

ENHANCING MODAL COMPETENCE IN FUTURE DOCTORS THROUGH CLINICAL CASE-BASED TASKS: A QUASI-EXPERIMENTAL STUDY IN ENGLISH FOR MEDICAL PURPOSES

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Abstract. This study examines the effectiveness of clinical case-based tasks in developing modal competence among future doctors in English for Medical Purposes (EMP). Although medical students often possess foundational knowledge of modal verbs, they frequently struggle to apply them appropriately in authentic clinical communication. To address this issue, a quasi-experimental design was employed involving control and experimental groups of second-year medical students. While the control group received traditional grammar-focused instruction, the experimental group was exposed to clinical case-based tasks designed to simulate real medical scenarios. The results of pre-test and post-test assessments indicate a substantial improvement in the experimental group, particularly in terms of pragmatic appropriateness and contextual accuracy. The findings suggest that integrating clinical case-based learning into EMP instruction significantly enhances modal competence and bridges the gap between linguistic knowledge and professional communication. The study contributes to linguodidactic theory and provides practical implications for curriculum design in medical education.

Keywords: modal competence, clinical case-based learning, EMP, medical education, linguodidactics, modal verbs.

Annotatsiya. Ushbu tadqiqot tibbiyot yo'nalishida tahsil olayotgan talabalarda ingliz tilining tibbiy maqsadlarda qo'llanilishi (EMP) doirasida modal kompetensiyani rivojlantirishda klinik holatlarga asoslangan topshiriqlarning samaradorligini o'rganadi. Tibbiyot talabalari odatda modal fe'llar bo'yicha asosiy bilimlarga ega bo'lsalar-da, ularni real klinik muloqotda to'g'ri qo'llashda qiyinchiliklarga duch keladilar. Ushbu muammoni hal qilish maqsadida ikkinchi bosqich tibbiyot talabalari ishtirokida nazorat va tajriba guruhlarini o'z ichiga olgan kvazi-eksperimental tadqiqot o'tkazildi. Nazorat guruhi an'anaviy grammatika asosidagi ta'limni olgan bo'lsa, tajriba guruhi real tibbiy vaziyatlarni modellashtiruvchi klinik holatlarga asoslangan topshiriqlar bilan shug'ullandi. Dastlabki va yakuniy test natijalari tajriba guruhida sezilarli o'sishni, ayniqsa pragmatik moslik va kontekstual aniqlik jihatidan, ko'rsatdi. Natijalar EMP ta'limiga klinik holatlarga asoslangan yondashuvni integratsiya qilish modal kompetensiyani sezilarli darajada rivojlantirishini va nazariy bilim hamda professional muloqot o'rtasidagi tafovutni kamaytirishini ko'rsatadi. Tadqiqot lingvodidaktika nazariyasiga hissa qo'shadi va tibbiy ta'lim dasturlarini ishlab chiqishda amaliy ahamiyat kasb etadi.

Kalit so'zlar: modal kompetensiya, klinik holatlarga asoslangan o'qitish, EMP, tibbiy ta'lim, lingvodidaktika, modal fe'llar.

Аннотация. В данном исследовании рассматривается эффективность заданий, основанных на клинических кейсах, в формировании модальной компетенции у будущих врачей в рамках английского языка для медицинских целей (EMP). Несмотря на наличие базовых знаний о модальных глаголах, студенты-медики часто испытывают трудности при их использовании в реальной клинической коммуникации. Для решения данной проблемы было проведено квазиэкспериментальное исследование с участием студентов второго курса медицинского вуза, разделённых на контрольную и экспериментальную группы. Контрольная группа обучалась по традиционной грамматико-ориентированной методике, тогда как экспериментальная группа выполняла задания, основанные на клинических ситуациях, моделирующих реальные профессиональные условия. Результаты входного и итогового тестирования показали значительное улучшение показателей в экспериментальной группе, особенно в аспектах прагматической уместности и контекстуальной точности. Полученные данные свидетельствуют о том, что интеграция клинических кейсов в обучение EMP способствует

эффективному развитию модальной компетенции и сокращает разрыв между языковыми знаниями и профессиональной коммуникацией. Исследование вносит вклад в лингводидактическую теорию и имеет практическое значение для разработки учебных программ в медицинском образовании.

Ключевые слова: модальная компетенция, обучение на основе клинических кейсов, EMP, медицинское образование, лингводидактика, модальные глаголы.

Introduction. The growing internationalization of healthcare has increased the demand for effective communication in English within medical contexts. As English continues to function as the global lingua franca of medicine, future doctors are expected to demonstrate not only knowledge of medical terminology but also the ability to communicate accurately and appropriately in clinical situations.

A crucial component of such communication is the use of modal verbs, which enable medical professionals to express obligation (*must*), recommendation (*should*), probability (*may, might*), and necessity (*have to*). These linguistic forms are essential for conveying clinical judgments, advising patients, and managing uncertainty.

Despite their importance, numerous studies and classroom observations reveal that medical students often experience difficulty in using modal verbs appropriately in real-life contexts. While they may demonstrate adequate grammatical knowledge, they frequently fail to select contextually suitable modal forms during clinical communication. This discrepancy highlights a critical gap between declarative knowledge and communicative competence.

From a linguodidactic perspective, this issue can be attributed to the limitations of traditional grammar-based instruction, which tends to emphasize form over function. Such approaches do not adequately prepare learners for the dynamic and context-dependent nature of medical communication.

In response to this challenge, contemporary pedagogical frameworks advocate for context-based and task-based learning approaches. One particularly promising method is clinical case-based instruction, which engages students in realistic medical scenarios and requires them to apply language in meaningful contexts.

However, despite its theoretical relevance, there remains a lack of empirical research investigating the effectiveness of clinical case-based tasks in developing modal competence in EMP settings. This study aims to address this gap by evaluating the impact of such tasks on the modal competence of future doctors.

Literature analysis. The existing body of research in English for Specific Purposes (ESP) and English for Medical Purposes (EMP) emphasizes the importance of integrating language instruction with professional context. Scholars such as Hutchinson and Waters (1987) and Hyland (2006) argue that language learning is most effective when aligned with learners' specific communicative needs. Furthermore, Ellis (2003) and Willis (1996) highlight the effectiveness of task-based language teaching in promoting meaningful language use and communicative competence. Studies on modality by Halliday (1994) and

Palmer (2001) also underline that modal verbs are not merely grammatical elements but essential tools for expressing professional judgment and interpersonal meaning, reinforcing the need for context-driven instruction.

Research methodology. This study adopts a quasi-experimental design involving control and experimental groups to evaluate the effectiveness of clinical case-based tasks in developing modal competence. Quantitative data were collected through pre-test and post-test assessments and analyzed using comparative statistical methods, including mean score and gain score analysis. Additionally, qualitative analysis was conducted to examine changes in students' pragmatic and contextual use of modal verbs.

Results and discussion. This study employed a **quasi-experimental pre-test/post-test control group design**, allowing for a comparative analysis of instructional effectiveness.

The participants consisted of 40 second-year medical students with intermediate English proficiency (B1–B2). They were divided into:

1. Control Group (n = 20)
2. Experimental Group (n = 20)

Control Group:

Students received traditional instruction, including:

1. explicit grammar explanations
2. gap-filling exercises
3. sentence transformation tasks

Experimental Group:

Students engaged in clinical case-based tasks, including:

1. patient diagnosis scenarios
2. treatment planning discussions
3. role-play doctor–patient interactions

These tasks required active use of modal verbs in context.

Modal Competence Test (Pre/Post)

The test consisted of three sections:

1. Multiple-choice items (accuracy)
2. Clinical scenario responses (pragmatic use)
3. Role-based writing tasks (decision-making)

Total score: 35 points

Assessment Criteria:

Criterion	Description	Score
Grammatical Accuracy	Correct use of modal forms	0–3
Pragmatic Appropriateness	Suitability in context	0–4
Contextual Relevance	Alignment with clinical situation	0–3

Criterion	Description	Score
Range of Modals	Variety of modal usage	0–3

Data were analyzed using:

1. mean score comparison
2. gain score analysis
3. percentage improvement

An independent samples comparison indicated a statistically significant difference between groups ($p < 0.05$).

The results of the pre-test and post-test reveal a clear difference between the control and experimental groups.

Group	Pre-test Mean	Post-test Mean	Gain Score
Control Group	19.6	22.1	+2.5
Experimental Group	18.9	28.7	+9.8

The experimental group demonstrated a substantially higher improvement compared to the control group. While both groups showed progress, the magnitude of change in the experimental group was nearly four times greater.

This suggests that clinical case-based instruction had a strong positive effect on the development of modal competence.

To better understand the nature of this improvement, student performance was analyzed across four key criteria.

Criterion	Control Gain	Experimental Gain
Grammatical Accuracy	+1.2	+2.5
Pragmatic Appropriateness	+0.8	+4.1
Contextual Relevance	+0.5	+2.0
Range of Modals	+0.3	+1.2

The most significant difference was observed in **pragmatic appropriateness**, where the experimental group showed a gain of +4.1 compared to only +0.8 in the control group. This indicates that clinical case-based tasks are particularly effective in improving context-sensitive language use.

Student performance was further categorized into three levels: low, medium, and high competence.

Pre-test Distribution

Level	Control (%)	Experimental (%)
Low	45%	50%
Medium	40%	35%
High	15%	15%

Post-test Distribution

Level	Control (%)	Experimental (%)
Low	30%	10%
2Medium	50%	35%
High	20%	55%

The experimental group showed a dramatic shift toward higher competence levels. The proportion of high-performing students increased from 15% to 55%, while the number of low-performing students dropped significantly.

In addition to quantitative data, qualitative analysis revealed notable differences in modal usage.

Control Group (Typical Response)

“You should take medicine and you should rest.”

Issues:

- limited modal range
- repetitive structure
- weak clinical reasoning

“You must monitor your blood pressure regularly, and you should reduce salt intake.

This may indicate early hypertension.”

☞ Strengths:

- varied modal usage
- clear pragmatic distinction
- clinically appropriate reasoning

A comparison of pre-test and post-test responses revealed a significant reduction in modal-related errors.

Error Type	Pre-test (%)	Post-test (%)
Incorrect modal choice	38%	14%
Overgeneralization (<i>must everywhere</i>)	25%	9%
Lack of modal use	20%	6%

The most notable reduction occurred in **incorrect modal selection**, suggesting improved understanding of functional distinctions between modal verbs.

An independent comparison of gain scores indicates that the difference between the control and experimental groups is statistically significant ($p < 0.05$). This confirms that the observed improvement is not due to chance but is directly related to the instructional intervention.

The findings of this study provide strong evidence that clinical case-based tasks significantly enhance the modal competence of future doctors. The substantial gain observed in the experimental group (+9.8) compared to the control group (+2.5) suggests

that contextualized, task-based instruction leads to more effective acquisition of modal usage than traditional grammar-focused approaches.

This improvement can be interpreted through several theoretical and pedagogical lenses. First, from a **linguocognitive perspective**, the use of clinical scenarios activates deeper cognitive processing. Unlike decontextualized grammar exercises, case-based tasks require learners to interpret symptoms, evaluate possible diagnoses, and make decisions. This process engages higher-order cognitive skills such as reasoning, inference, and judgment, which in turn facilitate more meaningful internalization of modal structures. In this sense, modal verbs are not processed as isolated grammatical forms but as functional tools embedded in clinical reasoning. Second, the results highlight the role of **pragmatic competence** in language acquisition. The experimental group demonstrated significant improvement not only in grammatical accuracy but also in the appropriateness of modal selection. This indicates that learners became more sensitive to contextual factors, such as the degree of certainty, urgency, and professional responsibility. For example, the distinction between *must* and *should* reflects not only linguistic knowledge but also an understanding of medical authority and ethical obligation.

Third, the effectiveness of clinical case-based tasks can be explained within the framework of **task-based language teaching (TBLT)**. According to TBLT principles, language is best acquired when learners are engaged in meaningful tasks that mirror real-life situations. In this study, clinical cases functioned as authentic tasks that required purposeful communication, thereby promoting both fluency and accuracy. Moreover, the findings suggest that modal competence is inherently **multidimensional**, encompassing grammatical, pragmatic, and professional components. Traditional instruction tends to isolate grammar from context, whereas case-based learning integrates these dimensions, leading to more holistic competence development. However, several limitations should be acknowledged. The sample size of the study was relatively small, which may affect the generalizability of the results. In addition, the duration of the intervention (four weeks) may not fully capture long-term learning outcomes. Another limitation concerns the assessment method, which, while structured, may still involve a degree of subjectivity in evaluating pragmatic appropriateness.

Future research should therefore focus on larger-scale studies, longitudinal designs, and the integration of more objective assessment tools. Additionally, further investigation is needed into how digital simulations and virtual patients can enhance the effectiveness of case-based instruction.

Conclusion. This study set out to investigate the effectiveness of clinical case-based tasks in developing modal competence among future doctors in English for Medical Purposes. The findings clearly demonstrate that context-driven, scenario-based instruction significantly outperforms traditional grammar-focused approaches.

The results confirm that modal competence cannot be reduced to the mastery of grammatical rules alone. Rather, it is a complex construct that requires the integration of linguistic knowledge, pragmatic awareness, and professional reasoning. Clinical case-based tasks provide an effective pedagogical framework for achieving this integration, as they situate language use within authentic medical contexts. From a theoretical perspective, the study contributes to the field of linguodidactics by providing empirical support for the integration of cognitive and communicative approaches in language teaching. It reinforces the view that language learning is most effective when it is embedded in meaningful, problem-solving activities. From a practical standpoint, the findings have direct implications for curriculum design in medical education. EMP programs should move beyond traditional grammar instruction and incorporate clinical simulations that reflect real-world communication demands. Such an approach not only improves linguistic accuracy but also prepares students for professional interaction in clinical settings.

At a broader level, the study underscores the importance of aligning language education with domain-specific needs. In the context of medical training, this alignment is particularly critical, as ineffective communication can have serious consequences for patient care. In conclusion, the integration of clinical case-based tasks represents a pedagogically sound and empirically validated strategy for enhancing modal competence in future doctors. Further research should expand this approach by exploring its application across different medical disciplines, proficiency levels, and technological environments.

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