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The Relationship between EFL Learners' Perceptions of Adaptive Teacher Support and their Learning Styles

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Abstract

Studies have shown that students with varying learning styles require different types and levels of support from their teachers in order to succeed. Since not many empirical studies have been conducted to support or refute this correlation within the EFL context from the learners' perspective, this study mainly aimed to see to what extent EL teachers' adaptive support caters to their students' varying learning styles. Thus, to investigate the relationship between EFL Learners' perceptions of Teacher Support Adaptivity and their various Learning Styles, 205 EFL learners from intact classes completed the Questionnaire on Teacher Support Adaptivity (QTSA) and Kolb's Learning Style questionnaire. The relationship between each specific learning style and teacher support adaptivity was examined using the Spearman rank-order correlation coefficient. The subsequent overall results indicated statistically significant relationships between various learning styles and teacher support adaptivity. The results also showed that while Reflectors positively correlated with teacher support adaptivity, Activists, Theorists, and Pragmatists negatively correlated with it. Furthermore, though statistically detectable, the correlation between teacher support adaptivity and pragmatist learning styles was only marginally significant. Therefore, it could be concluded that EFL teachers' adaptive support (steering students' learning processes toward their understanding) catered mostly to Reflectors and least to Pragmatists, as perceived by their learners. The results of this study contribute to EFL research on the importance of adaptive teacher support that is compatible with learners' diverse learning styles and provide input for further analysis in this context.

Keywords: adaptive teaching; EFL learners; Kolb's learning styles; learner perceptions; learning styles; teacher support adaptivity

Introduction

Learning style has been defined in several ways since the 1980s, and these definitions differ in what they take as the core of the construct. Dunn and Dunn (1993) described learning style as an individual's way of concentrating on, processing, and retaining new information, a view that places weight on how learners respond to environmental and instructional stimuli. Kolb (1984), by contrast, grounded learning style in experiential learning theory and defined it as an individual's orientation toward four learning modes:

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concrete experience, reflective observation, abstract conceptualization, and active experimentation. In this sense, learning style refers to how a student prefers to learn (Aissaoui et al., 2019). Other researchers have broadened the construct further to include learning capabilities, learning paths, preferred learning content, and performance (Balasubramanian & Anoncia, 2018). This variety is more than a matter of terminology, because studies that begin with different definitions also use different instruments, making their findings difficult to compare.

Much of the early interest in learning styles rested on the idea that instruction works best when it matches learners' preferences. Studies from the 1990s reported that closer matches between teaching and learning styles were associated with higher grade point averages (Dunn et al., 1995) and improved learning performance (Hayes & Allinson, 1996). Later studies in language learning reported similar benefits of matching learning styles with teaching methods (Akbarzadeh & Fatemipour, 2014; Damrongpanit & Reungtragul, 2013; Karabuga, 2015; Rinekso, 2021; Toyama & Yamazaki, 2020). On this basis, instructors were urged to address a variety of learning styles (Taylor, 1998). The recommendation to tailor instruction to students' learning styles has continued into more recent work (Kharb et al., 2013). Part of the appeal of this idea comes from the wider shift from teacher-centered to student-centered learning (Collins, 2004), which places learners' individual characteristics at the center of instruction.

The matching hypothesis, however, has been seriously challenged. In a review that identified 71 learning style models and examined the most influential of them in depth, Coffield et al. (2004) found that many of the instruments had questionable reliability and validity. That evidence for improving learning by matching instruction to style was weak and inconsistent. Pashler et al. (2008) argued that a convincing test of the hypothesis requires an experimental design in which learners with different styles are randomly assigned to different instructional methods and show a crossover interaction. They found very few studies that met this standard, and those that did largely contradicted the hypothesis. These critiques help explain why earlier findings diverge: many positive results came from correlational or quasi-experimental studies that used different style instruments and outcome measures, so they could not show that matching itself produced better learning. For this reason, the present study does not assume that matching instruction to learning style improves achievement. It treats learning style instead as a learner characteristic that may shape how students experience and evaluate the support their teachers provide, a question that remains open regardless of how the matching debate is settled.

A related line of research has shifted attention from fixed learner categories to the teacher's responsiveness during instruction. Students learn at different rates and need different types and levels of support, so teachers have to understand their students and adjust their teaching accordingly (Zhou, 2011). In practice, this means modifying lessons, restructuring learning environments, and adjusting teaching content to meet diverse needs (Martin et al., 2012). The idea that support should be contingent on a learner's current understanding goes back to early work

on tutoring and scaffolding (Wood & Middleton, 1975; Wood et al., 1978). Building on this tradition, Van de Pol et al. (2022) introduced the construct of teacher support adaptivity, defined as the degree to which a teacher adapts the regulation or steering of a student's learning process to that student's understanding. The construct therefore combines two situational factors, teacher regulation and student understanding (Van de Pol et al., 2023). Unlike learning style matching, which assigns instruction based on relatively stable categories, adaptive support is dynamic and responds to what a learner understands at any given moment.

Several studies have shown that academic support adapted to a student's current level of understanding can foster effective learning (Hardy et al., 2019; Krämer & Zimmermann, 2021; Parsons et al., 2018; Van de Pol et al., 2010). Even so, the evidence remains limited, and it is still unclear how and under what circumstances adaptive support enhances student learning (Parsons et al., 2018; Van de Pol et al., 2010). Part of this uncertainty is methodological. Most studies have assessed adaptivity from the teacher's perspective, and many have been qualitative or based on small samples (Parsons et al., 2018). Students, however, spend extended time with their teachers and experience instruction from several instructors throughout their studies, which makes them credible judges of whether the support fits their needs. Their perceptions, therefore, offer a complementary and underused source of evidence, and a larger sample would yield more reliable and generalizable conclusions than earlier small-scale work.

The question is especially relevant in EFL classrooms, where teacher support helps create the secure and friendly atmosphere students need to engage in classroom activities. EFL research has linked teacher support to positive emotions (Hejazi & Sadoughi, 2022; Sadoughi & Hejazi, 2021), motivation (Fryer & Bovee, 2016), student cohesiveness (Jin et al., 2017), grit (Hejazi & Sadoughi, 2022; Sadoughi & Hejazi, 2023b), cooperative learning (Ghaith, 2002), and engagement (Sadoughi & Hejazi, 2021). These studies, however, have largely examined teacher support in general rather than the extent to which it is adapted to individual learners. More broadly, researchers have noted that the needs and preferences of individual learners receive little attention (Alshammari & Qtaish, 2019; Lee & Kim, 2012; Yalcinalp & Avc, 2019). In the Iranian EFL context in particular, the relationship between teacher support adaptivity and learners' learning styles has not yet been examined.

There are also theoretical reasons to expect these two constructs to be related. Adaptive support depends on the teacher's reading of a student's understanding. That reading is shaped by how students display what they know and how they respond to guidance. The four styles examined in this study (activist, reflector, theorist, and pragmatist) correspond to different phases of Kolb's (1984) experiential learning cycle. Each implies a different preference for the amount and kind of guidance a learner wants. Learners who prefer to act and experiment, for example, may respond to a teacher's steering differently from learners who prefer to observe and reflect before acting. If students with different preferences perceive the same adaptive support differently, then learning

style matters for adaptive teaching not as a basis for matching instruction, which the evidence does not support (Coffield et al., 2004; Pashler et al., 2008), but as a factor that shapes how support is received. Examining this relationship from the learners' perspective with a large sample would extend research on teacher support adaptivity beyond teacher self-reports and small qualitative studies. It would also show whether learner preferences need to be taken into account when adaptive support is studied and implemented.

Accordingly, this study examines the relationship between Iranian EFL learners' perceptions of their teachers' support adaptivity and their learning styles. It first aims to describe how learners perceive the adaptivity of their teachers' support and how their learning style preferences are distributed. Building on this description, the study then examines whether perceived teacher support adaptivity is related to each of the four learning styles: activist, reflector, theorist, and pragmatist. Treating each style separately allows us to see whether the relationship differs in strength or direction across learners with different preferences, rather than assuming a single pattern for all learners. By addressing these objectives from the learners' perspective, the study seeks to clarify whether learning style preferences shape how adaptive teacher support is received in EFL classrooms.

Method

This study employed a quantitative research design. The participants were EFL learners from several language institutes in Roudehen (Sokhanvaran Neku Institute, Fani Herfeyi, and Iran Mehr), the Narmak area of Tehran province, and Karaj (Shoukouh Institutes). Both questionnaires required a reasonable command of English to understand and answer, so only learners at the higher proficiency levels (intermediate, upper-intermediate, and advanced) were invited to complete them. The sample included both male and female learners, and neither age nor gender was controlled. All participants attended regular language classes three times a week, each session lasting about ninety minutes. In total, 205 learners from intact classes took part in the study. Five questionnaires were incomplete and were removed in the first stage of data analysis. A further 10 cases were excluded as outliers after preliminary checks of the normality assumption, which left a final sample of 190 learners.

Data were collected through two instruments, the Questionnaire on Teacher Support Adaptivity (QTSA) and Kolb's Learning Style Questionnaire. The QTSA was developed by Van de Pol et al. (2022). It examines the extent to which teacher support adaptivity can be assessed through, and is reflected in, students' perceptions. It draws on adaptivity theory (Wood et al., 1978). Its developers tested the instrument's reliability and validity with two large samples of secondary school students. They concluded that it produces reliable and valid scores for students' perceptions of teacher support adaptivity at both the student and teacher levels (Van de Pol et al., 2023). The questionnaire has 21 items rated on a five-point Likert-type scale that runs from "not true" (1) to "true" (5), so each score falls between 1 and 5. Scores close to 1 mean the student perceives a low level of the facet in question, and scores close to 5 mean the student perceives a high level. In the present study, the QTSA showed

good internal consistency, with a Cronbach's alpha of .86 (Table 1).

Learning styles were identified with Kolb's Learning Style Questionnaire. The questionnaire is based on the learning style theory developed by David Kolb in the 1970s, which describes how individuals learn and process information according to their preferred style. It contains 80 statements with no right or wrong answers and classifies learners into four styles: Activist, Reflector, Theorist, and Pragmatist. Participants ticked each statement they agreed with and left blank those they disagreed with. Each style is represented by about twenty statements. A learner's dominant style was therefore determined by counting how many ticked statements fell into each style, following the scoring sheet in the questionnaire guide. In this study, the internal consistency of the questionnaire, measured with Cronbach's alpha, ranged from .62 to .82 (Table 2).

Findings and Discussion

Finding

This correlational study examined the relationship between Iranian EFL learners' perceptions of their teachers' support adaptivity and their learning styles. The study measured four learning styles: Activist, Reflector, Theorist, and Pragmatist. Each one was tested separately against the learners' scores on the Teacher Support Adaptivity Questionnaire (TSAQ). The validity and credibility of these findings depend on the reliability of the instruments, so the first step was to check the internal consistency of both questionnaires. These were Kolb's Learning Style Questionnaire (LSQ), with 80 items, and the TSAQ, with 21 items. Cronbach's alpha was used for both. For the LSQ, alpha was calculated for each of the four learning style subscales and for the questionnaire as a whole. Each subscale has 20 items.

Table 1

Internal Consistency of Kolb's Learning Style Questionnaire

Learning Style	Cronbach's Alpha	Alpha Based on Standardized Items	Number of Items
Activist	0.700	0.700	20
Reflector	0.691	0.688	20
Theorist	0.676	0.672	20
Pragmatist	0.617	0.616	20
Total	0.821	0.820	80

Table 1 shows acceptable internal consistency for all four subscales and for the whole questionnaire. The Activist subscale had the highest alpha among the subscales (.700). It was followed by the Reflector subscale (.691) and the Theorist subscale (.676). The Pragmatist subscale had the lowest value (.617). The full 80-item questionnaire reached an alpha of .821. The alpha values for standardized items were nearly identical to the raw values, ranging from .616 to .820. Every coefficient was above the conventional threshold of .60. The LSQ can

therefore be considered a reliable tool for identifying the participants' preferred learning styles. The TSAQ was examined in the same way.

Table 2

Internal Consistency of Teacher Support Adaptivity Questionnaire

Teacher Support Adaptivity	Cronbach's Alpha	Alpha Basede on Standardized Items	Number of Items
TSAQ	0.864	0.861	21

The TSAQ had a Cronbach's alpha of .864 and a standardized alpha of .861 across its 21 items. Both values are well above the acceptable threshold. This high reliability gives confidence that the TSAQ measured the participants' perceptions of teacher support adaptivity consistently. The results in Table 1 show that both instruments were reliable enough to capture the learners' learning styles and their perceptions of teacher support adaptivity. These results strengthen the credibility of the findings that follow.

The data were then checked to see whether they met the assumptions for statistical analysis. Preliminary tests showed that the normality assumption was violated. For this reason, the analyses used a non-parametric test, Spearman's rank-order correlation, rather than a parametric one. Each of the four research questions was framed as a null hypothesis stating that the two variables were not related. All analyses used two-tailed tests and the final sample of 190 learners.

The first research question asked whether learners' perceptions of teacher support adaptivity were significantly related to the activist learning style. The null hypothesis (H01) stated that the two variables were not significantly related.

Table 3

Spearman's Correlation between Teacher Support Adaptivity and Activist Learning Style

Teacher Support Adaptivity	Activist Learning Style
-.265	Correlation Coefficient
0.01	Sig. (2-tailed)
190	N

As Table 3 shows, the correlation between teacher support adaptivity and the activist learning style was negative and significant ($\rho = -.265$, $p < .01$). Thus, there is a statistically significant relationship between the two variables, but it runs in the opposite direction. Learners who perceived higher teacher support adaptivity showed a weaker inclination toward the activist learning style. Learners who perceived lower adaptivity showed a stronger

inclination toward it. Based on this result, H01 was rejected.

The second research question examined the theorist's learning style. Its null hypothesis (H02) stated that learners' perceptions of teacher support adaptivity were not significantly related to this style. The same Spearman's rank-order correlation was used.

Table 4

Spearman's Correlation between Teacher Support Adaptivity and Theorists' Learning Styles

Teacher Support Adaptivity	Theorist Learning Style
-.186	Correlation Coefficient
.001	Sig. (2-tailed)
190	N

Table 4 shows that this relationship was also negative and significant ($\rho = -.186$, $p < .05$). The negative sign again indicates an inverse relationship. When learners perceived their teachers' support as more adaptive, they were less likely to show a strong preference for the theorist learning style. When they perceived it as less adaptive, their preference for this style was stronger. H02 was therefore rejected.

The third research question examined the reflector learning style. Its null hypothesis (H03) stated that this style was not significantly related to learners' perceptions of the adaptivity of teacher support. Spearman's rank-order correlation was used, as in the previous analyses. This analysis gave a different result from the first two. As Table 5 shows, the correlation between teacher support adaptivity and the reflector learning style was positive and significant ($\rho = .312$, $p < .01$). The two variables moved in the same direction. As perceived teacher support adaptivity increased, the reflector learning style also tended to increase among the learners. H03 was rejected, which shows a meaningful association between the two variables. Of the four coefficients in this study, this was the largest and the only positive one.

Table 5

Spearman's Correlation between Teacher Support Adaptivity and Reflector Learning Styles

Teacher Support Adaptivity	Reflector Learning Style
0.312	Correlation Coefficient
.001	Sig. (2-tailed)
190	N

The fourth research question examined the pragmatist learning style. Its null hypothesis (H04) stated that learners' perceptions of teacher support adaptivity were not significantly related to this style.

Table 6

Spearman's Correlation between Teacher Support Adaptivity and Pragmatist Learning Styles

Teacher Support Adaptivity	Pragmatist Learning Style
-0.145	Correlation Coefficient
.001	Sig. (2-tailed)
190	N

Table 6 shows a negative correlation between teacher support adaptivity and the pragmatist learning style (ρ = −.145, p = .043). As with the Activist and Theorist styles, the negative sign indicates an inverse relationship. Higher perceived teacher support adaptivity went with a weaker preference for the pragmatist learning style. It was the smallest of the four coefficients. The relationship is weak and should be interpreted with caution, but it remains statistically detectable. H04 was therefore rejected, which provides some evidence that learners' perceptions of teacher support adaptivity are related to the pragmatist learning style.

Taken together, the four analyses show that learners' perceptions of teacher support adaptivity were significantly related to all four learning styles, so all four null hypotheses were rejected. The direction of the relationships differed, however. The reflector learning style was positively related to perceived teacher support adaptivity (ρ = .312). The activist (ρ = −.265), theorist (ρ = −.186), and pragmatist (ρ = −.145) learning styles were negatively related to it.

Discussion

The findings showed statistically significant relationships between EFL learners' perceptions of teacher support adaptivity and all four learning styles. Reflectors were positively related to perceived teacher support adaptivity, while Activists, Theorists, and Pragmatists were negatively related to it. The overall result agrees with an earlier study on the correlation between learning styles and adaptive teaching (Kahkhayi & Nastiezaie, 2016). It also supports work reporting a significant relationship between learning style and teaching style (Heimlich & Norland, 2002). More recent EFL research supports the same link. It shows that learners' perceptions of instructional adaptivity depend on how well pedagogical scaffolding, affective support, and sensory modalities match their learning preferences (Husain et al., 2026; Wang et al., 2025). In these studies, learners assessed teacher adaptivity based on whether flexible instructional media, targeted scaffolding, and differentiated assignments were available (Alarcón Ramos et al., 2025; Husain et al., 2026; Wang et al., 2025). The significant relationships found here also reflect the weight research places on teacher support in foreign language learning. Piechurska-Kuciel (2011) argues that without adequate teacher support "successful learning is very difficult, if not impossible" (p. 84).

The positive correlation between Reflectors and teacher support adaptivity is also consistent with earlier research. According to Kolb's Learning Style Questionnaire, Reflectors learn by

observing and thinking. This result supports the advice that instructional design should include activities for self-regulated learning (Haag & Streber, 2014). It is also similar to the finding of Hayes and Allison (1997) that matching teaching styles to learning styles especially benefits students who prefer more autonomy and less personal interaction. Randi and Corno (1997) likewise describe adaptive teaching as efficient for group instruction while remaining respectful of individual learning profiles and patterns. As students take more responsibility for their own learning, adaptive teaching also comes to include the goals of self-regulated learning (Corno, 2008). The support that these learners perceived as adaptive therefore appears to suit the observing and thinking orientation of Reflectors.

The negative correlations for Activists, Theorists, and Pragmatists are consistent with a broader body of research on mismatches between learning style and teaching method. Activists learn by doing, Theorists by understanding the theory, and Pragmatists by applying new ideas to the problem at hand. All three groups perceived their teachers' support adaptivity as negatively associated with their learning process and understanding, as measured by the QTSA. Earlier studies warn that when a learner's learning style does not align with the teacher's teaching style and methods, the learning outcome may be disappointing (Chen, 2009; Felder & Spurlin, 2005). They also show that teaching style matters for students' learning styles (Chetty et al., 2019). EFL studies in several countries have documented such mismatches (Peacock, 2001; Sengsouliya et al., 2021; Yotta, 2023). These studies have reported boredom, frustration, and disengagement among 76% to 85% of surveyed learners (Mathias, 2022; Peacock, 2001). The result for Activists in particular matches studies of learners' perceptions. Students with active and kinesthetic tendencies reported more teacher support when instructors used interactive tasks than when lessons were dominated by lecturing (Aulia et al., 2025; Ikhsan et al., 2025). Nevertheless, movement-based and hands-on activities are often avoided in EFL classrooms (Sengsouliya et al., 2021; Yotta, 2023).

The current findings differ from other research in several respects. The most notable difference is that three of the four learning styles were negatively related to perceived teacher support adaptivity. Much of the literature describes adaptive teaching as a practice that takes individual differences into account (Parsons et al., 2018). It presents adaptive teaching as pivotal to effective classroom instruction and student learning (Brühwiler & Vogt, 2020; Gallagher et al., 2022) and as a means of fostering effective learning (Hardy et al., 2019; Krämer & Zimmermann, 2021). Studies of EFL classrooms likewise report that engagement and emotional well-being improve when instructors adapt their instructional design to students' learning profiles (Fitria, 2023; Le, 2022; Sy, 2026). One study of 400 secondary students, for example, found a notable correlation between instructional strategy alignment and student engagement ($r = .682$; Sy, 2026). Perceived teacher support has also been found to strengthen learners' second-language grit and academic buoyancy and to buffer foreign-language anxiety (Derakhshan & Fathi, 2025; Hejazi & Sadoughi, 2022; Sadoughi & Hejazi, 2022). In the present study, only Reflectors showed the positive pattern these

studies would lead one to expect. For Activists, Theorists, and Pragmatists, the relationship ran in the opposite direction.

The current study also differs from recent research in the way learning styles are defined. Much recent EFL work has classified learners by sensory modality (visual, auditory, reading/writing, and kinesthetic). That work has found that multimodal combinations are often more common than single-modality preferences (Ghobain & Zughaibi, 2024; Rohmah et al., 2025; Sengsouliya et al., 2021). Other studies have used the Felder–Silverman model (Husain et al., 2026). The present study, by contrast, used Kolb's four learning styles and measured learners' perceptions of teacher support adaptivity specifically. Its findings therefore add evidence from a framework that recent studies have used less often. The type of support examined also needs care. Zhang et al. (2018) note that specifically focused support, such as career support, may be hard to distinguish from generally focused support. That difficulty applies equally when learners judge how adaptive their teachers' support is.

Taken together, the negative relationships may mean one of two things. Learners' learning styles and individual differences may not have been considered during adaptive support instruction. Alternatively, that instruction may not have been able to serve every learning style in the EFL setting. Adaptive teaching is meant to recognize and proactively respond to students' individual differences in instruction (Hardy et al., 2019). Seen in that light, the results suggest that learning styles may have been neglected in this EFL context. The literature offers two possible reasons. First, teachers may understand the value of differentiated instruction but find that standardized curricula and administrative constraints prevent them from implementing it in class (İşitmez et al., 2023; Le, 2022; Sengsouliya et al., 2021). Second, teachers may see individual differences as "obstacles to be overcome" rather than as "opportunities for learning" (Corno, 2008).

These findings have implications for EFL teaching and research. They show the importance of adaptive teacher support compatible with learners' diverse learning styles. The negative relationships for Activists, Theorists, and Pragmatists show that this compatibility has not yet been achieved for all learners. A large group of learners may therefore be missing support that could sustain their engagement and resilience. Learning style profiles should still not be used as rigid labels. They work better as diagnostic tools that help teachers provide flexible, responsive scaffolding in diverse language classrooms (Husain et al., 2026). The results also provide input for further analysis of teacher support adaptivity and learning styles in the EFL context.

Conclusion

This study examined whether learning style preferences shape how EFL learners receive adaptive teacher support, and the findings show that they do. Learners' perceptions of their teachers' support adaptivity were significantly related to all four learning styles, though not in the same direction. Reflectors, who learn by observing and thinking, were the only group showing a positive relationship, and theirs was also the strongest association. Activists, Theorists, and Pragmatists were all negatively related to perceived support adaptivity, with the weakest relationship found among Pragmatists.

Adaptive teacher support was thus associated with a stronger reflector orientation and a weaker inclination toward learning by doing, by understanding theory, or by applying new ideas to practical problems. These results highlight the need for adaptive teacher support that fits learners' diverse learning styles. The negative relationships for three of the four styles suggest that this fit has not yet been achieved for many learners, who may therefore be missing support that could sustain their engagement and resilience. Learning style profiles should nonetheless not serve as rigid labels; they are more useful as diagnostic tools that help teachers provide flexible, responsive scaffolding in diverse language classrooms (Husain et al., 2026). Further research is needed to clarify how teacher support adaptivity and learning styles interact in EFL contexts.

Conflict of Interest

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.

Generative AI Statement

The authors used Grammarly solely for language editing and proofreading to improve the clarity and readability of the manuscript. All AI-assisted output was critically reviewed and revised by the authors, who take full responsibility for the accuracy, integrity, and final content of the manuscript.

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