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Exploring washback processes in language teaching through teachers' beliefs in the Chinese National Matriculation English Test (NMET)

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Existing empirical evidence demonstrates that teachers' beliefs play a significant role in mediating the washback effects of high-stakes examinations on teaching practices, despite teachers' beliefs being recognized as difficult to change. The current study explores how the Chinese National Matriculation English Tests (NMETs) influence teaching practices through teachers' beliefs. Qualitative interviews were conducted with four experienced high school English teachers. The findings discovered a positive washback impact on teaching practices when teachers' beliefs aligned with the assessment, whereas negative and insignificant washback impacts were revealed when a misalignment occurred. Moreover, a significant negative association existed between teachers' beliefs and actual teaching practices, especially in balancing between emphasizing real-life language application and the examination-oriented approach. This study recommended that the Ministry of Education prioritize aligning teachers' beliefs with the NMET to promote a positive washback impact on teaching practices.

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Introduction

Examinations are a prevalent tool worldwide for various purposes, including school admissions and the evaluation of students' progress, growth, opportunities, and achievement levels (Alqahtani, 2021; Cheng and Sultana, 2021). Specifically, examination results are pivotal in measuring teachers' performances and effectiveness in respective teaching practices (Chen and Li, 2021; Cheng and Sultana, 2021; Min and Zhang, 2020; Tsiplakou and Tsagari 2023). The significant impacts of examinations on teachers, students, and other stakeholders are generally referred to as the washback effect (Cheng and Sultana, 2021; Rahman et al. 2023; Zhang and Bournot-Trites, 2021). Examination designers frequently aim for a positive washback impact on language teaching and learning, although the outcomes may diverge from the aim (Alqahtani, 2021; Kuang, 2020). Previous scholars posited that other factors could also determine the washback effect apart from the examination (Shirzadi and Amerian, 2020; Tsiplakou and Tsagari, 2023), such as teachers' beliefs (Rahman et al. 2023). Teachers are the key influencers in teaching to integrate reformation ideas into respective belief systems before adjusting teaching methods (Zhang and Liu, 2014). Past studies demonstrated that achieving desired washback effects in teaching was challenging when teachers' beliefs were not aligned with assessment purposes (Dammak et al. 2022; Liu, 2023; Wei, 2017). Lo (2018) highlights that ESL teachers' willingness to communicate in English is closely linked to their individual attitudes and language-related beliefs, which significantly shape their classroom practices. These personal orientations determine how open teachers are to pedagogical shifts, making them a critical element in understanding how washback from examinations takes effect. Altering teachers' beliefs was also challenging due to the persistent nature of beliefs and the conflict of different values when alternative practices were introduced (Pajares, 1992; Zhang and Liu, 2014). In their study on EMI implementation in Malaysian higher education, Lo and Othman (2023) emphasized the dynamic interplay between institutional mandates and educators' personal preparedness. Their findings shed light on how top-down pressures, such as high-stakes assessments, can either conflict with or reshape educators' internal belief systems, ultimately influencing their readiness to embrace educational reforms. Understanding the mediation impact of teachers' beliefs on examinations and practices is vital to successfully implementing innovative washback approaches from assessments into teaching (Dammak et al. 2022; Zhang and Liu, 2014). Through a narrative exploration of Chinese EFL doctoral students, Othman and Lo (2023) demonstrated that academic identity is constructed through the gradual negotiation of deep-seated cultural and educational values. Their work underscores the intricate socio-cultural processes that govern belief development and change, especially in contexts like China, where tradition and academic expectations strongly intersect. The constant reliance of China on high-stakes examinations over a millennium underscores the enduring societal importance (O'Sullivan and Cheng, 2022). The tradition highly influences English teaching practices, particularly at the secondary level, wherein exam-oriented approaches are emphasized (Lei and Qin, 2022; Wang and Zhang, 2018). Hamdan et al. (2024) revealed that peer mentoring plays a pivotal role in the professional growth of novice ESL teachers, particularly through mechanisms of observational and collaborative learning. Their research illustrates how such supportive environments can actively challenge entrenched beliefs, offering valuable insights into how teacher cognition evolves in systems dominated by exam-focused teaching. The tradition also postulates the significance of matriculation tests in China, including the National Matriculation English Test (NMET), and the corresponding impacts on English teaching and learning (Lei and Qin,

2022; Min and Zhang, 2020; Wang and Zhang, 2018). This study aims to explore English teachers' beliefs regarding the National Matriculation English Test (NMET) and to examine how these beliefs shape the washback effect on their teaching practices.

Theoretical construct of washback

The study of washback has evolved since the 1980s, focusing on the impact of examinations on language teaching and learning (Bailey, 1996; McKinley and Thompson, 2018). Positive washback occurs when the test content aligns with curriculum goals, leading to beneficial outcomes such as improved teaching practices and enhanced student learning. Negative washback, on the other hand, arises when the test leads to an overemphasis on test preparation at the expense of broader educational objectives, which can narrow the curriculum and limit students' learning experiences (McKinley and Thompson, 2018).

Alderson and Wall (1993) pioneered research on washback, developing 15 hypotheses to examine the impact of language assessments on teaching. Hughes (1993) further defined washback as the influence of exams on various aspects of teaching and learning, introducing a framework that encompasses three dimensions: participants, processes, and products within an education system (Cheng and Sultana, 2021). This framework highlights that washback is not merely a linear effect but involves complex interactions (Rahman et al. 2023). Recent empirical evidence suggests that washback is driven by participant behaviors and is influenced by factors such as teachers' beliefs, attitudes, and educational backgrounds (Dammak et al. 2022; Suryanto et al. 2023; Zhang and Liu, 2014). Scholars have called for deeper exploration into these influencing factors (Cheng and Sultana, 2021; Rahman et al. 2023; Wei, 2017), as existing frameworks have not fully addressed how exam impacts interact with participants, processes, and products through teachers' beliefs.

To address this gap, our study builds on Bailey's (1996) model, which extends Alderson and Wall's (1993) hypotheses and Hughes's (1993) framework. Bailey's model offers a non-linear representation of how exams impact students, teachers, and instructional materials. We have adapted this model to focus specifically on how teachers' beliefs influence washback processes, providing a nuanced understanding of the dynamics involved. Figure 1 presents our conceptual framework, illustrating the adapted model that integrates Bailey's foundational work with insights into the role of teachers' beliefs. This framework allows us to dissect the washback mechanism into phases, exploring the relationships among participants, processes, and products through the lens of teachers' beliefs. By doing so, our research aims to contribute a more detailed and contextualized understanding of washback effects in the NMET setting.

Literature review

The impact of teachers' beliefs on washback dynamics. Teachers play a central role in the educational process (Ali and Hamid, 2020; Tsagari and Cheng, 2017). Past research indicated that changes in high-stakes examinations would significantly impact various teaching aspects (Cheng and Sultana, 2021; Kuang, 2020; Rahman et al. 2023; Wei, 2017). These changes can influence teachers' perceptions, attitudes, behaviors, teaching content, materials, and the allocation of class time (Athiworakun and Adunyarittigun, 2022; Chinda et al. 2022; Dong and Liu, 2022; Rahman et al. 2023; Zhang, 2021). However, these changes are not always positive or intended. From an ideological perspective, washback can be understood as the way examination systems reinforce or challenge existing power structures and societal

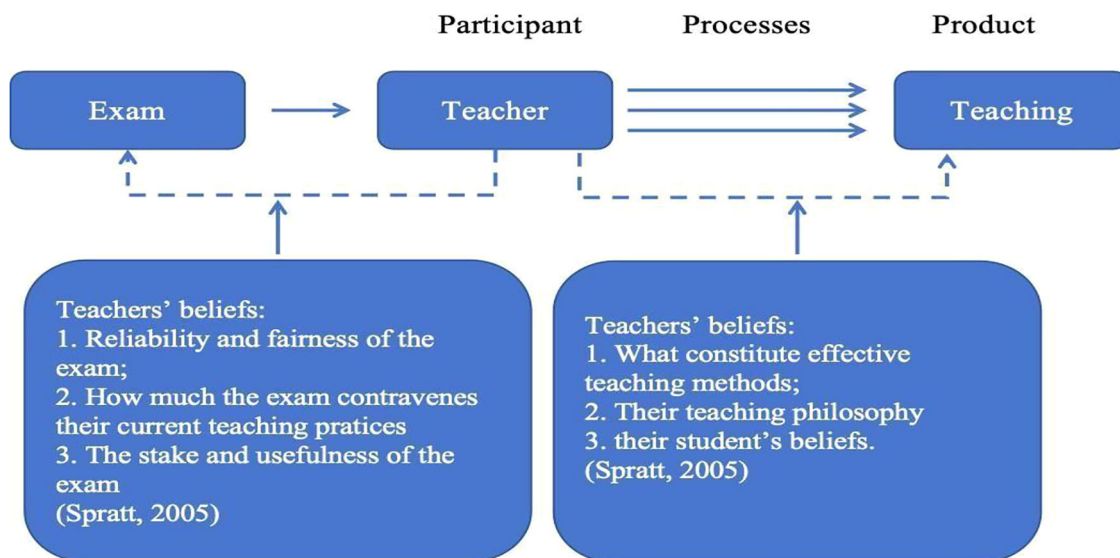


Fig. 1 Conceptual framework. This figure presents the conceptual framework of this study, which is built on Bailey's Washback Mechanism, with the incorporation of teachers' beliefs in shaping their perceptions of the exam and teaching.

norms (Ali and Hamid, 2020). In this context, teachers' beliefs about high-stakes exams like the NMET play a crucial role in either perpetuating or disrupting these structures. The desired washback effect of examination reform may be insignificant if teachers' beliefs do not align with the underlying principles of innovation. This misalignment can lead to a stagnation of teaching practices during assessment reforms, particularly if positive beliefs in alternative test systems are not cultivated among teachers (Cheng and Sultana, 2021; Sultana, 2019). Teachers' beliefs regarding high-stakes examinations significantly shape respective teaching practices (Wang and Zhang, 2018). Some educators are perceived as beneficiaries of the matriculation system, which leads to a significant washback effect on teaching practices (O'Sullivan and Cheng, 2022). Moreover, education is often seen as a tool for addressing social inequities, with high-stakes exams, including the NMET, serving as a means of upward mobility for students from disadvantaged backgrounds (Lei and Qin, 2022; Li, 2020; O'Sullivan and Cheng, 2022). The beliefs in the fairness and justice of the examination system evolves over time and becomes deeply ingrained in the educational system (O'Sullivan and Cheng, 2022; Wang and Zhang, 2018). Despite the significant attention given to teachers' beliefs in studies examining the washback effects of high-stakes examinations (Dammak et al. 2022; Gebril and Eid, 2017), insufficient focus has been placed on the mediation effects of these beliefs on washback dynamics (Cheng and Sultana, 2021; Tsagari and Cheng, 2017). Gaining a comprehensive understanding of how teachers' beliefs mediate the relationship between assessments and teaching practices is crucial for effectively integrating innovative washback strategies that consider both the ideological implications and the practical outcomes in the classroom.

The Chinese National Matriculation English Test (NMET). The Chinese National Matriculation English Test (NMET) plays a critical role in shaping the academic and professional trajectories of students in China, serving as a key gatekeeper for higher education and employment opportunities (Chen and Li, 2021; Liu, 2023; Min and Zhang, 2020). Administered by the National Education Examinations Authority (NEEA), the NMET is designed to assess English language proficiency, a crucial factor in university admissions (Chen and Li, 2021; Wang and Zhang,

2018). The number of candidates for the NMET has surged from approximately three million in the early 1980s–12.91 million in 2023, reflecting its increasing significance and competitive nature, often referred to as the 'footslog bridge' due to its challenging demands (O'Sullivan and Cheng, 2022). The NMET's high-stakes nature significantly influences English teaching practices in Chinese secondary education. Teachers often align their instructional strategies closely with NMET requirements, resulting in a predominantly exam-oriented approach (Min and Zhang, 2020; O'Sullivan and Cheng, 2022; Rong and Yi, 2021). This alignment underscores a tradition of teaching focused primarily on test preparation (Liu, 2023; Wang and Zhang, 2018). In response to concerns about rote learning and a lack of practical application, China's Ministry of Education (MoE) introduced a new evaluation system in 2019. This system aims to address key educational questions by promoting a more holistic approach to education. The evaluation framework (see Fig. 2), 'One Core, Four Layers, and Four Wings,' seeks to enhance the NMET's effectiveness by incorporating value and morality education, subject literacy, and innovative test methods (MoE, 2019). Despite these reforms, the persistent focus on exam preparation remains a challenge. While existing literature underscores the NMET's influence on teaching practices, there is limited exploration of how teachers' beliefs mediate the washback effects of this high-stakes test. Specifically, there is a lack of detailed examples illustrating how teachers' beliefs interact with washback processes to shape instructional practices. The following research questions are addressed to bridge the existing literature gap: (1) What are the English teachers' beliefs regarding the NMET? and (2) How do teachers' beliefs shape the washback effect on teaching practices?

Methodology

The present study employed a qualitative research design to investigate the impact of teachers' beliefs on washback processes in the Chinese National Matriculation English Test (NMET) setting, with a focus on understanding how these beliefs are shaped by and interact with the ideological underpinnings of the NMET. The ideological perspective of washback emphasizes how high-stakes examinations like the NMET can perpetuate certain educational values and social norms, influencing teachers' beliefs and practices. This perspective informed the research design by

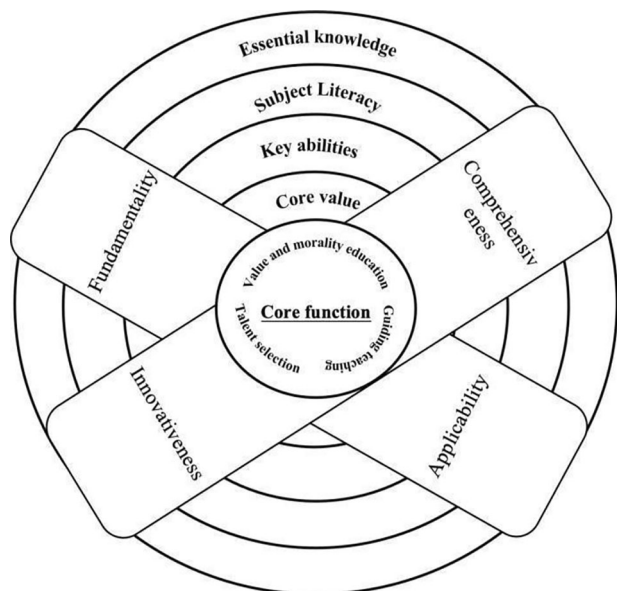


Fig. 2 Core function of National Matriculation Test (NMT) evaluation system. This figure outlines the core function of the NMT evaluation system introduced by the MoE of China in 2019.

guiding the selection of participants, data collection methods, and analysis approach, ensuring that the study captured not only the practical effects of washback but also the deeper ideological forces at play.

The qualitative approach was chosen for its ability to delve deeply into the nuanced perspectives and experiences of teachers, allowing for a rich exploration of the complex interplay between their beliefs and teaching practices within the NMET context. This methodological choice enables the researchers to capture the multifaceted nature of washback processes, including the subtle nuances and underlying motivations that may not be readily apparent through quantitative methods, thereby providing a comprehensive understanding of the phenomenon. Four experienced high school English teachers from Guangdong province in China participated in semi-structured interviews. Participants were selected through purposive sampling based on predefined criteria, ensuring a comprehensive understanding of the phenomenon and accounting for potential variations in English matriculation tests across China's provinces. Data collection involved the development and validation of a protocol, obtaining ethical approval from the University Research Ethical Committee, and securing written informed consent from each participant before the interviews. Each interview session lasted between 40 and 60 min. Data analysis followed a basic qualitative research design consistent with Merriam's framework (Merriam and Tisdell, 2015), focusing on how individuals construct meaning in personal lives and experiences. Open coding was conducted to extract pertinent data addressing the research questions, which were then merged into themes to create a preliminary framework. Lastly, the connections among themes were considered and pinpointed to explore the link between washback effects and teaching practices influenced by teachers' beliefs, offering valuable insights to aid in the improvement of English teaching at the secondary level by informing test designers and policymakers.

Research participants. The present study interviewed in-service English teachers working at senior high schools by focusing on teachers with experience in teaching final-year or third-year senior students preparing for the NMET examination. This study recruited four participants from the Guangdong province in

China to ensure a comprehensive understanding of the phenomenon and account for potential variations in English matriculation tests across Chinese provinces (O'Sullivan and Cheng, 2022; Rong and Yi, 2021). Participants were recruited through a purposive sampling method based on predefined criteria. Eligible candidates were currently in-service senior high school teachers with a minimum of 6 years in English teaching. Pseudonyms were assigned to maintain anonymity. Participants' biographical details are enclosed in Appendix 1.

Data collection. Semi-structured interviews were conducted for data collection. A protocol was developed and validated by two senior lecturers with PhD qualifications to ensure the process's credibility. The protocol underwent a sensitivity test with English teachers fulfilling the selection criteria, wherein minor revisions were required. Ethical approval was also secured from the University Research Ethical Committee before data collection to ensure compliance with ethical standards. Participants were simultaneously given a comprehensive briefing on the research purpose and required to provide written informed consent before the interviews commenced. Each interview session lasted between 40 and 60 min.

Data analysis and theme emergence. The study followed a basic qualitative research design consistent with Merriam's framework, focusing on how individuals construct meaning in personal lives and experiences. Open coding was conducted to extract pertinent data addressing the research questions, with particular attention paid to how these codes reflected the ideological aspects of washback. For example, codes related to 'fairness' and 'social mobility' were grouped into themes such as 'Perceived Fairness of NMET' and 'NMET as a Social Equalizer,' which directly relate to the ideological influence of the examination. The process of merging similar codes into themes involved constant comparison and reflection on how these themes aligned with the study's focus on ideological washback. The resulting themes were then used to create a preliminary framework that illustrates the complex interplay between teachers' beliefs, teaching practices, and the ideological forces embedded in the NMET.

Ethical approval and Informed consent

This study adhered to the highest ethical standards, with ethical approval obtained from the University Research Ethical Committee prior to the commencement of data collection. The approval ensured that the research design, data collection process, and participant interactions were in compliance with ethical guidelines. Before participating in the study, all participants were thoroughly briefed on the research objectives, procedures, and their rights as participants. This comprehensive briefing provided transparency and allowed participants to make informed decisions regarding their involvement. Written informed consent was obtained from each participant prior to the interviews. Participants were assured of their voluntary participation, with the right to withdraw at any time without penalty.

Findings

The current section concentrates on answering the two research questions by exploring the perspectives of four active NMET teachers. Specifically, the findings elucidated NMET teachers' viewpoints on the examinations and valuable insights into the mediated NMET impact on teaching methodologies. Two distinctive categories of teachers' beliefs concerning the NMET assessment and corresponding themes were pinpointed, which underscored the interconnection.

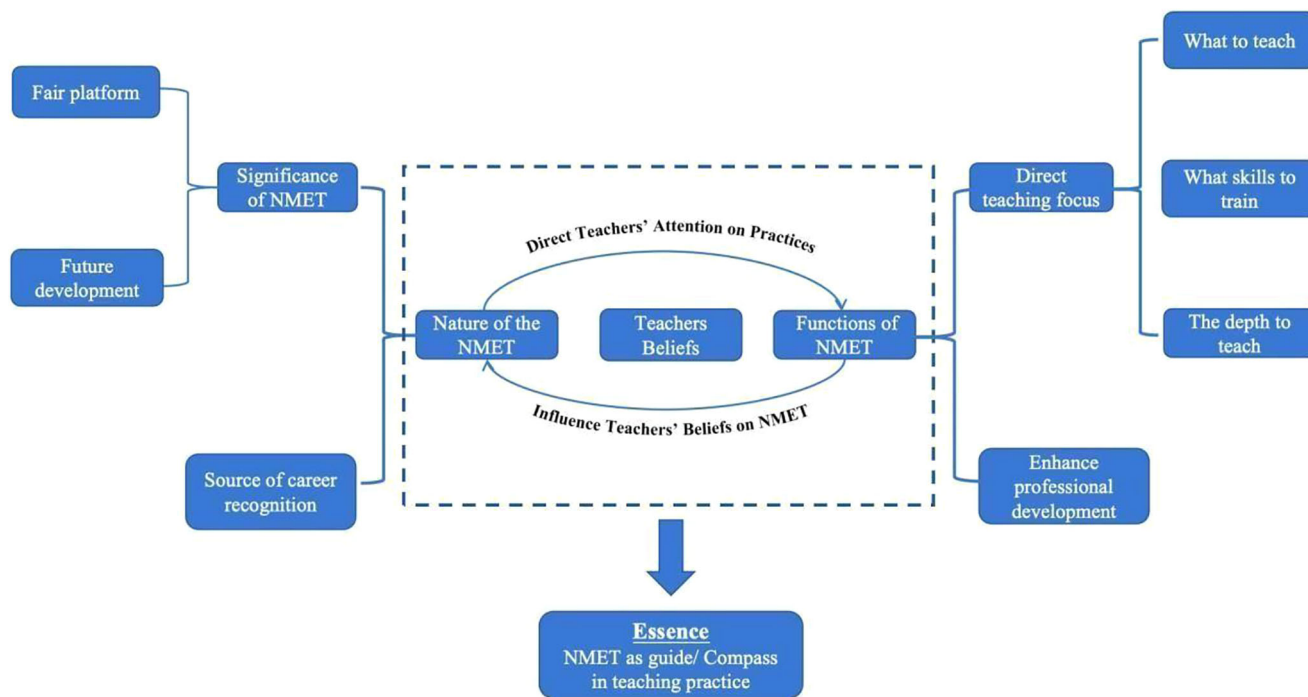


Fig. 3 Teachers' beliefs on National Matriculation English Test (NMET). This figure illustrates the emergent themes in response to research question 1, regarding teachers' beliefs about the NMET.

RQ1: What are the English teachers' beliefs regarding the NMET? The data analysis classified English teachers' NMET beliefs into two categories, namely the fundamentals and the purpose. The inherent interconnection between the categories highlights a notable association between teachers' perceptions of assessments and the inclination towards examination-oriented teaching. Figure 3 illustrates the two categories of NMET beliefs possessed by in-service teachers in Chinese senior high schools, which demonstrates the complex interplay between the beliefs. The findings suggest that the participants perceived the NMET as a guiding principle on existing teaching approaches. This perception stems from the dual nature of NMET beliefs, specifically the fundamentals and purpose of a high-stakes examination.

Theme 1: The NMET importance. The first theme corresponds to teachers' NMET perspectives, which highlights interviewees' beliefs on the societal and national importance of a high-stakes assessment. The results deepened the understanding of the fundamental beliefs shaping teaching approaches related to the NMET significance. Two specific sub-themes were identified.

Sub-Theme 1-1: Equity. Participants perceived the NMET as a relatively fair opportunity for students, especially those from disadvantaged backgrounds, to compete on an equal footing. Despite acknowledging the inherent inequalities in educational resources and provincial admission policies, participants consistently affirmed their confidence in the NMET fairness. They recognized the examination as a platform that mitigates disparities arising from socio-economic differences:

“NMET is relatively fair, providing an opportunity for students from less privileged backgrounds to realize their dreams. It's a just platform that allows disadvantaged students a chance for development.” (Dong)

“However, due to educational disparities and differences in teaching resources, there is still a certain degree of unfairness. Despite this, it remains a relatively fair pathway.” (Emily)

These perspectives reveal a nuanced understanding of fairness, where teachers acknowledge the challenges posed by inequalities while also affirming the NMET's role in leveling the playing field for students from diverse backgrounds. This balanced view is rooted in their personal experiences and a broader awareness of the societal context:

“I think, for the majority of ordinary people, it is quite fair. However, after we enter the workforce, we realize that societal injustices occur frequently.” (Lilian)

Sub-Theme 1-2: Prospects for future advancement. All participants emphasized the NMET's significant impact on students' future prospects, reflecting a deeply ingrained belief in the examination as a gateway to social mobility. The notion that “Knowledge Changes One's Destiny” continues to drive academic achievement, particularly among those from less privileged backgrounds:

“I should be considered a beneficiary of the NMT. After all, back in those days, we had to rely on studying. If the family conditions weren't that good, we had to depend on studying and the NMT to move forward. I come from a rural area near Harbin, so essentially, it's through studying that you can leave the countryside and experience life in the city. Therefore, I think the NMT is a platform that allows you to embark on different life paths.” (Cindy)

The NMET is viewed as a pivotal mechanism for enabling students to pursue tertiary education and shaping their future trajectories. This belief reinforces current teaching

methodologies, which are closely aligned with the demands of the NMET, ensuring that students are prepared to leverage the examination as a means to secure a better future. The high-stakes examination is of high importance by acting as a pivotal pathway for students to pursue different levels of tertiary education. The significant influence over selection processes also demonstrates the crucial role in shaping individuals' future trajectories (Min and Zhang, 2020; Wang and Zhang, 2018). Interviewees expressed consistent beliefs in directing students towards a more positive future through the NMET, which reinforced the current teaching methodologies aligned with NMET requirements (Li, 2020).

Theme 2: Career recognition and professional growth. All participants emphasized the importance of recognition from students, which they viewed as a form of social acknowledgment. The NMET results were not only perceived as evaluators of teaching methodologies but also as affirmations of teachers' cumulative efforts and academic performance. This recognition, especially when students achieved significant improvements, was seen as a direct measure of a teacher's success and an indicator of their broader educational impact:

"I feel that there are teaching achievements, such as students improving from 20 points to 60 points or from 60 points to 90 points. Their progress and the joy they share with me make me feel a sense of accomplishment as a teacher." (Lilian)

Sub-Theme 2-1: Professional growth catalyzed by NMET recognition. The sense of accomplishment derived from students' success in the NMET significantly contributed to the teachers' professional growth. Recognition from students, especially in relation to exam performance, motivated teachers to continually refine their teaching methodologies to meet NMET standards. Participants highlighted how NMET requirements, such as test materials, question formats, required test skills, and difficulty

levels necessitated shifts in instructional strategies (Chinda et al. 2022; Rahman et al. 2021, 2023; Zhang, 2021). Preparing students for the NMET, particularly in senior high school, posed significant challenges but also reinforced teachers' societal roles and responsibilities. Teachers viewed the NMET as a critical guide for shaping the direction and depth of English education, underscoring its role in fostering their ongoing professional development:

"The NMET is like a guiding light. It shows the direction, and we move forward along that path. It's like a traffic signal, right? Like a lighthouse. We need to follow its rules because it's the rule-maker, and we have to align our teaching according to its guidelines." (Cindy)

Theme 3: Direct teaching focus. All four participants recognized the necessity to strategically align their teaching focus with the evolving NMET reforms. Given the alterations in question weighting and types, instructors adapted their teaching content, emphasized specific skills, and adjusted the depth of material coverage to better reflect the new examination requirements (Alderson and Wall, 1993; Li, 2020; Wei, 2017). This alignment demonstrates the direct and intentional impact of NMET reforms on teaching practices.

Sub-Theme 3-1: Curriculum content. The current results indicate that participants perceived the NMET as a primary driver

shaping English instructional approaches in senior high schools. The participants underscored the NMET's role in guiding teaching priorities by defining crucial language skills (Chinda et al. 2022) and specifying supplementary materials. Instructors underscored the necessity of aligning their methods with both key NMET aspects and their own instructional priorities. For instance, three participants reported a shift from focusing on grammar to vocabulary, a change attributed to the NMET's increased emphasis on reading comprehension and reduced focus on grammar:

"Our teaching revolves around the NMET reforms. For instance, there's an increasing emphasis on testing vocabulary in the NMET, so our vocabulary revision has become more extensive and emphasized... For example, the 2023 NMET... highlights the urgency of mastering vocabulary and understanding complex structures. So, we need to focus on cultivating students' vocabulary and their understanding of complex structures." (Dong)

The NMET's increased focus on diverse subjects and cultural comprehension motivates educators to expand their resource pool beyond standard textbooks (Li, 2020). This strategy aims to equip students with a deeper comprehension of authentic English by integrating reading materials from English-speaking countries and culturally relevant videos:

"It tends to focus more on practical language use. Practical language, for example, involves studying materials from foreign newspapers, explanatory articles, and research-related articles found in newspapers. If students are familiar with these structures and expressions, it would be easier for them to understand and comprehend when they read similar materials online after NMET." (Lilian)

Sub-Theme 3-2: Prioritizing essential English skill development. Participants emphasized the importance of cultivating key English competencies, reflecting the strategic alignment of instructional approaches with the NMET framework (Rahman et al. 2021). Although the curriculum includes training in reading, speaking, listening, and writing, teaching methods are primarily driven by the NMET's requirements (Liu, 2023). Notably, all participants stressed the significance of enhancing students' reading and writing skills due to their prominence in NMET assessments:

"We cultivate students' reading and expression abilities, especially in tasks like reading and writing, emphasizing students' expressive skills. However, grammar testing has become weaker, with many difficult grammar points not being tested." (Dong)

Two participants highlighted the insufficient focus on certain skills not evaluated in the NMET. Specifically, Ms. Cindy expressed concern about the lack of emphasis on spoken English proficiency in northern China compared to Guangdong, where practical communication skills are prioritized:

"There might be more communication in spoken English (training in Guangdong), so they may emphasize practicality. In the northern regions, English might be mainly used in written exam, and spoken English might not be as emphasized." (Cindy)

The relationship between the two belief types. The current analysis revealed a dynamic interaction between two core beliefs held by educators where the NMET as a means of assessment and as a fair platform for shaping students' futures (see Fig. 3). Teachers viewed the NMET not only as an evaluation tool but also as a crucial mechanism for social mobility, particularly for students from disadvantaged backgrounds (Li, 2020; Wang and Zhang, 2018). Educators believed that strong NMET performance was a key factor in students' future success, reflecting both the societal value and the personal esteem attached to the examination (Chu et al. 2021). This belief not only directed their teaching practices but also reinforced their professional identity, as the NMET served as a benchmark for both teaching effectiveness and professional growth (O'Sullivan and Cheng, 2022; Rong and Yi, 2021).

As teachers gained experience, their perceptions of the NMET evolved, leading to a more nuanced understanding of its role in shaping both their instructional strategies and their students' outcomes (Ali and Hamid, 2020; Chu et al. 2021; Tsagari and Cheng, 2017). This evolving belief system contributed to the development of more focused and sophisticated teaching methods, which further enhanced their understanding of the examination's nature and purpose. For instance, teachers who successfully guided students to higher NMET scores experienced a sense of fulfillment, reinforcing their belief in the examination's value. Moreover, helping students secure admissions to prestigious universities strengthened their conviction in the NMET's transformative impact on students' futures (O'Sullivan and Cheng, 2022; Wang and Zhang, 2018; Rong and Li, 2021).

In summary, these two interrelated belief systems, NMET as an assessment tool and a vehicle for social mobility interact in a cyclical process. Educators with a strong belief in the NMET's significance focused their teaching on examination preparation, which in turn shaped their instructional approaches and reinforced the NMET's central role in guiding both teaching practices and professional development (Chou, 2021; Chu et al. 2021; Zhang, 2021). This reciprocal relationship between beliefs and instructional strategies highlights the profound impact of the NMET on the professional growth and teaching methodologies of high school English teachers in China (Chu et al. 2021).

RQ2: How do teachers' beliefs shape the washback effect on teaching practices? Teachers' NMET perceptions significantly influenced personal teaching methodologies and professional growth (Dammak et al. 2022; Zhang and Liu, 2014). The teachers asserted that the NMET not only serves as a fundamental instructional strategy but also acts as a catalyst for ongoing development. The persistent notion that 'teaching and learning go hand in hand' underscores the strong beliefs (Lei and Qin, 2022; Min and Zhang, 2020). Examining the beliefs revealed a significant impact on both pedagogical approaches (Ali and Hamid, 2020; Tsagari and Cheng, 2017) and personal advancement (Chu et al. 2021; Li, 2020).

Theme 1: The impact of NMET changes on teaching priorities. Teachers' beliefs about the NMET underscored the crucial role of vocabulary and its influence on teaching practices. Changes in the NMET, such as the removal of certain grammatical questions and an increased emphasis on reading components, heightened the perceived importance of vocabulary. Despite this, current teaching methods largely remain focused on rote memorization and practice questions, revealing a need for pedagogical reform:

"It's essential to help students improve their reading skills through the accumulation of vocabulary and expressions,

and also enhance their writing abilities by training them in sentence structures." (Lilian)

Participants acknowledged the need to engage students and apply foundational knowledge practically, yet core teaching methods remain predominantly exam-oriented:

"In general, for these students, I hope they can use English in communication. I hope it's like that. But in the actual teaching process, it's hard not to focus on test-oriented teaching—teaching for exams—like memorizing vocabulary, learning grammar, and memorizing compositions." (Emily)

There remains a significant gap between the anticipated impact of NMET reforms and actual teaching practices. Although teachers recognize the NMET's alignment with real-world language use, their focus predominantly stays on preparing students for exams rather than practical application:

"There is a clear division between teaching aimed at practical application and teaching tailored primarily for exam readiness, with a noticeable focus on the latter objective." (Dong)

Theme 2: The NMET impact on language literacy instruction.

The NMET has significantly shaped participants' views on prioritizing key language skills in their teaching methodologies. Interviewees consistently stressed the importance of developing comprehensive English proficiency by integrating listening, speaking, reading, and writing components into their instructional strategies. This focus aligns closely with the NMET's evaluation criteria in Guangdong, which assesses students across these language domains. Participants noted that training often centered on preparing students to handle NMET-related questions effectively:

"But from a practical perspective, it's about being able to handle the questions, answer them correctly, and know the knowledge points." (Emily)

Moreover, participants acknowledged the importance of targeted practice for NMET preparation. Teachers emphasized equipping students to tackle specific question types. However, a notable divergence appeared between essential knowledge and broader language literacy:

"We cultivate students' reading and expression abilities, especially in tasks like reading and subsequent writing, emphasizing students' expressive skills. However, grammar testing has become weaker, with many difficult grammar points not being tested." (Dong)

This approach contrasts with the broader educational goals of the alternative NMET evaluation system, which advocates for a balanced integration of educational objectives across all language dimensions. For instance, Cindy highlighted the tension between her belief in reducing grammar emphasis and the need for solid grammar in writing:

"...they (exam designers) deemphasized grammar, but without it, writing is challenging. The writing section carries a substantial weight of 40 points, and without grammar, it can't be coherent... when it comes to writing, are they expected to submit compositions filled with grammatical errors? It's not feasible, and the scoring for the writing section is fixed and substantial, so it's contradictory." (Cindy)

Theme 3: The NMET impact on teaching focus and competency development. This study investigated the impact of the alternative NMET on teaching practices, revealing a shift in focus towards developing students' learning strategies and behaviors. Participants recognized that traditional memorization was inadequate for the more challenging examination questions; students must now employ diverse strategies during assessments. Additionally, the enhanced standards of the secondary English curriculum necessitate a greater emphasis on students' learning behaviors and strategies.

Participants consistently highlighted the importance of fostering perseverance and strategic planning to excel in the NMET. They observed that while mastering knowledge points is relatively straightforward, instilling effective study habits and values is crucial for students' overall learning strategies. This shift in teaching priorities is illustrated by Cindy's observation:

"Teaching them knowledge points is relatively easy. Establishing their values in life and cultivating good study habits are more important. It's about their entire learning strategy and learning behavior." (Cindy)

Furthermore, the study underscored the significance of ongoing review and sustained effort. Participants such as Emily emphasized the value of encouragement and persistent practice in overcoming the challenges associated with NMET preparation:

"...in terms of NMET learning and teaching, perseverance is crucial. Perseverance in tasks like consistently memorizing vocabulary is quite challenging but also important... During our interactions, I found that he trusted and liked me. Starting from zero in NMET, he persisted...many people can't see immediate positive results and tend to give up, saying, I am willing to encourage and educate them, so I think encouragement is crucial." (Emily)

This analysis highlights a clear shift in teaching priorities towards not only content knowledge but also strategic and behavioral development, addressing the central argument that effective NMET preparation involves a comprehensive approach to student learning and competency development.

Theme 4: Embracing multimedia integration. The incorporation of multimedia resources, such as videos and online materials, has become increasingly crucial in NMET preparation, particularly for the listening and speaking components. Cindy and Lilian highlighted that these multimedia tools are pivotal for guiding students through NMET preparation in Guangdong. As the speaking and listening sections of the NMET are computer-based, students must interact with digital interfaces for activities such as reading, questioning, and recounting stories. Additionally, NMET questions utilize authentic sources for reading materials and topics, emphasizing the necessity of exposing students to varied information to enhance language proficiency. Therefore, integrating multimedia into teaching practices is essential for effective pedagogy. Cindy noted, "*Compared to before, the way of teaching during class might be a bit different. Previously, there might be more use of chalkboards, and now there's more application of multimedia... multimedia has a better effect; more intensive in getting new information, students feel more engaged with images, animations, and it enhances the classroom atmosphere.*"

Theme 5: The NMET impact on teachers' professional growth in teaching practices. Educators viewed the NMET as a crucial driver in their English teaching practices, profoundly

influencing their professional development and instructional strategies. This study examined how participants adapted their teaching methods in response to the NMET's evolving policies and requirements. Teachers actively engaged with policy changes and past NMET examination papers, reflecting a commitment to continuous improvement despite policy challenges. One participant noted:

"To a certain extent, we are passive, following along. If we want to make changes, we need to proactively adopt the policies. The methods are flexible; the policies they introduce are fixed, but the teaching methods can be applied and adapted." (Cindy)

Participants devoted significant time to studying NMET past papers, believing that this practice was crucial for effectively guiding students and enhancing their own teaching skills. This dedication led them to reassess and refine their instructional methods. As one teacher remarked:

"At the beginning, I lacked experience, and it was a process of exploration and trial. Especially, I struggled to grasp the key and difficult points adequately, not quite sure how to approach them." (Emily)

Additionally, participants recognized the value of experienced educators in navigating the NMET's requirements. While acknowledging that older teachers may face challenges such as limited technological proficiency, they highlighted the advantage of their deep understanding of fundamental concepts and effective strategies for exam preparation. One participant observed:

"... younger teachers might have less understanding of knowledge points and teaching methods, often trying to cover a lot of content in one class due to their lack of experience... experienced teachers tend to teach key and difficult points more accurately. They cover less material in one class, but what they cover is more in line with the requirements of the NMET." (Emily)

This study underscores how the NMET's demands drive teachers to adapt and enhance their teaching practices, highlighting a continual process of professional growth and adjustment to better support student preparation and success.

Discussion

The integration of teachers' beliefs with the NMET evaluation system introduced by the Chinese MoE in 2019 was significant, particularly regarding the rationales of examinations. The NMET functions, including talent selection, guiding teaching, and value and morality education, were revealed to be highly associated with teachers' perspectives (MoE, 2019). Notably, changes in examination formats and question types encouraged teachers to emphasize writing and reading skills (Li, 2020). This shift in focus represents a critical adaptation to evolving educational goals, promoting a broader skill set necessary for future academic and professional success. Teachers' adaptation to these changes highlights their increasing awareness of the importance of comprehensive language proficiency, particularly in the context of global communication.

In addition, a significant shift was observed in material selection, with a stronger inclination towards authentic English sources from magazines, newspapers, or literature from English-speaking nations (Liu, 2023). This change underscored a commitment to exposing students to real-world language usage, moving away from textbooks

that might not reflect current linguistic and cultural trends. Such shifts emphasize the importance of fostering critical thinking and cultural awareness in students, preparing them to engage with global discourse effectively. Introducing the alternative NMET evaluation system also spurred changes in teaching methodologies (Zhang, 2021). Teachers integrated multimedia and creative thinking models into existing teaching practices, which signaled more innovative and engaging approaches. This suggests a growing recognition among educators of the value of incorporating technology and interactive learning strategies to better align with contemporary pedagogical standards. These standards indicate a move towards a more dynamic and student-centered approach in English language teaching.

However, the contradictions between teachers' beliefs and the NMET system persisted. While the NMET underscores addressing real-world issues and simplifying challenging questions (MoE, 2019), teachers frequently perceive the examination as highly difficult without clear benefits. This perception of the NMET as disconnected from practical classroom realities remains a challenge for full integration into teaching practices. Furthermore, a significant gap was discovered between teaching practices and the NMET evaluation system. Teachers continued to prioritize examination preparation, particularly through vocabulary teaching and repetitive practice papers (Zhang & Liu, 2014), despite the MoE initiatives to transition from examination-oriented teaching through the "one core, four layers, and four wings" framework. This persistent focus on rote learning and test preparation suggests a deeper systemic issue within the educational environment that hinders the adoption of more innovative teaching practices. While a generally positive attitude was exhibited towards the changes in the NMET, teachers' beliefs and practices primarily focused on fundamental knowledge with a significant emphasis on vocabulary and subject literacy, especially in reading and writing. Due to the higher weight in the examination. This finding reinforces the argument that while teachers acknowledge the potential benefits of the revised NMET system, they remain constrained by the pressures of achieving high scores, which continue to dominate their teaching priorities. The observation aligns with prior studies on washback effects, such as Cheng (2005a, 2005b) in the Hong Kong context, which demonstrated that changes in assessments did not significantly impact teaching practices despite positive teachers' beliefs (Wei, 2017; Cheng and Sultana, 2021). This persistent gap between assessment reforms and teaching practices is a crucial consideration for future policy development and highlights the need for more effective strategies to bridge this divide. Overall, while the NMET reforms have led to some positive changes in material selection, teaching methods, and teachers' general attitudes, the overarching tension between teachers' beliefs and the demands of the system persists. Future efforts should focus on aligning teachers' perceptions with practical, real-world applications of the assessment to foster a more cohesive and meaningful integration of the NMET into English language education.

Conclusion

The current study examined the alignment and discrepancies between teachers' beliefs and their teaching practices under the 2019 NMET evaluation system. The analysis highlights that consistency between teachers' beliefs and the assessment criteria is essential for fostering positive teaching outcomes, while mismatches can lead to negative or negligible impacts (Cheng and Sultana, 2021; Dammak et al. 2022; Rahman et al. 2023; Zhang and Liu, 2014). This investigation provided a nuanced understanding of how the NMET's evolving evaluation structure influences teaching practices, demonstrating that teachers' beliefs

play a pivotal role in this dynamic. Although the goal of NMET reforms was to shift away from examination-centric teaching, the findings suggest that this objective has not been fully realized, as examination preparation remains a predominant focus. However, progress has been observed, particularly in the incorporation of authentic materials and multimedia tools (Liu, 2023). The study concludes that teachers' beliefs are central to advancing authentic language acquisition among students, and those sustained efforts are needed to align teaching practices with the latest NMET objectives.

Implications and limitations of the study

The findings of this study offer valuable and actionable insights for test designers and policymakers aimed at enhancing English teaching in secondary education. Specifically, the study underscores the need to prioritize essential language knowledge and literacy in exam designs, advocating for a reduction in unnecessary complexity that can lead to increased stress among both teachers and students. This suggests that the Ministry of Education should ensure ongoing teacher education initiatives are aligned with the NMET requirements, potentially through targeted workshops and professional development programs. Such alignment would help teachers better manage the demands of the NMET while maintaining a focus on essential language skills.

However, the study does have limitations that warrant acknowledgment. It primarily focuses on a small sample of four senior high school English teachers from the Guangdong region, with data collected solely through interviews. This limited scope restricts the generalizability of the findings and underscores the need for future research to incorporate larger, more diverse samples. Furthermore, the study does not thoroughly explore the differences in beliefs among teachers of varying proficiency levels. For example, analysis revealed significant differences in perspectives, particularly from a participant who focused on low-performing students, as opposed to those working with high-performing or mixed-proficiency groups. Future studies should expand the methodological approach to include classroom observations and document analysis to triangulate data, providing a more comprehensive investigation of the complex mechanisms through which washback influences teaching practices and teachers' beliefs. Ultimately, while this study contributes to our understanding of washback effects in the NMET context, the nuanced insights into how washback influences teaching and teachers' beliefs must be further explored in subsequent research. Expanding the scope and methodology in future studies will be crucial to fully uncovering the implications for educational practice and policy.

Data availability

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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Author contributions

Conceptualization: YYL and YL; Formal analysis: YL and YYL; Methodology: YL and YYL. Data collection: YL; Validation: YL, YYL, and SS; Writing (original draft): YL and YYL; Writing (proofreading and editing): YYL; Responses to reviewers' comments and suggestions: YYL.

Competing interests

The authors declare no competing interests.

Ethical approval

This study was approved by the Universiti Malaya Research Ethics Committee (UMREC). The ethics approval reference number is [UM. TNC2/UMREC_3048], and the approval was granted on 12 December 2023. The approval covered all aspects of the study, including participant recruitment, informed consent procedures, data collection, and data management.

Informed consent

Informed consent was obtained in writing from all participants prior to their involvement in the study. The first author personally oversaw the consent process, which commenced on 10 February and continued through 30 April 2024, aligning with the entire participant recruitment period to ensure ethical engagement and informed participation. Participants were provided with a detailed information sheet outlining the purpose of the study, procedures involved, assurances of anonymity and confidentiality, data usage, and their right to withdraw at any time without penalty. No risks to participants were anticipated or identified.

Additional information

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1057/s41599-025-05345-2>.

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