Journal of new advances in English Language Teaching and Applied Linguistics (JELTAL)
Winter-Spring 7 (1) 2025

Research paper

Structural Equation Modelling of Nursing ESP Students' Motivational Orientations, Psychological Needs, and Goal Orientations as Determining Factors in their Academic Writing Ability

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Ahangaran, F., & Pouyan, A. (2025). Structural Equation Modelling of Nursing ESP Students' Motivational Orientations, Psychological Needs, and Goal Orientations as Determining Factors in their Academic Writing Ability. *Journal of new advances in English Language Teaching and Applied Linguistics*, *7*(1), 27-55.
Doi: 10.22034/Jeltal.2024.7.1.2

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Abstract

The present study aimed to determine the extent to which male and female nursing English for Specific Purposes (ESP) students' basic psychological needs and motivational orientations predicted their writing performance, with a focus on the mediating role of their goal orientations. Using convenience sampling, the researcher selected 179 male and 172 female students from various universities in Iran as participants. To collect the necessary data, three reliable and valid questionnaires—basic psychological needs, motivational orientations, and goal orientations—were employed alongside a writing test. The data were analyzed using Structural Equation Modelling (SEM). The findings revealed that the students' basic psychological needs and motivational orientations significantly predicted their writing performance when the mediating role of goal orientations was considered. Additionally, male students' motivational orientations emerged as the primary predictors of their writing performance, whereas female students' basic psychological needs played a more critical role in explaining the variance in their writing ability. The results offer valuable insights for ESP lecturer educators, syllabus designers, and instructors regarding the importance of affective factors in ESP students' language learning in foreign language contexts. These findings emphasize the need to consider gender-related differences in designing more effective and personalized ESP instruction.

Keywords: Basic psychological needs, ESP students, goal orientations, motivational orientations, student factors, writing ability.

Received: *2024-11-22* **Revised** *2025-02-25* **Accepted** *2025-03-02*

Introduction

A scrutiny of the main factors in individuals' mental health underscores the fact that their Basic Psychological Needs (BPNs) constitute major predictors of their psychological well-being and can exert considerable influence on their personal growth, interpersonal relationships, resilience, and learning processes including language learning in various situational contexts (Alamer & Lee, 2019; Hiromori, 2003; Jang et al., 2010). The focus on BPNs stemmed from the discussions of intrinsic motivation in 1980s (Alamer & Almulhim, 2021). In this regard, BPNs were examined as the main factors that influenced individuals' inherent satisfaction with their activities (i.e. intrinsic motivation) rather than their expectation of specific consequences or rewards (i.e. extrinsic motivation) (Noels et al., 1999). The examinations of BPNs in motivation studies prompted Deci and Ryan (2000) to formulate Self-Determination Theory (SDT). This theory posits that fulfilling three BPNs including autonomy, competence, and relatedness promotes autonomous motivation that is crucial for optimal learning including language acquisition (Alamer & Almulhim, 2021; Noels et al., 1999; Oga-Baldwin et al., 2017).

In addition to BPNs, STD highlights the underlying role of motivation in human learning (e.g. Tremblay & Gardner, 1995). According to this theory, motivation affects second language (L2) learning due mainly to the fact that it influences learners' engagement and success (Alamer, 2021; Alamer & Lee, 2019; Al-Hoori, 2017; Alrabai, 2016; Clément & Dörnyei, 2001; Dörnyei, 2009; Dörnyei & Ryan, 2015; Dörnyei & Ushioda, 2009, 2011; Gardner, 2010; Noels, 2013). In light of this claim, Ryan and Deci (2000, 2017) distinguished between autonomous motivation (inherent enjoyment) and controlled motivation (external goals). Moreover, Deci and Ryan (1985) argued that these motivation categories reflect certain orientations called general causality orientations that determine individuals' perspectives on their ability to influence their environment and their process of learning.

The motivational orientations are closely linked to goal orientations that refer to the individuals' interpretation of their achievements and their reactions to them (Pintrich & Schunk, 2002). It is possible to differentiate between mastery goals (learning-focused) and performance goals (achievement-focused) (Ames, 1992). Both types of these goals are likely to have a noticeable impact on the individuals' learning processes including their language learning (Pintrich & Schunk, 2002).

In addition to BPNs, motivational orientations, and goal orientations (that constitute affective learner factors), the process of language acquisition is likely to be influenced by students' personal attributes including their gender among the others (Meece et al. 2006; Schunk & Pajares, 2002). This issue stems from the fact that the relevant studies of gender-based differences in language learning have produced mixed results and have highlighted the need for more research in this regard (Britner & Pajares, 2006; Concannon & Barrow, 2009; Gasco-Txabarri et al., 2014).

The above-mentioned discussions highlight the fact that language students' affective factors including their BPNs, motivational orientations, and goal orientations along with their gender may constitute significant predictors of their language learning including their writing skill. Writing has been scrutinized in multitudinous empirical studies owing to the fact that its development requires strong motivation (Hidi & Boscolo, 2006). This language skill constitutes one of the main prerequisites to the development of an effective communicative competence in ESP courses owing to the fact that a large number of ESP students (e.g. nursing students) need to perform a number of writing tasks as main requirements of their occupations in their workplace (Elliot & Church, 1997). Consequently, there is a need for further research on the role of language students' affective and personal factors in their writing performance in ESP courses (Ames, 1992; Murphy & Alexander, 2000; Ryan & Deci, 2000).

Literature Review

Theoretical background

BPNs in language learning

SDT emphasizes that autonomy, competence, and relatedness are essential for maintaining and enhancing autonomous motivation in learners (Deci & Ryan, 1985; Ryan & Deci, 2017). Autonomy involves a sense of control and freedom to engage in personally meaningful activities, supported by a learning environment that allows learners to choose suitable language exercises. Competence refers to the feeling of being effective and capable, which can be fostered by providing clear learning structures and objectives from the outset. Relatedness involves forming connections and a sense of belonging, which is crucial for both the acquisition and ownership of learning (Niemiec & Ryan, 2009).

Despite its importance, research on the role of BPNs in language learning outcomes is limited. For example, Noels et al. (1999) found no direct link between students' final L2 grades and their perception of instructor support for competence and autonomy. More recent studies, such as Alamer and Lee (2019), have shown that BPN is indirectly related to success in L2 through intrinsic motivation, goal setting, and positive linguistic feelings. These findings suggest that motivated behaviors related to language learning, such as commitment and effort, illuminate the relationship between BPN and language learning outcomes.

In addition, research has examined the relationships between BPNs and motivational orientations (Alamer & Lee, 2019; Noels et al., 1999, 2019; Oga-Baldwin et al., 2017; Wu, 2003). In this line of research, BPN is considered exogenous to autonomous motivation, with motivational orientation positing that fulfilling these needs activates autonomous motivation (Ryan & Deci, 2020). The relevant studies have shown that cognitive capacity often surpasses other BPNs in predicting self-motivation, with cognitive autonomy showing a positive but weaker relationship with autonomous motivation (Noels, 2013).

Empirical studies specifically examining BPNs in relation to writing performance are rare, and there is a lack of evidence for the fundamental role of BPNs in L2 writing. Understanding this role is methodologically significant, as it allows researchers to apply theoretical concepts more accurately. Studies outside language learning have shown that a general BPN structure can coexist with the three needs of autonomy, competence, and relatedness (Guay et al., 2015; Gunnel & Gaudreau, 2015; Tóth-Király et al., 2018).

Motivational orientations in language learning

SDT distinguishes between autonomous and controlled motivation, based on varying degrees of self-determination or relative autonomy (Deci & Ryan, 1985). When learning aligns with the learner's sense of self, intrinsic motivation develops. SDT posits that individuals can exhibit a range of orientations towards tasks, influencing their approach to, engagement with, and completion of L2 assignments (Ryan & Deci, 2020).

Autonomous motivation includes intrinsic and identified orientations. Intrinsic orientation involves engaging in L2 learning because it is inherently interesting, fun, and enjoyable. Identified orientation occurs when learning an L2 aligns with other personal interests and goals, making the activity feel important and meaningful. Both orientations reflect personal volition and a sense of internal endorsement of the activity (Ryan & Deci, 2017).

Conversely, controlled motivation comprises introjected and external orientations. Introjected orientation involves undertaking a task out of a sense of obligation or to avoid guilt or disapproval, rather than intrinsic importance. Here, learning is driven by internal pressures rather than genuine interest. External orientation involves learning an L2 to obtain rewards or avoid punishments, such as passing exams or securing a prestigious job in the future. These orientations are influenced by external pressures and lack true self-determination (Noels et al., 2019; Oga-Baldwin & Nakata, 2017; Ryan & Deci, 2017).

In summary, autonomous motivation is characterized by personal choice and intrinsic interest, while controlled motivation is driven by external pressures and obligations. These different motivational orientations help explain learners’ reasons for engaging in and their approaches to L2 learning tasks (McEown, 2014; Niemiec & Ryan, 2009; Olafsen et al., 2018; Ryan & Deci, 2017). Past research has explored whether the broad constructs of autonomous and controlled motivation can coexist with the more specific orientations of intrinsic, identified, introjected, and external motivation (Alamer & Almulhim, 2021; Alamer & Lee, 2019; Behzadnia et al., 2018; Hair et al., 2019; Howard et al., 2018; Olafsen et al., 2018; Ratelle et al., 2007; Vallerand et al., 1992).

Early studies adapted a motivational orientation scale to assess L2 learning orientations. For instance, Noels et al. (1999) examined these orientations among Canadian college students. The study demonstrated positive relationships between intrinsic and identified motivation with students’ intentions to continue learning, self-assessment, and final grades in L2.

Regarding the predictive power of motivational orientations, previous studies have linked autonomous motivation to various positive learning outcomes, such as persistence, engagement, and positive teacher evaluations (Ryan & Deci, 2020; McEown et al., 2014; Noels, 2001, Spratt et al., 2002; Oga-Baldwin et al., 2017; Woodrow, 2012). However, research has not fully explored how motivational orientations can mediate pathways leading to better writing performance, considering BPN as precursors to autonomous motivation, goal orientations, and gender.

Goal orientations in language learning

Goal orientation theory explains learners' beliefs, reasons, and purposes for engaging in learning tasks, impacting their approach and performance (Ames, 1992; Dweck, 1986; Pintrich, 2000). It differentiates between mastery goals, that focus on developing skills and competence, and performance goals, that aim to demonstrate ability or avoid failure. Research indicates that learning goals are associated with adaptive outcomes, while performance-avoidance goals correlate with maladaptive outcomes (Elliot, 1999; Harackiewicz et al., 1997). Studies on these goals have shown their impact on motivation and learning behaviors, with learning goals being positive predictors of academic success (Elliot & Church, 1997; Harackiewicz et al., 1997).

Considering the results of these studies, a number of researchers (e.g. Elliot, 1999) have argued for the focus on mastery goals in language classes. This kind of focus emanates from the fact that the learners with these goals are likely to adopt an intrinsic motivation for learning the target language that empowers them to effectively deal with learning challenges, view mistakes as acquisition opportunities, and implement efficacious language learning strategies (Pintrich, 2000). Therefore, it is assumed that the language learners with performance goals are likely to suffer from foreign language anxiety due to their reliance on external validation of their performance and may use surface-level learning strategies such as rote memorization to achieve short-term objectives in their classes (Harackiewicz et al., 1997).

Empirical background

The perusal of the related literature on BPNs indicates that they have followed certain lines of research to the exclusion of the others. In this regard, some of the studies have examined the role of BPNs in learners' academic performance in various settings. For instance, Golestani et al. (2024) carried out a correlational study to determine the extent to which BPNs predicted individuals' school grades by taking account of their resilience. The results of this study showed that BPNs were significant factors in the participants' performance in their academic settings. Moreover, a number of studies have tried to determine the relationship between BPNs and other affective factors. In this regard, Saleem et al. (2023) scrutinized the relationship between individuals' BPNs and their well-being by focusing on the mediating role of their subjective vitality. Based on the results of this study, BPNs significantly predicted the participants' well-being. Moreover, subjective vitality constituted a significant mediator of the relationship between these affective factors.

In addition, the relevant studies of L2 motivation have mainly focused on the relationship between learners' L2 motivation and their language proficiency. Regarding this line of research Dunn and Iwaniec (2022) carried out a correlational study to determine the degree to which foreign language learners' motivational self-system predicted their general language proficiency. The results accentuated the existence of a significant positive relationship between motivation and learners' performance on their proficiency test. Furthermore, certain studies have tried to determine the impact of various pedagogical approaches on language learners' second language motivation. In this regard, Daliranfirouz et al. (2024) carried out a study to determine the effect of gamification-enhanced teaching strategies on EFL learners' intrinsic and extrinsic motivation. The results indicated that the above-mentioned strategies significantly ameliorated the participants' intrinsic and extrinsic motivation in their relevant academic setting.

Lastly, most of the studies of goal orientations have tried to determine the relationships between these orientations and language achievement. For instance, Ahmadi Safa and Mirebrahim (2021) strived to determine the extent to which language learners' autonomy, goal orientations, self-regulation, and ambiguity tolerance predicted their language achievement. Based on the results, the learners' self-regulation and motivational orientations constituted significant factors in their language achievement.

The examination of the above-mentioned studies of language students' BPNs and motivational orientations indicates that they have mainly focused on their relationships with students' language proficiency or language achievement and have disregarded their skills including their writing skill. Moreover, these studies have not dealt with the mediating role of the students' goal orientations in their language skill development. In addition, there is a lack of research on the roles of both BPNs and motivational orientations in the prediction of students' writing performance. Additionally, the pertinent studies have mainly focused on general English courses and have not examined the ESP courses. Lastly, all of the related studies have disregarded students' gender as a factor that may influence the relationships between their BPNs, motivational orientations, goal orientations and language ability (e.g. writing ability). The present study strived to deal with these issues in the context of Iran. To this end, it made an endeavor to answer the following questions:

1. Do male nursing ESP students' BPNs and motivational orientations significantly predict their writing ability by taking into account the mediational role of their goal orientations?

2. Do female nursing ESP students' BPNs and motivational orientations significantly predict their writing ability by taking into account the mediational role of their goal orientations?

Method

Participants

Considering the above-mentioned objectives, the researcher used convenience sampling in order to select the participants of the study. To this end, first, he contacted the English departments of ten universities of medical sciences in Iran, informed the heads of the departments about the aims and procedure of the study, and obtained their consent to it. The department heads allowed the researcher to gather the required data from 20 nursing ESP classes. There were 20 students in each of the selected classes.

Second, the researcher visited the classes, provided the students with information about the purpose of the study, and invited them to take part in it. At this stage, 16 male students and 21 female students stated that they did not intend to participate in the study due to diverse reasons. Therefore, the remaining 184 male and 179 female students were considered to be the potential participants of the study. The analysis of these students' demographic information indicated that they ranged in age from 20 to 23. These students were prompted to complete the informed consent forms in their relevant classes.

Finally, the researcher administered the proficiency test of the study to the participants in order to ensure their homogeneity prior to the onset of data collection. The results of this test indicated that 5 male and 7 female students in the examined classes were below the intermediate proficiency level. Consequently, the researcher decided to exclude the data from the data analysis process. The above-mentioned participant selection procedure enabled the researcher to include 179 male and 172 female nursing students in the study as the main participants. These participants were native speakers of Azeri, Kurdish, or Persian and their language learning experience was in the range of two to three years.

Instrumentation

The following materials and instruments were used to collect the required data:

Proficiency test

In this study, the researcher took advantage of Allan's (2004) Oxford Placement Test (OPT) in order to ensure male and female ESP students' homogeneity prior to data collection. This test encompasses 60 items in three main sections including *grammar*, *vocabulary*, and *reading comprehension*. Allan (2004) stated that the reliability and validity indices of this test were satisfactory. Nonetheless, the researcher used Cronbach's alpha measure to examine its reliability in a pilot study that involved 20 participants (10 male & 10 female) whose characteristics were similar to the characteristics of the main participants. The obtained results indicated that the reliability index of this instrument (.87) was satisfactory and it could be used in this study.

BPN questionnaire

In light of the main objectives, the researcher used Vlachopoulos and Michailidou's (2006) questionnaire to examine male and female participants' BPNs. This questionnaire comprised 12 five-point Likert-scale items that address three underlying sub-component of BPNs including *autonomy*, *competence*, and *relatedness*. The reliability analysis results of this instrument in the above-mentioned pilot study indicated that its reliability (.84) was satisfactory and it could be utilized in Iranian EFL context.

General Causality Orientations Questionnaire

Given the underlying purpose, the researcher used Deci and Ryan's (1985) General Causality Orientations (GCO) questionnaire to determine the participants' self-determination motivational orientations. This self-report questionnaire encompasses 36 seven-point Likert-scale items that scrutinize three main sub-components of self-determination orientations including *autonomy*, *controlled*, and *impersonal* orientations. Based on the results of Cronbach's alpha measure, the reliability index of this instrument was (.89) in Iranian context and could be used in this study.

Goal orientation questionnaire

In the present study, the researcher used Midgley et al.'s (1998) Goal Orientation (GO) scale in order to examine male and female participants' GO in their relevant academic settings. This instrument encompasses 18 five-point Likert-scale items that examine three main sub-components of this construct including, *ability-approach GO*, *learning GO*, and *ability-avoid GO*. The results of reliability analysis of this questionnaire using Cronbach's alpha measure showed that its reliability was .85 and it could be used in the context of Iran.

Writing test

Considering the aim of the study, the researcher selected an essay topic from Grice's (2009) textbook entitled *Oxford English for Careers: Nursing 1* as the topic of the writing test of the study. This textbook provides nursing ESP students with appropriate academic writing tasks. Accordingly, the researcher prompted the participants to write a 250-word essay on the pertinent topic in approximately 45 minutes of their class time.

Writing assessment framework

In this study, the researcher used Brown and Bailey's (1984) writing assessment framework to assess male and female nursing students' writing performance on the essay-writing test of the study. This framework encompasses three main sections including *style, mechanics,* and *structure* sections. Each of these framework sections comprise four sub-scales that enable the researchers to assess the participants' writing ability on a 20-point scale. The researcher used inter-rater correlation coefficient to ensure the inter-rater reliability in the writing test scoring procedure. Based on the results, the inter-rater reliability coefficient (.87) was acceptable and writing assessment was reliable in the present study.

Procedure

In the present study, first the researcher took advantage of convenience sampling to select 179 male and 172 female nursing students at different universities of medical sciences in Iran as the participants. Second, he administered Vlachopoulos and Michailidou's (2006) BPN questionnaire, Deci and Ryan's (1985) GCO questionnaire, and Midgley et al.'s (1998) GO questionnaire to the participants in a two-week period of time to examine their BPNs, GCOs, and GOs. Third, the researcher administered the writing test of the study to the participants and used Brown and Bailey's (1984) writing assessment framework to assess their writing ability. Lastly, the researcher performed the data analysis of the study using SEM.

Results

Research question one strived to determine the role of male ESP students' BPNs and GCOs in the prediction of their writing ability by taking into account the mediational role of their GOs. Based on this objective, the researcher used SEM analysis to develop the model of the interrelationships between the above-mentioned variables. Figure 1 shows the relevant model for the male ESP students:

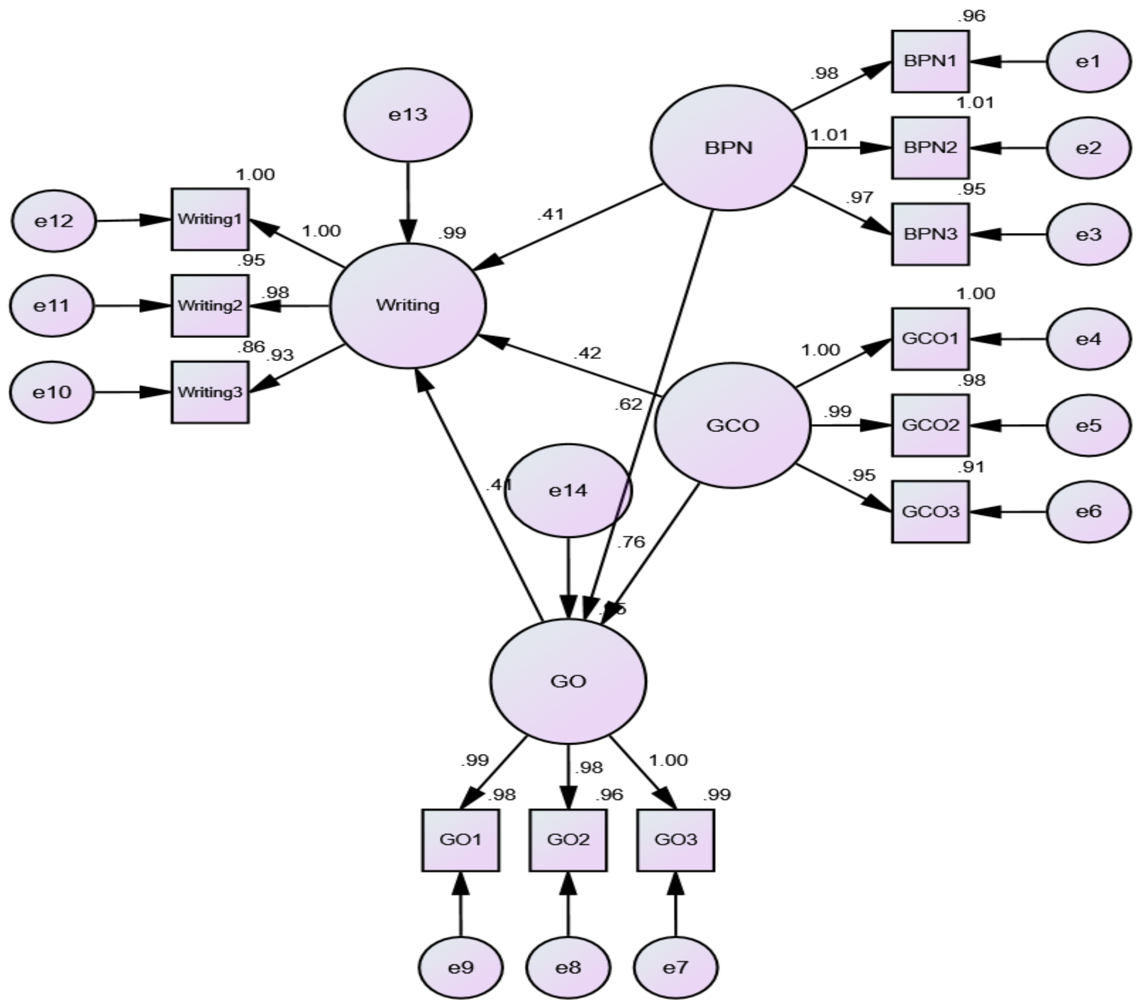

Figure 1

Model of the Factors in Male ESP Students' Writing Ability

In order to specify the degree to which male students' BPNs and GCOs significantly predicted their writing ability by considering the mediational role of their GOs, the researcher scrutinized the regression weights of these variables. Table 1 provides the relevant results:

Table 1
Regression Weights of Male ESP Students' BPNs and GCOs in the Prediction of their Writing Ability by Considering the Mediational Role of their GOs

Correlations			Estimate	S.E.	C.R.	P
GO	<---	BPN	.595	.066	9.025	.000
GO	<---	GCO	.158	.012	13.560	.000
Writing	<---	BPN	.258	.061	4.229	.000
Writing	<---	GCO	.056	.015	3.761	.000
Writing	<---	GO	.263	.089	2.946	.003

As shown in Table 1, male students' BPNs and GCOs were significant predictors of their GO and writing ability (C.R.>1.96; p<.05). Consequently, the researcher examined the standardized estimates to determine the most significant predictor of their writing ability by considering the mediational role of their GOs. Table 2 provides these results:

Table 2
Standardized Estimates of Male ESP Students' BPNs and GCOs in the Prediction of their Writing Ability by Considering the Mediational Role of their GOs

Correlations			Estimate
GO	<---	BPN	.616
GO	<---	GCO	.758
Writing	<---	BPN	.415
Writing	<---	GCO	.421
Writing	<---	GO	.408

As shown in Table 2, male students' GCOs (.421) and BPNs (.415) were respectively the first and the second most significant predictors of their writing ability by considering the mediational role of their GOs. Based on these results, the researcher examined the model fit. Table 3 shows the pertinent results:

Table 3

Model Fit Summary of Male ESP Students' BPNs and GCOs in the Prediction of their Writing Ability by Considering the Mediational Role of their GOs

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	29	179.200	49	.179	2.657

As shown in Table 3, the model fit was satisfactory ($p>.05$; CMIN<3). As a result, the researcher scrutinized the baseline comparisons of this model to ensure its fit. Table 4 provides these results:

Table 4

Baseline Comparisons of Male ESP Students' BPNs and GCOs in the Prediction of their Writing Ability by Considering the Mediational Role of their GOs

Model	IFI Delta2	TLI rho2	CFI
Default model	.991	.922	.994

According to Table 4, male students' writing performance model fit was acceptable (IFI>.90; TLI>.90; & CFI>.90).

Research question two examined the role of female ESP students' BPNs and GCOs in the prediction of their writing ability by taking into account the mediational role of their GOs. Consequently, the researcher used SEM analysis to develop the model of the interrelationships between these variables. Figure 2 shows the relevant model for the female students:

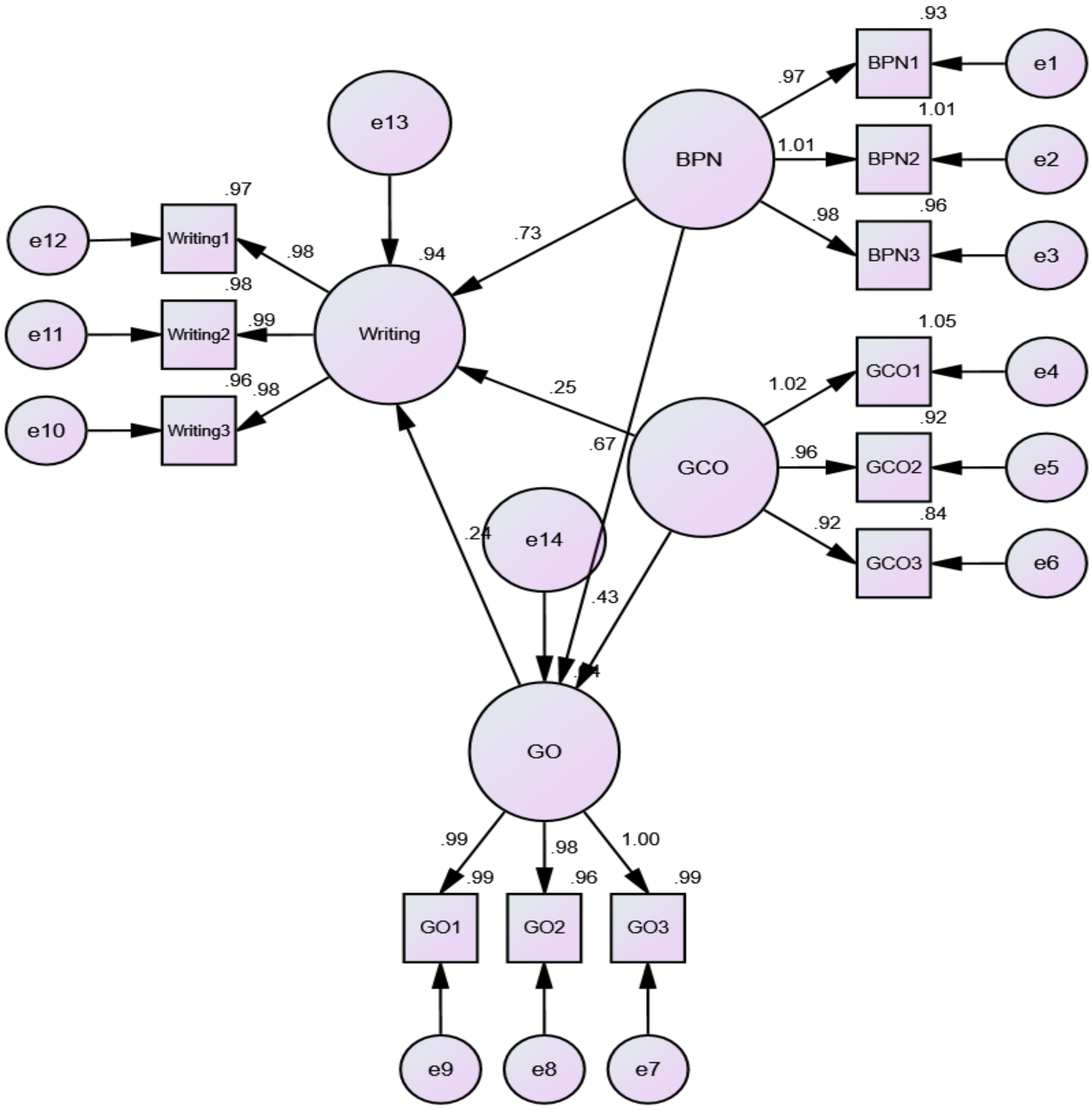

Figure 2

Model of the Factors in Female ESP Students' Writing Ability

In order to determine the degree to which female students' BPNs and GCOs significantly predicted their writing ability by considering the mediational role of their GOs, the researcher examined the regression weights of these variables. Table 5 shows these results:

Table 5
Regression Weights of Female ESP Students' BPNs and GCOs in the Prediction of their Writing Ability by Considering the Mediational Role of their GOs

Correlations			Estimate	S.E.	C.R.	P
GO	<---	BPN	.650	.151	4.290	.000
GO	<---	GCO	.091	.030	2.986	.003
Writing	<---	BPN	.566	.082	6.867	.000
Writing	<---	GCO	.142	.012	3.562	.000
Writing	<---	GO	.193	.077	2.493	.013

According to Table 5, female students' BPNs and GCOs were significant predictors of their GO and writing ability (C.R.>1.96; p<.05). Therefore, the researcher examined the standardized estimates to determine the most significant predictor of their writing ability by considering the mediational role of their GOs. Table 6 provides these results:

Table 6
Standardized Estimates of Female ESP Students' BPNs and GCOs in the Prediction of their Writing Ability by Considering the Mediational Role of their GOs

Correlations			Estimate
GO	<---	BPN	.674
GO	<---	GCO	.429
Writing	<---	BPN	.732
Writing	<---	GCO	.250
Writing	<---	GO	.240

According to Table 6, female students' BPNs (.732) and GCOs (.250) were respectively the first and the second most significant predictors of their writing ability by considering the mediational role of their GOs. Consequently, the researcher examined the model fit. Table 7 shows the pertinent results:

Table 7

Model Fit Summary of Female ESP Students' BPNs and GCOs in the Prediction of their Writing Ability by Considering the Mediational Role of their GOs

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	29	185.181	49	.192	2.779

According to Table 3, the model fit was satisfactory (p>.05; CMIN<3). As a result, the researcher examined the baseline comparisons of this model to ensure its fit. Table 8 provides these results:

Table 8

Baseline Comparisons of Female ESP Students' BPNs and GCOs in the Prediction of their Writing Ability by Considering the Mediational Role of their GOs

Model	IFI Delta2	TLI rho2	CFI
Default model	.974	.986	.967

As shown in Table 8, female students' writing performance model fit was acceptable (IFI>.90; TLI>.90; & CFI>.90).

Discussion

Research question one and two examined the extent to which male and female ESP students' BPNs and GCOs significantly predicted their writing performance when the mediating role of their GOs was taken into consideration in their relevant academic settings. The results indicated that both of the above-mentioned factors significantly explained the variance in these students' writing performance. In general, these results corroborate the results of the studies that were conducted by Niemiec and Ryan (2009), Durksen et al. (2016), Behzadnia and Fatah Modares (2020), Jafari Pazoki and Alemi (2020), Bailey et al. (2021), Holzer et al. (2021), Simonova et al. (2021), Stanley et al. (2021), Alamer (2022), and Shelton-Strong (2022). These studies reported that language learners' BPNs and CCOs significantly predicted their acquisition of different skills and aspects of the target language.

Ryan and Deci (2017) stated that learners' BPNs can significantly affect their academic performance. As they explained, learning and understanding various academic concepts is innately a goal-oriented endeavor. As a result, it depends on learners' need for autonomy since they strive to highlight their ownership of their learning behaviors as a part of their academic identity. Furthermore, Ryan and Deci (2017) argued that this kind of learning depends on learners' need for competence. In other words, learners have to demonstrate that they are competent individuals who are capable to produce their intended academic outcomes and to prove their mastery in their relevant field. Lastly, Ryan and Deci (2017) stated that academic learning in instructed settings is closely associated with the learners' need for relatedness. More specifically, the learners engage in diverse pedagogical activities and learning endeavors in order to accentuate the fact that they are connected to their peers in their relevant settings and constitute members of the academic group that represent their learning context.

In addition, Deci and Ryan. (2000) pointed out that GCOs are likely to predispose learners to certain learning behaviors and may significantly affect their academic performance. As they explained, the learners' autonomous orientation can have a major effect on their self-regulated learning. In other words, the autonomously motivated learners have a tendency to exert conscious control over the diverse aspects of their learning environment. Moreover, they are able to determine their learning goals, to monitor their performance, and to take advantage of reinforcement strategies to prevent themselves from experiencing negative feelings. Furthermore, learners' controlled motivational orientation prompts them to engage in learning activities in order to gain specific advantages such as occupational and educational opportunities. Lastly, they stated that learners' impersonal motivational orientation might constitute a barrier to their effective and satisfactory performance in their relevant settings. That is, the learners with this motivational orientation experience great anxiety due mainly to the fact that they consider themselves as individuals who are not capable to attain their relevant objectives.

Lastly, Butler (2012) stated that learners' GOs tend to influence their affective factors and academic performance. He explained that, learners' ability-approach GO is likely to increase their autonomous motivational orientation and their need for autonomy since it prompts them to compete for excellence in their contexts. Moreover, learners' ability-avoid GO can have a positive effect on their controlled motivational orientation and competence need since it encourages the learners to deemphasize their weaknesses by capitalizing on their capabilities. Lastly, he noted that learners' learning GO can stifle their impersonal motivational orientation and may have a beneficial effect on their relatedness need since it prompts them to highlight their abilities by mastering news skills.

Considering the above-mentioned discussions, it can be argued that in the present study, male and female ESP students' BPNs constituted significant predictors of their writing performance since they significantly influenced their desire to be independent in the performance of their writing tasks. Moreover, these needs encouraged the students to show their worth as capable members of their community by producing a satisfactory writing performance. Furthermore, these students' GCOs significantly predicted their writing performance due to the fact that they determined their perceptions of their own writing ability and specified the degree to which their performance of these tasks was dependent on their reward expectations or their own wants. Lastly, these students' GOs mediated the relationship between their BPNS, GCOs and their writing performance since they affected both their needs in the contexts of the classroom and their motivational orientations that underlie their performance of the writing tasks.

Research question three made an effort to determine the difference between the predictors of male and female ESP students' writing performance. The results indicated that while male students' GCOs and BPNs were the first and the second factors in their writing performance, female students' BPNs and GCOs constituted the first and the second main predictors of their performance on their writing task. In general, these results are in line with the results of the studies that were carried out by Vermeulen et al. (2012), Zhen et al. (2017), Van Roy and Zaman (2019), Zhou et al. (2021), and Wong (2022). These studies showed that there were differences between the predictors of male and female language learners' different language skills.

Zhen et al. (2017) stated that female leaners are mainly affected by their needs. According to them, in instructed settings, female learners compete with their peers in order to show that they are able to manage their learning process in an independent way and are more competent than them in terms of their academic knowledge and capabilities. According to them, these learners' academic eagerness stems from their inclination to highlight their status as capable members of their educational community. On the other hand, Van Roy and Zaman (2019) pointed out that male learners' academic performance is mainly determined by their motivation. That is, these learners' perceptions of their capabilities and their internal or external reward expectations tend to have a significant effect on their pedagogical activities.

Based on these discussions, it can be argued that, in this study, the difference between the main predictors of male and female ESP students' writing performance stemmed from female students' enthusiasm for recognition as competent members of their language classes (who are able to perform their writing tasks in an acceptable way) and male students' perspectives on their writing capabilities.

Conclusion

The present study examined the role of male and female ESP students' BPNs and GCOs in the prediction of their writing performance by considering the mediating role of their GOs. Moreover, it strived to determine the difference between the predictors of male and female ESP students' writing performance. The results indicated that male and female students' writing performance was significantly predicted by both their BPNs and GCOs. Furthermore, based on the results, male students' GCOs and female students' BPNs were the main factors in their writing performance.

A number of conclusions can be drawn based on these results. First, there is a need to overhaul the current ESP lecture education courses. Most of these courses are mainly concerned with the practical issues of ESP instruction and disregard students' main factors including their BPNs, GCOs, and GOs. Consequently, it is necessary to include a certain student-factor module in the syllabi of these courses in order to make the lecturers aware of the consequential role of the relevant factors in students' development of different language skills including the writing skill. Furthermore, lecturer-education-course developers have to re-educate the lecturer educators in terms of the student-factors. A large number of these educators are experienced lecturers who have obtained several certificates of the lecturer education courses that deal with the practical consideration of ESP teaching. As a result, they may not pay adequate attention to affective student factors. The re-education of these educators has to provide them with adequate information on these factors. In this way, lecturer educators can heighten ESP lecturers' awareness of the role of student factors in the process of language learning.

Second, syllabus designers have to revise the present lecturer manuals in terms of their student-oriented content. These manuals have been developed to facilitate lecturers' language instruction and do not help them to deal with students' affective factors including their BPNs, GCOs, and

GOs. As a result, there is a need to include a certain section in these manuals to empower the lecturers to adapt their language instruction to their students' affective factors in order to expedite their development of different language skills including the writing skill.

Lastly, it can be argued that the ESP lecturers have to develop a satisfactory understanding of the main student factors that affect their students' writing ability including their BPNs, GCOs, and GOs. For instance, they can take advantage of the results of the recent research on student factors (e.g. the present study) and can attend national and international events such as conferences, webinar, and lecturer education courses that focus on the role of students' affective factors in their language learning.

The present study suffered from a number of limitations since it did not examine the impact of the students' personal variables such including their age and language background on the obtained results. Moreover, the researchers delimited the study by focusing on the ESP students' BPNs, GCOs, and GOs without dealing with the other affective factors such as emotional intelligence among the others. The future studies should deal with these limitations and delimitations. Moreover, these studies need to use mixed-methods designs and should be conducted in different contexts to provide a more in-depth understanding of the role of ESP students' BPNs, GCOs, and GOs in their writing skill development.

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