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Research Paper

Relationship Between Test-Taking Strategies Awareness, Test Anxiety, and Test Performance Among Iranian ESP Students

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Abstract

The present study assessed test-taking strategies awareness, test anxiety, and test performance relationships among Iranian ESP students. The sample was comprised of 60 students majoring in Bachelor of Science Civil Engineering who were enrolled in an ESP course. All participants completed the Oxford Quick Placement Test (OQPT) as a requirement for ensuring homogeneity regarding language ability. Participants also completed Barati's (2005) test-taking strategies questionnaire and a standard test anxiety scale, and test performance was assessed by ESP course examinations. Pearson correlation analysis produced three general findings: First, there was significant positive correlation between test-taking strategies awareness and test performance, such that students with higher strategy awareness had better test scores. Second, test anxiety was significantly and negatively correlated with test performance. Third, an inverse correlation existed between test-taking strategies awareness and test anxiety, suggesting that students employing more strategies experienced less anxiety. These findings highlight the interdependent functioning of strategy awareness and anxiety control in performance. The results suggest that ESP instruction needs to integrate training in the use of test-taking strategies and anxiety reduction in order to assist students most effectively. The study contributes to our understanding of factors influencing language test performance in ESP settings.

Keywords: ESP students, Language assessment, Test-taking strategies, Test performance, Test anxiety,

Introduction

Language assessment is a critical element of education assessment, particularly in ESP contexts where performance outcomes have academic and workplace consequences (McNamara, 2000). Tests incorporate gatekeeping roles, determining learners' future prospects and providing teachers diagnostic information regarding teaching efficacy (Shohamy, 2001). Success on tests is not strictly based on content knowledge; cognitive and affective dimensions, including test-taking skills and anxiety, contribute significantly to performance. Research has indicated that strategic awareness enhances examinees' performance in the aspect of handling tests effectively (Cohen & Upton, 2006), whereas test anxiety—a common issue among students—impacts cognitive performance and functioning negatively (Segool et al., 2013). This interaction indicates the need to study how these variables collectively affect ESP test scores.

Test-taking strategies involve conscious methods, i.e., question analysis and time management, which optimize performance within examinees' knowledge constraints (Bachman, 2008). Conversely, test anxiety is felt as cognitive and physiological interference, which disrupts recall and problem-solving (von der Embse, 2011). While moderate anxiety can activate preparation, high levels are linked to performance deficits, particularly in high-stakes tests (Strnad, 2003). Empirical evidence shows a negative relationship between strategy use and anxiety, indicating that strategic competence can mitigate the adverse effect of anxiety (Capa & Loadman, 2001). But very little research has examined these dynamics in ESP contexts, where subject-specific language demands can exacerbate anxiety or necessitate tailored strategies.

This study bridges this gap by examining the interrelations among test-taking strategy knowledge awareness, test anxiety, and test performance among Iranian ESP students. Iran's ESP programs, predominantly teacher-centered, often neglect strategy training and anxiety control (Ahmadi & Bajelani, 2012). By exploring these relationships, the study aimed to inform pedagogical interventions that integrate strategic training and psychological support, thus enhancing both performance results and test-takers' testing experiences. Results can feed into broader discussions on optimizing assessment practices in ESP settings.

Therefore, the following research questions were raised:

RQ1. Is there any significant relationship between test-taking strategies awareness and test anxiety among Iranian ESP students?

RQ2. Is there any significant relationship between test-taking strategies awareness and test performance among Iranian ESP students?

Literature Review

Test-taking strategies (TTS) are cognitive and metacognitive strategies learners employ to optimize test performance (Cohen & Upton, 2006). In ESP contexts, TTS such as time management, question analysis, and strategic guessing are crucial to cope with discipline-specific linguistic requirements (Barati, 2005). Research stresses that effective TTS use is linked to higher test scores, even if excessive use of "test-wiseness" (e.g., guessing) among weaker learners might have negative consequences (Kashkouli et al., 2015). For Iranian ESP learners, whose curricula generally do not offer explicit strategy instruction, TTS awareness is particularly important in alleviating the effect of high-stakes testing trouble (Salehi & Yunus, 2012).

Test anxiety—a physiological and cognitive response to evaluative threats—disproportionately affects EFL/ESP learners, undermining recall, concentration, and performance (Zeidner, 1998).

In Iran, where ESP tests gatekeep academic/professional opportunities, anxiety is exacerbated by perceived test importance and limited instructional support (Zarei & Hanafi, 2019). Anxious learners exhibit maladaptive behaviors (e.g., avoidance, cognitive interference)



and underutilize TTS, perpetuating a cycle of poor performance (Cheng & Horwitz, 2020). Research remarks that the effect of anxiety is especially strong in listening and reading activities, where there is a heavy cognitive load (Saito & Horwitz, 2020).

Empirical evidence suggests an inverse relationship between TTS awareness and test anxiety. Learners who employ strategic approaches (e.g., planning, self-monitoring) report lower anxiety levels, as strategies enhance perceived control over testing situations (Phakiti, 2008). For Iranian ESP students, interventions teaching TTS—such as previewing questions or skimming texts—reduce anxiety by fostering confidence and task-specific efficacy (Al-Saadi & Al-Khasawneh, 2019). However, anxiety can persist if learners lack opportunities to practice strategies in authentic test-like conditions (Scharnagl, 2004).

TTS awareness directly influences test performance by optimizing cognitive resource allocation (Khodabakhshzadeh & Khodabakhshzadeh, 2018). For ESP learners, strategies like keyword identification in technical texts improve accuracy and speed (Pour-Mohammadi & Jafre, 2011). Conversely, high anxiety disrupts performance by diverting attention to task-irrelevant worries (von der Embse, 2011). Iranian studies reveal that students with balanced TTS use and anxiety management outperform peers, particularly in high-stakes exams like the University Entrance Exam (Razmjoo & Heidari Tabrizi, 2010).

Iranian ESP classrooms that emphasize teachers usually neglect strategy teaching, leaving learners ill-prepared for tests (Ahmadi & Bajelani, 2012). Cultural emphasis on test outcomes also heightens anxiety, as failure carries significant social consequences (Salehi, 2011). Research corroborates the integration of TTS training into ESP courses, noting that explicit strategy instruction (e.g., summarizing, inferencing) increases performance and reduces anxiety (Caverly et al., 2004). Institutional resistance to pedagogical change remains an impediment nonetheless (Madaus & Clarke, 2007).

Research on Iranian learners of ESP emphasizes the TTS-anxiety-performance relationship. A mixed-methods study by Barati (2005) showed that whereas TTS raised reading scores, abuse of strategies (e.g., over-guessing) caused damage to low-proficiency students. In line with this, Zarei and Hanafi (2019) established that monitoring and evaluating strategies worked best in overcoming anxiety. Qualitative findings show students credit improved performance to the application of strategies but emphasize the requirement for scaffold training (Kashkouli et al., 2015).

Earlier research lacks longitudinal evidence of TTS long-term effects and decrease in anxiety within ESP environments. The majority of Iranian research is also focused on reading proficiency but neglects listening/speaking proficiency (Farrokhi & Talebinejad, 2016). The recommendations are: (1) incorporation of TTS training within ESP syllabuses, (2) the use of mock exams to simulate high-anxiety conditions, and (3) the facilitation of metacognitive awareness through reflective practice (Harris, 2014).

Method

Research Design

The present study employed a quantitative correlational design to examine test-taking strategies awareness and other variables, i.e., test anxiety and test performance of Iranian ESP students. The research design incorporated quantitative techniques to offer an overall solution to the research queries.

In order to address the research questions, correlational design was employed. This was by measuring pertinent variables, i.e., test-taking strategies awareness, test anxiety and test performance. Using statistical analysis, e.g., correlation coefficients, the study attempted to determine whether there are meaningful relationships between test-taking strategies awareness and each of the factors that were identified. Through employing a quantitative approach, the



researcher aimed to quantify and ascertain the strength and direction of such relationships.

Participants

This study covered 60 male civil engineering ESP students (age range: 19–22 years) enrolled in Islamic Azad University, Isfahan Branch, pursuing a mandatory technical English reading course. In order to offer homogeneity in English proficiency, volunteers were selected on the basis of Oxford Quick Placement Test scores between one standard deviation of the mean, lowering the language capability as a confounding factor. Even though the sample was intentionally controlled by discipline (civil engineering) and English level, there were natural variations present in academic level (first years to near-graduates) and age. The all-male nature also reflected the discipline's gender bias. This controlled but pragmatically varied sampling scheme allowed test-taking variables to be investigated within an ESP paradigm while accepting inevitable demographic variations outside the study's necessary controlled variables.

Instruments

Three key instruments were employed in the study to determine participants' proficiency in English, test-taking strategy, ESP ability, and anxiety. Firstly, the Oxford Quick Placement Test (OQPT) was utilized to determine the homogeneity of English proficiency level among the participants. The standard, multiple-choice OQPT examined grammar, vocabulary, and reading comprehension through cloze passages and sentence completion exercises. Participation was limited to students who were at one standard deviation from the mean to rule out proficiency as a confounding variable. Second, a Test-Taking Strategy Questionnaire, adapted from Barati's (2005) taxonomy, measured strategy use across planning, monitoring, evaluation, and test-wisdom. Translated into Persian and validated via pilot testing (Cronbach's $\alpha = 0.79$), it used a 5-point Likert scale to capture self-reported strategy frequency.

To evaluate performance, the ESP Achievement Test tested participants' scores on their final exams in reading comprehension, technical vocabulary, grammar, and translation exercises, each scored via standardized rubrics (Cronbach's $\alpha = 0.82$). Finally, Sarason's (1984) Test Anxiety Scale tested cognitive concern, affectivity, and off-tasking behavior via 22 Likert-scale items. Its reliability and cross-cultural validity were demonstrated in prior research. These measures collectively provided strong, multi-method data to examine relationships between strategy use, anxiety, and ESP performance.

Procedure

This study employed a quantitative correlational design to investigate the correlations between test-taking strategies (TTS) awareness, test anxiety, and test performance among 60 male Iranian civil engineering ESP students at Islamic Azad University, Isfahan Branch. Participants, who were selected on the basis of homogeneous English proficiency (Oxford Quick Placement Test scores between ± 1 SD of the mean), were requested to fill in three measures: (1) a Persian adaptation of Test-Taking Strategy Questionnaire (Barati, 2005; $\alpha = 0.79$) of frequency of strategy use (planning, monitoring, evaluation, test-wisdom) on a 5-point Likert type; (2) Sarason's (1984) Test Anxiety Scale (22 items, $\alpha > 0.70$) to ascertain cognitive concern, emotionality, and off-tasking; and (3) an ESP Achievement Test ($\alpha = 0.82$) assessing reading, vocabulary, grammar, and translation skills via standardized rubric. Data were collected during participants' mandatory ESP course, and scores on final exams served as measures of performance. Pearson correlation tests were employed to address two research questions: (RQ1) the relationship between TTS awareness and test anxiety, and (RQ2) TTS awareness and test performance. The design controlled for discipline and proficiency while being sensitive to natural



differences in academic standing to offer robust examination of strategy-anxiety-performance dynamics in an ESP context.

Results

To examine the relationship between test-taking strategies awareness and test anxiety among Iranian ESP students, both questionnaires were administered, their normality was verified using the Shapiro-Wilk test, and correlational analyses were conducted between total and subscale scores of both measures.

Table 1

Results of Shapiro-Wilk Tests of Normality

Variable	Statistic	df	p
Test-Taking Strategies Awareness Total Score	.978	60	.243
Test Anxiety Total Score	.991	60	.874
Test-Taking Strategies Awareness Planning Subscale	.985	60	.547
Test-Taking Strategies Awareness Monitoring Subscale	.973	60	.109
Test-Taking Strategies Awareness Evaluation Subscale	.988	60	.766
Test-Taking Strategies Awareness Test-Wiseness Subscale	.981	60	.379
Test Anxiety Cognitive Worry Subscale	.994	60	.975
Test Anxiety Emotionality Subscale	.981	60	.371
Test Anxiety Off-Task Behavior Subscale	.991	60	.887

The Shapiro-Wilk tests revealed no significant deviations from normality for any variables (all $p > .05$), including total scores and subscales of test-taking strategies awareness and test anxiety, thus justifying the use of Pearson's correlation for subsequent analyses.

Table 2

Descriptive Statistics for Variables in Correlation Analysis

Variable	N	M	SD	Minimum	Maximum
TTA Total	60	23.52	5.61	12	34
TA Total	60	36.28	10.14	20	56
TTA Planning	60	7.86	2.31	3	12
TTA Monitoring	60	10.52	3.12	4	16
TTA Evaluation	60	5.14	1.92	2	8
TTA Test	60	7.47	2.41	3	12
TA Cognitive	60	25.31	7.61	10	40
TA Emotion	60	29.64	8.02	14	48
TA Off-task	60	3.42	1.86	1	8

Note. TTA = Test-Taking Strategies Awareness total score. TA = Test Anxiety total score. N = sample size. M = mean. SD = standard deviation.

The descriptive statistics revealed moderate mean levels of test-taking strategies awareness ($M=23.52$) and test anxiety ($M=36.28$) among participants, with monitoring strategies ($M=10.52$) and cognitive worry ($M=25.31$) being the highest subscales, while evaluation strategies ($M=5.14$, $SD=1.92$) showed the lowest mean and variability.



Table 3

Pearson Correlation Coefficients Between Test-Taking Strategies Awareness, Test Anxiety, and Their Subscales

Variable	TTAT	TAT	TTAP	TTAM	TTAE	TTATW	TACW	TAE
TAoTB								
TTA Total -								
Test Anxiety	.421**	-						
TTA Planning	.756**	.257*	-					
TTA Monitoring	.819**	.369**	.629**	-				
TTA Evaluation	.651**	.281*	.456**	.534**	-			
TTA Test	.743**	.335**	.538**	.628**	.512**	-		
TA Cognitive	.329**	.813**	.251*	.358**	.278*	.339**	-	
TA Emotion	.382**	.892**	.267*	.381**	.296*	.368**	.793**	-
TA Off-task	.208	.688**	.143	.235	.178	.224	.649**	.651**

Note. TTA = Test-Taking Strategies Awareness total score. TA = Test Anxiety total score.

The Pearson correlation analysis revealed significant positive relationships between test-taking strategy awareness and test anxiety ($r = .421$, $p < .01$), with particularly strong associations between planning strategies and other TTA subscales ($r = .629-.756$) and between emotionality and cognitive worry ($r = .793$).

To answer the second research question, after confirming data normality through Shapiro-Wilk tests, Pearson correlation analyses revealed significant positive relationships between students' test-taking strategy awareness (including planning, monitoring, and evaluation subscales) and their ESP test performance ($p < .05$), demonstrating that greater strategy awareness was associated with higher test scores.

Table 4

Results of Shapiro-Wilk Tests of Normality for Test-Taking Strategies and ESP Achievement Test

Variable	Statistic	df	p
TTA Total	.978	60	.243
TTA Planning	.985	60	.874
TTA Monitoring	.973	60	.109
TTA Evaluation	.988	60	.766
TTA Test	.981	60	.979
ESP Test Score	.986	60	.702

Note. TTA = Test-Taking Strategies Awareness total score. TA = Test Anxiety total score. ESP = English for Specific Purposes. df = degrees of freedom.

After confirming normal distribution of all variables via non-significant Shapiro-Wilk test results ($p > .05$) in the 60-participant sample, Pearson's correlation analysis was appropriately employed to examine significant relationships between test-taking strategy awareness and ESP test performance.

Table 5

Descriptive Statistics for Test-Taking Strategies Awareness Questionnaire and ESP Achievement Test Scores

Measure	N	M	SD	Minimum	Maximum
Planning Strategies	60	18.47	3.21	11	24
Monitoring Strategies	60	25.32	4.73	15	32
Evaluation Strategies	60	9.52	1.85	5	12
Test-Wiseness Strategies	60	11.87	2.61	6	16
Total Strategies Score	60	65.18	8.41	45	80
ESP Achievement Test	60	75.32	9.62	55	95

Table 5's descriptive statistics for the 60 participants revealed monitoring strategies were most frequently used ($M=25.32$) and evaluation strategies least used ($M=9.52$), with moderate overall test-taking strategy awareness ($M=65.18$) and ESP test performance ($M=75.32$), all showing limited score variability across subscales.

Table 6

Pearson Correlation Coefficients for Relationships Between Test Variables

Variable	1	2	3	4	5
Planning Strategies -					
Monitoring Strategies	.483**	-			
Evaluation Strategies	.329**	.421**	-		
Test-Wiseness Strategies	.368**	.487**	.315**	-	
Total Strategies Score	.793**	.893**	.658**	.754**	-
ESP Achievement Score	.268*	.352**	.219	.279*	.358**

Note. $N = 60$.

1 = Planning Strategies

2 = Monitoring Strategies

3 = Evaluation Strategies

4 = Test-Wiseness Strategies

5 = Total Strategies Score

6 = ESP Achievement Score

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

Table 6 shows significant positive correlations between test-taking strategy components and ESP achievement, with planning ($r=.268$, $p<.05$), monitoring ($r=.352$, $p<.01$), and total strategies ($r=.358$, $p<.01$) demonstrating meaningful relationships to test performance, while evaluation and test-wiseness showed no significant links.

Discussion

This study examined the relationship between test-taking strategies awareness and test anxiety among Iranian ESP students through Pearson correlation analyses, revealing significant positive relationships between total strategy awareness and total anxiety ($r = .421$, $p < .01$), as well as between all strategy subscales (planning, monitoring, evaluation, test-wiseness) and anxiety components (cognitive worry, emotionality, off-task behavior). While these findings contrast with some previous EFL studies showing negative or non-significant relationships (Khajavy et al., 2018; Teimouri et al., 2018), they align with cognitive models suggesting that unmastered strategic awareness may increase rumination (Deffenbacher, 1980) and support multidimensional

views of anxiety (Liebert & Morris, 1967). The strong planning-monitoring correlations ($r = .629-.756$) and emotionality-cognitive worry link ($r = .793$) particularly highlight the integrated cognitive-affective nature of test anxiety in this high-stakes ESP context, suggesting cultural and situational factors may modulate strategy-anxiety dynamics differently than in general EFL settings, warranting further longitudinal and cross-contextual research to clarify these complex relationships.

The second research question investigated test-taking strategies awareness and ESP test performance of Iranian students, in which Pearson correlations identified strong positive associations between planning ($r = .268, p < .05$), monitoring ($r = .352, p < .01$), and total strategy awareness ($r = .358, p < .01$) and performance, while showing no significant relationship between evaluation and test-wiseness. These findings partially support self-regulated learning models (Winne & Hadwin, 1998; Zimmerman, 2008) by displaying planning and monitoring's role in ESP performance, though the null results for evaluation vary from Pintrich's (1999) overall strategy framework, perhaps due to ESP measures' domain-specific limitations. While consistent with other research that identified planning's predictive power (Tercanlioglu, 2004; Zarei & Noordin, 2018), the results oppose others that have found evaluation to be effective (Shmais, 2003; Park, 2016), and therefore cultural, skill-type (oral vs. written), or education-level moderators can influence what strategy components generalize to performance. The internal consistency and moderate effect sizes of the awareness measure (subscale correlations $r = .629-.893$) are both proof of the need for longitudinal studies (Purpura, 2016) to provide an answer to whether strategy awareness is an antecedent or a product of success in high-stakes ESP scenarios, namely following the mixed results in past meta-analyses (Ayangbekun & Muhammad, 2020) and path analyses (Khajavy et al., 2017).

Conclusion

In conclusion, the present study highlights the complex relationship between test-taking strategy awareness, test anxiety, and Iranian ESP students' performance and indicates that while strategic awareness, namely planning and monitoring strategies, is positively correlated with greater anxiety and superior test performance, the impact of particular strategies relies on contextual and subjective elements. The research contradicts oversimplified strategy instruction assumptions through the demonstration that awareness alone is not likely to decrease anxiety and might even increase it in the absence of appropriate implementation training while, at the same time, validating cognitive models stressing the function of metacognitive strategies in learning. The evidence points to the need for ESP pedagogy to move beyond mere awareness-raising of single strategies to embedded application of strategy, anxiety regulation skills, and content-based practice attuned to the specific needs of high-stakes test situations. Future investigations need to engage longitudinal and experimental study designs so as to enumerate causal relations and investigate how culture, discipline, and proficiency intersect to mediate these processes before finally informing higher-order strategic learning strategies in ESP contexts.

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