamiliar nature of the online learning context might have decreased the learning self-efficacy of participants in this study. As a result, online learning self-efficacy had a smaller influence on the online learning satisfaction of the participants.

Finally, it was demonstrated that the online learning climate had a slightly positive influence on online learning self-efficacy. Given the context-sensitive nature of self-efficacy and also its vulnerability due to lack of interactions in online contexts (Shen et al., 2013), it is argued that a more favorable online learning climate, which is materialized as interactions with the instructor and peers as well as course perceptions, can enhance students' online learning self-efficacy. Adopting Shen et al.'s (2013) triad of online learning self-efficacy, we also contend that self-efficacy for interaction, defined as learners' enthusiasm in having interactions with the teacher and their peers during online context, is affected by the online learning climate which underscores such interactions. Research indicates that the components of online self-efficacy are interconnected with interactions between learners and teachers (Shen et al., 2013). As a result, the link between online learning climate and online self-efficacy seems warranted as social interactions are the core components of online learning climate. Since the essence of online learning needs many interactions and the social presence of teachers and learners,

students' satisfaction with the online course is enhanced by a heightened sense of learning community derived from both a positive online learning climate and improved online learning self-efficacy.

### **Implications and Limitations**

Given the significant contribution of the online learning climate to course satisfaction, it is of much importance for the course designers to design online educational settings which foster participants' interaction with the course, peers, and instructors. Designing user-friendly functions for the systems might be recommended as such systems might give learners a sense of comfort, confidence, and less pressure to get actively engaged in online courses, which in turn enhance their interaction, motivation, and satisfaction. The instructors should also encourage learners to participate in the course by posting on the discussion board and having further interactions with their peers. In addition, online learners should be provided with both technical and instructional support in case they encounter technical problems or when they feel demotivated during the online course.

In other words, practitioners in online courses should not confine their responsibilities to just sharing materials or giving assignments. But they should encourage further friendly interactions among students which in turn lead to both online learning self-efficacy and greater satisfaction with the online course. In the meantime, learners in the online courses should be given tasks that require collaboration and meaningful communications, fostering further cooperation and scaffolding discussions. Since the outcomes of this research revealed that online learning climate and online learning self-efficacy jointly contributed to improving course satisfaction, online instructors may assess these two constructs using the valid questionnaires to gain a more vivid illustration of their own students' satisfaction with the course. Teachers' self-awareness of their students' perception of the online learning environment, as well as their online self-efficacy, can help them think about the ways they can enhance course satisfaction (Fathi & Ebadi, 2020).

Some limitations can be mentioned in the present study. The generalizability of the current findings to other online contexts might be constrained since a relatively small sample size including Iranian EFL learners took part in this study. Further studies employing bigger and more representative samples in other EFL online learning settings should be carried out. Also, the researchers of the present study only employed quantitative self-report measures which may not truly indicate the actual level of the variables under investigation. Therefore, future researchers should employ qualitative research methods to cast more light on the analyses of such variables.

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