

Professional Competence in Simultaneous Interpreting: An Integrative Empirical–Theoretical Analysis

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Abstract

Professional competence in simultaneous interpreting constitutes a central yet complex research topic within Interpreting Studies. While early approaches tended to conceptualize simultaneous interpreting primarily as a linguistic and technical transfer process, more recent theoretical models emphasize its inherently multidimensional nature. Against this background, the present study examines professional competence in simultaneous interpreting from an integrative perspective, systematically combining linguistic, cognitive, domain-specific, cultural, and technical–situational dimensions.

Methodologically, the study adopts a sequential exploratory mixed-methods design. In a first phase, a semi-structured expert interview with an experienced simultaneous interpreter is qualitatively analyzed in order to identify key competence dimensions from a professional practice perspective. Building on these findings, a quantitative questionnaire survey ($N = 96$) is conducted among MA students in translation and interpreting, early-career interpreters, and experienced professional interpreters. Statistical analyses include descriptive statistics, reliability testing, and exploratory factor analysis.

The findings demonstrate that professional competence in simultaneous interpreting should be understood as a dynamic and multidimensional construct. Cognitive–strategic competence, domain-specific knowledge, and technical adaptability emerge as particularly influential, whereas cultural competence is shown to be strongly context-dependent. Overall, the study highlights that competence development in simultaneous interpreting is driven less by linguistic proficiency alone and more by professional experience, strategic control, and situational adaptation. Implications for interpreter training and future research are discussed.

Keywords: Simultaneous Interpreting, Professional Competence, Cognitive–Strategic Competence, Mixed-Methods Research, Interpreter Training

1. Introduction

Simultaneous interpreting is widely regarded as one of the most cognitively demanding forms of professional language mediation. Interpreters must comprehend a spoken source text, process meaning, and produce a coherent target-language output almost simultaneously, while multiple processes unfold in parallel [1-

3]. This high process density and time pressure have been central to the development of Interpreting Studies and early attempts to theorize the prerequisites of successful simultaneous interpreting [3,4]. Early research at times framed simultaneous interpreting primarily as a linguistic-technical transfer task, placing strong emphasis on command of the working languages. Later approaches

have expanded this perspective by conceptualizing interpreting as a meaning-oriented process rather than a word-for-word operation [1,5]. Within this framework, professional performance cannot be reduced to formal equivalence; instead, it requires the ability to reconstruct intended meaning and to reformulate it appropriately under severe time constraints [1,2].

This shift foregrounds the view that professional competence in simultaneous interpreting is best understood as a multidimensional construct. Linguistic competence is a necessary condition, yet it is insufficient unless cognitive control, attention management, memory demands, and continuous decision-making are coordinated in real time (41–45) [2]. Moreover, domain-specific knowledge is constitutive because comprehension and reformulation depend strongly on existing knowledge structures that support efficient meaning construction (: 112) [3,4].

In addition, cultural competence has been discussed as a relevant resource in interpreting. Culture-oriented perspectives conceptualize interpreting as a fundamentally culture-bound communicative act and emphasize cultural knowledge for the reconstruction of implicit meanings, institutional conventions, and discourse practices [6,7]. By contrast, other positions point to the limits of explicit cultural mediation in simultaneous interpreting, particularly in international conference settings under strong time pressure [8,9]. This debate suggests that cultural competence often functions as an implicit resource that supports comprehension without necessarily enabling extensive explicitation in the target output [7,8].

Finally, technical and situational conditions are not merely external factors but directly shape perception, processing capacity, and target-text production. Reduced audio quality and technical disruptions increase cognitive load and may result in information loss, thus requiring compensatory strategies in professional practice [1,3,10]. Technical competence therefore entails not only routine handling of equipment but also the ability to identify disruptive factors early and to respond adaptively [3,10].

Despite this theoretical differentiation, a key challenge remains: many contributions address individual competence dimensions without systematically integrating their interaction and without sufficiently linking theoretical models to professional experience. The present study addresses this gap by examining professional competence in simultaneous interpreting from an integrative perspective that connects theory and practice [2,3]. Drawing on established theoretical positions and a reflective analysis of a semi-structured expert interview, the study illustrates how linguistic routines, cognitive control, domain-specific preparation, and technical adaptability interlock in professional performance [4,5,10]. This qualitative approach is complemented by a standardized survey to explore how key competence dimensions are perceived across groups with different levels of professional experience [3].

2. Theoretical Framework: Professional Competence in Simultaneous Interpreting

The theoretical discussion of professional competence in simultaneous interpreting is closely linked to the emergence of Interpreting Studies as an independent discipline. Early approaches primarily sought to describe interpreting as a linguistic transfer activity, whereas later models increasingly foregrounded cognitive, functional, and situational dimensions. Within this development, a broad consensus has emerged that professional competence cannot be conceptualized as a collection of isolated skills but must be understood as a dynamic interplay of interrelated competence dimensions [1-3]. A central point of departure is the meaning-oriented approach developed by the Paris School. Seleskovitch conceptualizes simultaneous interpreting not as a word-for-word transfer of linguistic units but as a process of sense construction, in which interpreters grasp the intended meaning of the source text and reformulate it in the target language independently of its surface structure [1,5]. This perspective represents a decisive shift away from formal equivalence models and places cognitive processing at the core of interpreting performance.

Building on this foundation, Kalina describes the interpreting process as a highly controlled cognitive activity characterized by simultaneous demands on attention, working memory, and decision-making (: 41–45) [2]. From this perspective, professional competence manifests itself in the ability to coordinate these processes under time pressure, to prioritize relevant information, and to apply strategic control in real time. Linguistic competence is therefore a necessary condition, but it becomes effective only in conjunction with cognitive regulation and strategic action.

Another key competence dimension concerns domain-specific knowledge. Kapp emphasizes that comprehension in interpreting is inherently knowledge-based, as new information must be integrated into existing cognitive structures (: 112) [4]. Insufficient subject-matter knowledge not only impairs understanding but also increases cognitive load, as additional resources are required to infer meaning. Domain-specific knowledge thus functions not merely as a supportive factor but as a constitutive component of professional interpreting competence [3,4,11].

In addition to linguistic, cognitive, and domain-specific dimensions, cultural competence has been discussed as a relevant aspect of professional performance. Göhring and Witte conceptualize interpreting as a fundamentally culture-bound communicative act, highlighting the role of cultural knowledge in reconstructing implicit meanings, institutional conventions, and discourse practices [6,7]. By contrast, Kurz points to the limited possibilities for explicit cultural mediation in simultaneous interpreting, particularly in international conference settings characterized by severe time constraints [8,9]. These positions suggest that cultural competence in simultaneous interpreting primarily operates as an implicit resource that supports comprehension rather than as an explicit transfer strategy.

Finally, technical and situational conditions have gained increasing attention in theoretical accounts of interpreting competence. Simultaneous interpreting is invariably performed under technically mediated conditions that directly shape perception and processing of the source text [3]. Reduced audio quality or technical disruptions increase cognitive load and may lead to information loss [1,10]. Technical competence therefore encompasses not only routine handling of equipment but also the ability to anticipate situational constraints and to apply compensatory strategies when necessary [3,10].

In sum, professional competence in simultaneous interpreting can be theoretically conceptualized as a multidimensional and dynamic construct. Linguistic, cognitive, domain-specific, cultural, and technical–situational dimensions do not operate in isolation but form a functional network that is activated and adapted in response to situational demands during actual interpreting performance [2,3]. This integrative understanding provides the conceptual foundation for the empirical analysis presented in the subsequent sections of this study.

3. Methodology and Research Design

This study adopts a sequential exploratory mixed-methods design that systematically combines qualitative and quantitative approaches. The overall aim is to examine professional competence in simultaneous interpreting through an integrative lens by connecting theory-driven competence dimensions with empirically grounded insights from professional practice and broader patterns of competence perception.

3.1. Research Design and Procedural Logic

The research design follows a clear sequential logic. First, qualitative data are collected and analyzed to refine and specify key competence dimensions from a professional-practice perspective. Second, these findings inform the construction of a quantitative survey instrument that operationalizes the identified competence dimensions and examines their perceived relevance across groups with different levels of professional experience. This sequence allows for a close linkage between conceptual modeling, professional experience, and exploratory structural examination.

3.2. Qualitative Data Collection

In the first phase, a semi-structured expert interview was conducted with an experienced simultaneous interpreter. The participant was purposively selected due to extensive professional experience in conference interpreting. The interview aimed to capture practice-based accounts of competence requirements, professional routines, and strategies for managing cognitive demands, domain-specific challenges, and technical or situational constraints inherent to simultaneous interpreting.

The interview guide was informed by established competence perspectives in Interpreting Studies and included open-ended prompts addressing linguistic routines, cognitive control, domain-specific preparation, cultural sensitivity, and coping strategies related to technical and situational conditions. The semi-structured

format ensured comparability across core themes while allowing the interviewee to provide reflective, contextualized accounts grounded in professional experience.

3.3. Qualitative Data Analysis

Qualitative analysis proceeded in clearly defined steps. First, the interview was fully transcribed and read repeatedly to ensure familiarity with the data and to develop an in-depth understanding of the content. Second, relevant segments were coded using an open coding approach. Third, codes were clustered into higher-order categories corresponding to key competence dimensions. This step combined theoretically informed category orientation with inductive attention to patterns emerging from the data.

The purpose of the qualitative analysis was not to propose a new typology but to empirically specify and concretize theoretically described competence dimensions through professional experience. The resulting competence dimensions provided the conceptual basis for constructing the quantitative survey instrument.

3.4. Quantitative Data Collection

Building on the qualitative findings, a standardized questionnaire was developed to operationalize the competence dimensions identified in the first phase. The instrument consists of closed items measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). A small number of open-ended questions were included to allow for brief reflective comments and to capture contextual nuances not fully accessible through closed items.

The survey targeted three groups: MA students in translation and interpreting, early-career interpreters, and experienced professional simultaneous interpreters. This sampling structure was designed to enable an exploratory comparison of competence perceptions across different stages of professional development.

3.5. Quantitative Data Analysis

Quantitative analysis followed several consecutive steps. First, descriptive statistics were calculated to represent central tendencies and dispersion for each competence dimension. Second, internal consistency was examined using Cronbach's alpha to assess the reliability of the competence scales.

Third, an exploratory factor analysis was conducted to investigate the underlying structure of professional competence and to assess the extent to which the empirically observed structure aligns with the theoretically postulated competence dimensions. Finally, group comparisons were performed to explore differences in competence perceptions between students and experienced professional interpreters.

3.6. Methodological Positioning and Transparency

The combination of qualitative and quantitative procedures follows the principle of methodological triangulation. By systematically relating theoretical perspectives, professional experience, and quantitative evidence, professional competence in simultaneous interpreting is approached as a dynamic and multidimensional

construct rather than a static set of attributes. The study does not aim at strict statistical generalization; instead, it prioritizes analytical transparency and conceptual refinement of complex competence processes that are constitutive of professional simultaneous interpreting.

4. Results of the Empirical Study

The presentation of results follows the logic of the sequential exploratory design and clearly distinguishes between qualitative and quantitative findings. The aim is to demonstrate how the results were obtained and how they relate to the identified competence dimensions.

4.1. Qualitative Results: Competence Dimensions from Professional Practice

The qualitative interview analysis indicates that professional competence in simultaneous interpreting is perceived as the outcome of long-term professionalization rather than as a collection of isolated skills. Linguistic competence is described as a necessary foundation but largely automatized in professional practice, allowing cognitive resources to be allocated to higher-order control processes. Cognitive–strategic competence emerges as a central dimension. Attention management, prioritization

of relevant information, and rapid decision-making under time pressure are identified as key factors for professional stability.

Domain-specific knowledge is likewise emphasized. Insufficient subject-matter knowledge slows comprehension and increases uncertainty in reformulation, whereas solid expertise supports anticipation and structured processing.

Anticipation is highlighted as a key strategy that reduces lag between source and target text and illustrates the close interdependence of cognitive, domain-specific, and strategic processes.

Technical and situational conditions are described as significant sources of cognitive strain. Professional competence is reflected in adaptive responses and compensatory strategies, particularly in situations involving reduced audio quality. These qualitative findings informed the construction of the quantitative survey instrument.

4.2. Quantitative Results: Descriptive Statistics

Descriptive statistics provide an overview of the perceived relevance of the competence dimensions. Table 1 presents means and standard deviations.

Competence dimension	Mean (M)	SD
Linguistic competence	4.21	0.55
Cognitive–strategic competence	4.52	0.47
Domain-specific competence	4.46	0.51
Cultural competence	3.89	0.72
Technical–situational competence	4.31	0.58

Table 1: Descriptive Statistics of Competence Dimensions

As shown in Table 1, cognitive–strategic competence and domain-specific knowledge receive the highest ratings, while cultural competence displays greater variability.

4.3. Reliability Analysis

Internal consistency was assessed using Cronbach’s alpha. The results are summarized in Table number 2.

Dimension	Cronbach’s α
Linguistic competence	.81
Cognitive–strategic competence	.88
Domain-specific competence	.84
Cultural competence	.76
Technical–situational competence	.83

Table 2: Reliability of Competence Scales

All scales demonstrate satisfactory to high reliability.

4.4. Exploratory Factor Analysis and Group Comparison

Exploratory factor analysis yields a five-factor solution explaining 67.4 % of total variance, closely corresponding

to the theoretically assumed competence dimensions. Group comparisons between students and professional interpreters reveal significant differences in cognitive–strategic, domain-specific, and technical–situational competence, while no significant differences are observed for linguistic competence. This pattern suggests

that professionalization in simultaneous interpreting is primarily driven by experience-based and strategic competences rather than by linguistic proficiency alone.

5. Discussion and Conclusions

The findings of the present study confirm and further refine key assumptions in Interpreting Studies concerning professional competence in simultaneous interpreting. Both qualitative and quantitative results demonstrate that professional competence cannot be understood as a linear accumulation of discrete skills, but rather as a dynamic interaction of multiple competence dimensions whose relevance varies depending on situational demands [1-3].

A central result of the study is that linguistic competence, while indispensable, does not function as the primary differentiating factor of professional performance. Quantitative findings reveal no significant differences between students and professional interpreters in linguistic competence, whereas marked differences emerge in cognitive-strategic, domain-specific, and technical-situational dimensions. This pattern supports the view that professionalization in simultaneous interpreting is driven less by linguistic refinement and more by the development of strategic control mechanisms and experience-based routines [2,3].

The qualitative analysis reinforces this interpretation by highlighting cognitive control, anticipation, and decision-making under time pressure as central features of professional practice. These aspects align with theoretical models that conceptualize simultaneous interpreting as a highly regulated cognitive process requiring continuous coordination of attention, working memory, and strategic action [2].

The role of domain-specific knowledge emerges as particularly salient. Both interview-based reflections and quantitative results indicate that subject-matter knowledge constitutes a core component of professional competence. Beyond facilitating comprehension, domain-specific knowledge reduces cognitive load by supporting anticipation and structured processing, thereby enhancing overall performance [3,4,12,13]. These findings corroborate theoretical positions that conceptualize domain knowledge as an integral, rather than auxiliary, element of professional interpreting competence.

Findings related to cultural competence present a differentiated picture. Greater variance in quantitative ratings, combined with qualitative insights, suggests that cultural competence primarily operates as an implicit resource in simultaneous interpreting, with its relevance strongly conditioned by context. This result is consistent with positions emphasizing the limited scope for explicit cultural mediation under time pressure, while still acknowledging the importance of cultural awareness for accurate comprehension [6-9,14].

The study also underscores the significant impact of technical and situational conditions. Technical disruptions and reduced audio quality increase cognitive demands and represent a major source

of strain. Professional competence is reflected in the ability to adapt to such conditions and to deploy compensatory strategies effectively [1,3,10,15]. These findings highlight the necessity of conceptualizing technical competence as an integral dimension of professional interpreting competence.

The findings of the present study confirm and further refine key assumptions in Interpreting Studies concerning professional competence in simultaneous interpreting. Both qualitative and quantitative results demonstrate that professional competence cannot be understood as a linear accumulation of discrete skills, but rather as a dynamic interaction of multiple competence dimensions whose relevance varies depending on situational demands [1-3]. This interpretation is also consistent with interdisciplinary research emphasizing that competence emerges from the interaction of cognitive, linguistic, and environmental factors [16].

A central result of the study is that linguistic competence, while indispensable, does not function as the primary differentiating factor of professional performance. Quantitative findings reveal no significant differences between students and professional interpreters in linguistic competence, whereas marked differences emerge in cognitive-strategic, domain-specific, and technical-situational dimensions. This pattern supports the view that professionalization in simultaneous interpreting is driven less by linguistic refinement and more by the development of strategic control mechanisms and experience-based routines [2,3]. Similar tendencies have been observed in foreign language education research, where competence development is closely linked to cognitive engagement and learning processes rather than to linguistic knowledge alone [17].

The qualitative analysis reinforces this interpretation by highlighting cognitive control, anticipation, and decision-making under time pressure as central features of professional practice. These aspects align with theoretical models that conceptualize simultaneous interpreting as a highly regulated cognitive process requiring continuous coordination of attention, working memory, and strategic action [2]. In this context, the development of strategic competence can also be linked to feedback and error correction processes, which play a crucial role in shaping professional performance over time [18].

The role of domain-specific knowledge emerges as particularly salient. Both interview-based reflections and quantitative results indicate that subject-matter knowledge constitutes a core component of professional competence. Beyond facilitating comprehension, domain-specific knowledge reduces cognitive load by supporting anticipation and structured processing, thereby enhancing overall performance [3,4,12,13]. This finding is further supported by research on language for specific purposes and specialized translation, which highlights the importance of domain-oriented linguistic competence in professional contexts [11,19].

Findings related to cultural competence present a differentiated picture. Greater variance in quantitative ratings, combined with qualitative insights, suggests that cultural competence primarily operates as an implicit resource in simultaneous interpreting, with its relevance strongly conditioned by context. This result is consistent with positions emphasizing the limited scope for explicit cultural mediation under time pressure, while still acknowledging the importance of cultural awareness for accurate comprehension [6-9,14].

The study also underscores the significant impact of technical and situational conditions. Technical disruptions and reduced audio quality increase cognitive demands and represent a major source of strain. Professional competence is reflected in the ability to adapt to such conditions and to deploy compensatory strategies effectively [1,3,10,15]. In addition, recent research points to the growing role of technology in shaping interpreting processes and performance conditions, further emphasizing the importance of technical adaptability in contemporary interpreting settings [20].

Overall, the findings of this study align with and extend existing research by demonstrating that professional competence in simultaneous interpreting is best understood as a dynamic, experience-based, and context-sensitive construct. The integration of theoretical perspectives with empirical insights highlights the need for a more process-oriented understanding of interpreter competence, which goes beyond purely linguistic accounts and incorporates cognitive, domain-specific, and situational dimensions.

Overall, the study contributes to a more precise conceptualization of professional competence in Interpreting Studies by systematically linking theoretical models with empirical insights from professional practice. The integrative approach adopted here captures professional competence in simultaneous interpreting as a process-oriented, experience-based, and context-sensitive construct.

From a disciplinary perspective, this study contributes to Interpreting Studies by empirically substantiating the multidimensional nature of professional competence in simultaneous interpreting and by demonstrating how theoretically postulated competence dimensions align with practitioners' experience and statistically observable patterns. By integrating qualitative insights from professional practice with quantitative evidence across different stages of professional development, the study offers a refined, empirically grounded competence model that moves beyond purely linguistic accounts and supports a process-oriented understanding of interpreter professionalization.

Important implications arise for interpreter training. Training programs should move beyond an exclusive focus on linguistic proficiency and explicitly foster cognitive-strategic skills, domain-specific preparation, and professional coping strategies for technical constraints. At the same time, the study points to avenues for future research, particularly longitudinal investigations into

competence development and comparative analyses across institutional and technological settings.

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