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Conceptualising Competence in the Era of Uncertainty: Translator Education from the Perspective of Complexity Theory

DOCTORAL DISSERTATION

Social Sciences,
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Kompetencijos konceptualizavimas neapibrėžtumo eroje: vertėjų rengimas iš kompleksiškumo teorijos perspektyvos

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CONTENTS

LIST OF ABBREVIATIONS

AI – artificial intelligence

CAS – complex adaptive system

CASs – complex adaptive systems

CBE – competence-based education

CLA – Causal Layered Analysis

EHEA – European Higher Education Area

EMT – European Master's in Translation

HE – higher education

MT – machine translation

NRT – non-representational theory

VUCA – volatility, uncertainty, complexity, and ambiguity

INTRODUCTION

Under these conditions of uncertainty, the educational task is, in principle, not an epistemological task; it is not one of knowledge or even knowing per se. It is not even one of action, of right and effective interventions in the world. [...] Amid supercomplexity, the educational task is primarily an ontological task. It is the task of enabling individuals to prosper amid supercomplexity, amid a situation in which there are no stable descriptions of the world, no concepts that can be seized upon with any assuredness.

(Barnett, 2012, p. 69)

This doctoral study addresses the (un)assuredness of the concept of competence in higher education (HE) in a world of constant change, in times of unprecedented uncertainty. The debate over the notion of competence and competence-based education (CBE) in the context of HE has been long-lasting and controversial, because behind the noble vision of competence as the primary goal of education and the value it bears for the economy and broader society (Vitello et al., 2021), CBE is frowned upon by its critics. Firstly, critics of the terminology used to conceptualise CBE argue that various definitions of *competence* are confusing, sometimes contradictory, and overly complex (Ashworth & Saxton, 1990; Hyland, 1994). Then, there are critics of the neoliberal influences in HE, resulting in the underlying shift "from knowing to doing" (Barnett, 2009, p. 430), the increasing marketisation of HE (Slaughter & Rhoades, 2004; Biesta, 2009; Giroux, 2014), as well as the blurring boundaries between academia, industry, national governance, and wider society in determining what CBE should look like and who gets to shape it. Drawing on Foucault's power-knowledge, Edwards and Usher (1994) argue that CBE serves as a governing strategy without direct oppression by privileging workplace performativity and marginalising forms of understanding and knowledge that fall outside it. In fact, the neoliberal line of criticism towards CBE has even been referred to as a pedagogical paradox:

> "How is it possible that a competency model that has no pedagogical history, but within the economy, has become the main model of pedagogy? The fact that a concept that has a tradition within the economy, but none in pedagogy, has become the main pedagogical model should be considered a paradox. If the history of pedagogy is reviewed, from ancient times to the present day, CBE model does not appear; but when reviewing the history of the economy, competencies appear since 1736 with the industrial revolution".
>
> (Naranjo, 2022, p. 23)

Last but definitely not least, in the world of supercomplexity and unprecedented change, privileging CBE has its epistemological and ontological implications (Barnett, 2001), which are the primary concern of this study. These implications are closely linked to the global challenges generated by Industry 4.0 and the unpredictability of what learners may need to be able to do in the future (Markauskaite et al., 2022), as well as the rapidly changing understanding of what kind of knowledge is necessary for daily life (World Economic Forum, 2020).

There is a particular reason why the introduction to this study exploring CBE and the concept of competence begins with a quick dive into its critique. On the one hand, in this research, I adopt a critical approach towards CBE, which opens up avenues for altogether ruling out the concept of competence as the primary educational goal in a world increasingly *volatile*, *uncertain*, *complex*, and *ambiguous* – a VUCA world (Bennis & Nanus, 2012). On the other hand, I have no illusion that prioritising CBE in the HE curricula will be abandoned any time soon, as universities are slow to change and the neoliberal agenda seems to be here to stay. Therefore, this doctoral thesis seeks to conceptualise competence – currently an established primary goal of HE across much of the European Higher Education Area (EHEA) – and to contribute to the CBE discourse in ways that are epistemologically and ontologically suited to addressing the challenges of a VUCA world.

There are several arguments behind the decision for this doctoral thesis to focus on a particular area of competence development – that of translator education. Firstly, regardless of the robust theoretical framework of complexity theory and narrative foresight adopted in this study, from the very start, this thesis was intended as empirical data-oriented research. On the one hand, it aims to suggest a conceptualisation of competence in general terms; on the other hand, this conceptualisation emerges from real-world data, collected from and with the representatives of the actual field, which has been undergoing tremendous changes for the past few decades. Secondly, the translator's profession is subject to various kinds of uncertainty – mainly hermeneutic, economic, and fundamental uncertainty. This makes translator education particularly suited to investigating competence development in this era of uncertainty. What is of immense significance is the technological factor, which in the form of neural machine translation (MT) and AI-driven MT since 2022 (during the course of my doctoral studies!), has become the primary concern of the future of the profession, with direct consequences, including a decrease in student enrolment and shifts in university study programmes. Last but not least, my personal stance as a post-graduate in translation studies and as a former translator has opened avenues for a deeper exploration of the field

from an insider's perspective. Additionally, I have drawn on my research experience from my previous study on post-editing competence and stakeholders' attitudes towards it in the Lithuanian translation industry (Levanaitė, 2021). This prior experience enabled me to leverage my network within the translation studies community, which I further expanded while seeking my research participants for the present study, both in Lithuania and internationally.

Research problem. The CBE approach implemented in the EHEA is based on a representational concept of competence, which poses various practical challenges for curriculum design, student assessment, etc., as well as theoretical concerns, such as institutional agency in HE, the primary educational goals of universities, and related issues. In addition, HE must also respond to the challenges posed by an increasingly VUCA environment, at the centre of which lies profound ontological uncertainty, urging us to rethink some of the concepts of educational sciences based on essentially epistemological assumptions, including the concept of competence. The underlying question in this study is how translator competence can be conceptualised so that it encompasses uncertainty. Although this thesis has focused on the case of translator education, the broader problem of conceptualising competence is relevant to the future of many professions and, consequently, university study programmes more generally.

Translator competence is a key aspect of translation study programmes, indicating translators' readiness for their future professional life (Schäffner, 2020). Technological breakthrough, especially the rapid development of AI-based MT, is significantly changing the concepts of translation and a translator, and exposing the gap between what constitutes translator competence today and what might actually be expected from translators in the near and distant future. With student enrolments in university study programmes declining rapidly every year (Fantinuoli, 2025; Bowler, 2025) and the prospects of the profession remaining obscure, translation study programmes are being urgently transformed to address these uncertainty-related challenges. The problem remains that the fundamental concept of translation studies – translator competence – as it is defined in literature and policy documents today, does not reflect the actual complexity of translator competence and its relation to uncertainty. The major problem remains that in most cases, translator competence models and frameworks resort to the multitude of knowledge and skills which serve as the foundation of the construct of translator competence. Meanwhile, the dimension of uncertainty hardly stands a chance of being incorporated into such models and frameworks because it is conceptually inconsistent with models based merely

on representations. Instead, this study suggests that complexity modelling can serve as a means to address this gap.

The underlying **aim** of this doctoral study is to conceptualise translator competence* from the perspective of complexity theory. I hypothesise that conceptualising translator competence as a complex adaptive system (CAS) provides a theoretically and practically coherent complementary perspective to representational competence models. I presume that this conceptualisation has the potential to enable uncertainty to be treated as a property of competence rather than its residual problem. It should be made explicit that this study uses complexity modelling as an exploratory tool to conceptualise translator competence as a CAS rather than seeks to develop a mathematical or computational model, thus exploring the feasibility of creating such a model in the future. In this sense, exploratory modelling enables the creation of conceptual models for CASs, primarily to assess the feasibility of subsequent research (Niazi, 2011).

To achieve the research aim, the following **objectives** were set:

1. Conduct an in-depth literature review of how *competence* is conceptualised in educational research and policy documents, and review literature on translator and translation competence models and frameworks.
2. Overview major concepts of complexity theory and their application in educational research to develop a framework of complexity concepts for the conceptualisation of competence. Additionally, conduct a systematic literature review of complexity-informed studies on competence development.
3. Explore what presently constitutes translator competence and how it may change in the future from the perspective of translator educators, students, and professional translators by carrying out semi-structured and focus-group interviews.
4. Draft future scenarios for the translator's profession using narrative foresight and validate them through expert interviews.
5. Build a conceptual model of translator competence as a complex system, grounded in the framework of complex systems modelling, and validate it through expert interviews.

Theoretical framework. This study adopted the theoretical (as well as methodological, as explained later) framework of complexity theory, also

* The major object of this study is *translator competence*, however, it is presumed that to a certain extent the conceptualisation of *competence* proposed in this study, in a broader sense, might also be relevant beyond the field of translation studies.

referred to as complex systems theories, which centres around the limitations of predictability of various phenomena. In complex systems, minor changes in one variable may significantly alter the overall outcome, and vice versa – small changes will not necessarily disrupt the entire system. Therefore, viewing educational phenomena as complex systems "yields unprecedented means for understanding complex phenomena and revealing new, sometimes counter-intuitive patterns and relationships" (Lemke & Sabelli, 2008, p. 128).

There is no single complexity theory that can serve as an umbrella for the various approaches concerned with understanding phenomena as complex systems: complexity theory, or theories (see Mason, 2008; Morrison, 2008), complexity science (see Gell-Mann, 1994; Prigogine, 1997), complex systems theories including complex adaptive systems (see works by scholars at Santa Fe Institute), critical complexity (see Morin 1992/2007; Cilliers 1998), complexity thinking (see Davis & Sumara, 2006). In this study, I follow the notion of *complexity theory*, which "as a theory of change, development and evolution through relationships, raises an interesting agenda for the philosophy of education" (Morrison, 2008, p. 19), and according to which, in the learning process, "emphasis is placed on the relationship between elements, rather than the elements themselves [...] [which] argues against the 'empty vessel' theory of learning" (ibid, p. 21). In this study, complexity theory provides both an ontological position that reality is complex in itself and its causality, and an epistemological foundation for utilising complexity modelling tools by which this reality can be understood.

In addition, this study is complemented by elements of futures studies, which place greater emphasis on the dimension of time, or change. By adopting the approach of narrative foresight (Milojević & Inayatullah, 2015), aimed at *undefining* the future (of the translator's profession) and exploring alternative futures to identify significant uncertainties at play. Complementing the theoretical framework of complexity theory with the narrative foresight approach enables a more comprehensive examination of the temporal dynamics of competence, providing a nuanced understanding of its complexity and evolution over time.

It should also be noted that this study is situated within the philosophy of education, particularly in relation to the *ontological turn* in HE (Barnett, 2000, 2003, 2012; Biesta, 2009; Zembylas, 2017). While the concept of competence can be positioned as a constraint on this turn, I argue that conceptualising it from an ontological perspective – specifically through the lens of complexity theory – offers promising avenues for further theoretical development.

> "[I]f educators want to make a substantial contribution to the ontological turn, we must do more than praising the

> methodological importance of embodied engagement and socio-material entanglements and the political value of ontologies in learning. We need to take seriously the multiple implications of the ontological turn, especially in relation to how specific concepts may be recalibrated".
>
> (Zembylas, 2017, p. 1410)

In this context, conceptualising competence as a CAS is undertaken as part of this recalibration.

Terms and concepts. The underlying terms and concepts in this research include *certainty* and *uncertainty*, *competence, translation*, *translator, complexity*, *complex (adaptive) system,* and *conceptualisation*. The first chapter introduces concepts of certainty and uncertainty from various perspectives, including philosophical (Wittgenstein (1969)) and scientific (Prigogine (1997)) underpinnings, as well as the lens of post-structuralism (Derrida (1967/1997)). The latter has been of great significance to the critical complexity approach developed by Cilliers (1998) and Morin (1999), whose works form the theoretical foundation of this thesis. In the second chapter, I introduce the concept of competence by reviewing policy documents and educational research, including a systematic literature review of studies that explore competence development using complexity theory. Then I move on to the concepts of translation and the translator, particularly focusing on how these concepts have been changing in the contemporary world. Last but not least, the concepts of complexity and a complex (adaptive) system are introduced, particularly in the context of complexity theory as adopted by educational researchers.

The notion of *conceptualisation,* as used in this study, requires a more extensive explanation. As a means of making sense of the inner and surrounding worlds, concepts enable us to distinguish and categorise phenomena, particularly by placing them in relation to one another. Thus, our ways of perceiving the world and ourselves, as well as our ways of acting and knowing, are extensively dependent on our conceptualisations (Johnson-Laird, 1983). Translator competence, if treated in Maxwell's terms (1992), could be regarded as a *mental* rather than *physical* phenomenon; therefore, understanding it goes beyond precise interpretation or description and explicitly addresses what Maxwell referred to as a theoretical, or mental, construction (ibid). The pursuit of building such a mental construction – or conceptual model – might, to some extent, be associated with Wittgenstein's (1968) picture theory of language, according to which some aspects of meaning cannot be understood by means of language, and, hence, some

statements make sense only if they can be "pictured". Overall, in this study, *conceptualising* translator competence means *modelling* it in ways that move beyond mere description towards a model that should not be treated as a fixed truth, but rather is intended to provide a more explicit understanding of the complexity, dynamics, and fluidity underlying the phenomenon of translator competence.

Methodology. This doctoral thesis is informed by an in-depth analysis of scholarly literature and policy documents related to CBE and competence development in HE, with a particular focus on translator education. It also includes a conceptual analysis of literature on complexity theory and its application in educational research. The empirical part of the study employs a conceptual complexity modelling methodology, complemented with the narrative foresight approach grounded in Causal Layered Analysis (CLA) from futures studies. Complexity modelling is used to develop a conceptual model of translator competence as a CAS, exploring the feasibility of further research that could exploit more advanced approaches, such as agent-based computational modelling based on quantitative data. In the meantime, this study used qualitative data collected through semi-structured and focus-group interviews with translator educators, translation students, and professional translators in Lithuania, Ireland, Germany, and Finland, conducted between March 2023 and May 2024. The interview instrument was informed by complexity theory, which also served as an analytical lens for interpreting the data and extrapolating insights necessary to conceptualise translator competence as a CAS. Additionally, narrative foresight was used to facilitate the exploration of future-oriented scenarios of the translator's profession, which, among other things, enabled the incorporation of a temporal dimension into the model, introduced at the final stage of the empirical part of this study. For the most part, both methodological choices were intended not only to identify potential constituent elements of translator competence as a CAS but also to understand the relationships among these elements and how they interact. Accordingly, the data collection and analysis focused on the following aspects of translator competence and its development:

- Research participants' conceptualisations of translation and a translator in a VUCA world;
- Research participants' conceptualisations of translator competence in the past, present, and future;
- Scenarios of the translator's profession in the future as seen from the research participants' perspective;
- Elements which constitute translator competence, particularly in relation to uncertain and future-oriented contexts;

- Interactions between these elements that could provide grounds for a new conceptualisation to emerge.

Originally, deductive thematic analysis (Braun & Clarke, 2006) was the primary choice for analysing interview data using MaxQDA Analytics Pro (24.3.0). This part of the data analysis served to build a conceptual model of translator competence as a CAS. However, during the interviews, it became clear that themes emerged inductively as well and that this may play a significant role in this study and its findings. Additionally, the same occurred with the expert interviews, which were conducted after the initial stage of data analysis and the drafting of four future scenarios. Scenario drafts were presented to an international group of translator educators (N=9) for expert validation, resulting in nine additional interviews. These expert interviews not only served as a means to ensure research validity but also provided insights into what could have been overlooked in the initial data analysis. Therefore, the expert interviews were also inductively analysed as complementary data in this study.

The rationale behind the model development is based on three stages: (1) the development of narrative foresight scenarios, (2) the identification of the constituent elements of translator competence, and (3) the modelling of these elements into a dynamic relational system. Foresight scenarios served as an entry point for conceptualising translator competence as shaped by uncertainty and change, while iterative engagement with empirical data and concepts of complexity theory allowed the identification of key CAS elements and their interactions, which took the shape of a conceptual model of translator competence as a CAS, described by ten properties.

To ensure the robustness of the research findings, expert validation was undertaken, including interviews with experts in translator education (N=7). The experts evaluated whether and how the proposed conceptual model captured translator competence as a CAS across four criteria. It should be noted that validity in this study is understood in qualitative terms – as a matter of degree rather than an absolute standard (Cohen et al., 2007), hence, related validation procedures were focused on evaluative validity, complemented with aspects of theoretical validity (Maxwell, 1992).

At the final stage of the empirical part of this study, a dynamic visualisation of the conceptual model is provided to enhance the clarity of the model and its dynamics. Additionally, four visualisations based on the narrative foresight scenarios are also presented to illustrate the dynamics of translator competence over time. Having used these future-oriented scenarios as the starting point for the model development, this study concludes by returning to them to emphasise translator competence as a four-dimensional CAS in which

time constitutes an integral dimension. In this sense, scenarios function both as the point of departure and the point of return, framing translator competence as inherently shaped by temporal change and uncertainty.

Overview of existing research. In educational research, the concept of competence and CBE have been subject to debate and critique, often questioning the reductionist and behaviourist tendencies behind competence frameworks. It has been argued that prevailing conceptualisations of competence ignore broader human qualities and the contextual dimensions of education (Ashworth & Saxton, 1990; Hyland, 1994). Edwards and Usher (1994) further argue that CBE narrows the purpose of learning to the achievement of predefined learning outcomes measured through predefined criteria and goals. Over time, the discussion shifted to the neoliberal implications of the CBE approach in HE, particularly regarding its relation to performativity, employability, and the measurement of educational outcomes (Marginson, 2004; Giroux, 2014). Biesta (2009) has criticised the "learnification" of education, where learning outcomes and measurable competences are emphasised at the expense of broader educational purposes. In light of this "marketisation" of HE, Barnett (2000, 2004, 2012) has called for an ontological turn in education, arguing that competence-oriented approaches are limited in addressing uncertainty, supercomplexity, and students' ways of being. In addition, for the past few decades, the stability and universal understanding of competence have been questioned by various scholars. Some scholars emphasise the fragmented, contextual, and socially constructed nature of knowledge and professional practice (Bernstein, 2000; Edwards, 2016), while others promote more holistic approaches to conceptualising competence (Rychen, 2004; Vitello et al., 2021).

Furthermore, research on translator competence has, for a while, been dominated by multicomponential models, which conceptualise competence as a combination of linguistic, cultural, strategic, technological, interpersonal, and other sub-competences (Kelly, 2005; PACTE, 2003; Göpferich, 2009). Over time, the focus shifted from *translation* competence towards *translator* competence, increasingly emphasising that the translator's activity is a situated and embodied process, rather than a mere ability to produce target texts (Kiraly, 1995, 2013, 2016; Risku, 2012; Kiraly & Massey, 2025). More recent discussions in translation studies have questioned reductionist and representational approaches to competence modelling, arguing that conventional frameworks often struggle to address the evolving realities of translators' work (Pym, 2003, 2021; Massey, 2019). Approaches have emerged, underscoring that translator competence is a relational and context-dependent phenomenon, shaped through interactions among translators,

technologies, environments, and social systems (Risku, 2014; Marais, 2019; Kiraly, 2016).

From a more local perspective, research on translator education and translator competence development in Lithuania has primarily been framed in the context of CBE and the professionalisation of translation studies, which date back to Lithuania's accession to the European Union in 2004 (Maskaliūnienė & Kaminskienė, 2012). Initial discussions focused on aligning translator education with competence frameworks, particularly those promoted within the European Master's in Translation (EMT) network, highlighting the growing importance of professional, technological, and communicative competences within Lithuanian translator education (Kaminskienė & Kavaliauskienė, 2012). More recent studies highlight how the global COVID-19 pandemic has affected translators' work and training (Kasperė & Motiejūnienė, 2021), as well as how the expectations placed on translators and interpreters by the translation industry bring translation project management and related competences to the forefront of translator education (Motiejūnienė & Kasperavičienė, 2019; Mankauskienė, 2024; Masiliūnienė, 2025). Last but not least, Industry 4.0, the emergence of generative AI, and related challenges have fostered immense interest in translation technologies, particularly how they shift translators' everyday tasks and highlight the need to develop self-revision and other-revision competences (Kasperė & Horbačiauskienė, 2020), post-editing competence (Levanaitė, 2021), as well as the need to understand which aspects of AI should be integrated into translation study programmes (Horbačauskienė & Ratkevičienė, 2025). A recent study provides an overview of how translator education has historically evolved in Lithuania (Kairys et al., 2025), concluding that translator education in Lithuania is entering a new phase characterised by MT, generative AI, post-editing, and technology-driven competence development. How translator competence development should continue to be organised in Lithuanian translation study programmes remains an open question; therefore, the present doctoral study seeks to contribute to this by conceptualising translator competence in the context of uncertainty and change.

Relevance and novelty. The focus of this doctoral thesis is the conceptualisation of competence as a CAS in the field of translator education. However, this is not peculiar to translator competence development and is relevant to the theory and practice of overall CBE research regardless of the HE studies domain. This thesis aims to conceptualise translator competence as a CAS that, to a certain extent, might be transferable to other domains, too, as the challenge of addressing ontological uncertainty in HE is not inherent to translator education alone. Additionally, on the one hand, complexity theory

has been adopted in educational research to explore various educational phenomena, from rather broad approaches, such as *education as a complex system*, or *school reforms*, to more specific ones, such as *classroom activities as a complex system*, and the like. However, the novelty of this study lies in its methodological ambition to conceptually model translator competence as a CAS based on empirical data, thereby offering insights that may inform future research in both fields – educational sciences and translation studies. To the best of the author's knowledge, such an empirically informed conceptualisation of translator competence, or even competence in a broader sense, has not yet been undertaken.

The thesis is structured into an introduction and six main chapters, followed by a discussion and concluding remarks. The first chapter introduces the concepts of certainty and uncertainty, touching on fundamental aspects such as the end of certainty in HE, the challenges posed by a VUCA world to education, the ontological turn, and the role of (non)representationalism in education. Chapter 2 highlights the concept of competence as introduced in policy documents across Europe and beyond, as well as the implications of uncertainty and the future of competence conceptualisation. The third chapter focuses on translator education as a specific area of inquiry to explore competence development. In this chapter, I provide an overview of conventional and emerging approaches to translator competence, along with their respective models. The fourth chapter introduces complexity theory and narrative foresight in greater detail as the theoretical and methodological foundations of the doctoral study. It elaborates on the concepts of complexity, complex systems, and CASs, and introduces narrative foresight as a complementary approach in this research. Chapter 5 on research design presents the structure of the empirical study and overviews how data were collected, analysed, and presented. It also sheds light on the validity, ethics, and limitations of the doctoral study as well as my own positioning as a researcher. Chapter 6, on the analysis and research findings, introduces the major deliverables of this study – narrative foresight scenarios of the translator's profession and the conceptual model of translator competence as a CAS. These deliverables are complemented by respective 4D visualisations. The discussion aims to explore the research findings in light of the theoretical framework underlying this doctoral thesis. At the end of the study, conclusions and possible avenues for further research are presented.

1. THE END OF CERTAINTY IN HIGHER EDUCATION

This is the uncertainty that arises out of supercomplexity, for supercomplexity is precisely that paradoxical condition in which our descriptions of the world are always contestable and in which we know that to be the case. Our hold on the world is now always fragile.

(Barnett, 2012, p. 68)

1.1. Conceptualising certainty in an uncertain world

Undertaking the task of conceptualising competence in the era of uncertainty first and foremost requires establishing an understanding of what era – or what reality – is actually being referred to, as the need for a conceptualisation of competence stems from a certain disregard for this reality.

One way to describe the world we live in today is a world of increasing *volatility*, *uncertainty*, *complexity*, and *ambiguity* (Bennis & Nanus, 2012), often referred to as a VUCA world. First appearing in military strategy and organisational studies over four decades ago, this notion refers to four emerging states of social and political life, which result from "the rapid expansion of digital communication, the proliferation of intersecting identities, the increasing global movement and mixing of cultures, and the growth of a flexible and insecure gig economy of temporality, part-time, low-paid, and constantly changing work at the expense of predictable and secure employment" (Hargreaves, 2021, p. xix).

More explicitly, *volatility* refers to rapid change, the pace and multidirectionality of which are accelerating at unprecedented speed. *Uncertainty*, among many other conceptualisations, means the incertitude of the future and lack of evidence or ability to forecast it. *Complexity*, in brief, suggests the diversity and intersection of various forces at work in today's world; meanwhile, *ambiguity* refers to the ambiguous nature of how people, depending on their identities and worldviews, understand worldly events (ibid).

Given the characteristics of a VUCA world, this subchapter introduces the theoretical underpinnings of this doctoral study by examining the concepts of certainty and uncertainty. In doing so, it also lays the ground for the necessity to rethink the concept of competence, which, as will be argued in Chapters 2 and 3, is often conceptualised in rigid, static, and componential ways that fail to account for the VUCA environment in which it operates. Instead, this study will eventually shift the focus towards more dynamic and fluid conceptualisations of competence that have the potential to encompass uncertainty.

1.1.1. The era of uncertainty

The notion of *uncertainty* is of particular interest for this study for various reasons. From a practical standpoint, first, there is *economic uncertainty*, the conceptualisation of which remains subject to considerable debate. It is economic contexts that set the scene for competence-based education (CBE), which will be discussed in later chapters of this study. To this point, it is important to mention that as post-industrial societies keep experiencing various societal changes, including the neoliberal policies rooted in globalisation, amplified by intensified social relations through the revolution of technology and information, the individuals' employability is increasingly unstable and the inequalities keep rising (Vignoli et al., 2020). Therefore, economic uncertainty plays a significant role in the ways we conceptualise competence, and conceptualisations of various types of uncertainty as defined in the growing body of literature in economics and innovation theory also provide solid insight into the topic (see Table 1, Vignoli et al. 2020, p. 5).

Table 1. Conceptualisations of various types of uncertainty (Vignoli et al. 2020).

Authors	*Social interaction*	*Information*	*Fundamental*
Davidson 1996		**Epistemological uncertainty**: a complex situation involving too much information that cannot be computed	**Ontological uncertainty**: creativity and innovation cannot be predetermined but only observed retrospectively
Dequech 2000		**Ambiguity**: relevant information is missing or cannot be accessed	**Fundamental uncertainty**: the creativity implied in the future cannot be deducted from present information
Lane & Maxfield 2005	**Semantic uncertainty**: actors are uncertain about what a proposition of other actors means	**Truth uncertainty**: actors are uncertain about whether well-defined propositions of future consequences are true or not	**Ontological uncertainty**: refers to the entities that inhabit the world, their modes of interaction, and the results of their interaction

Authors	*Social interaction*	*Information*	*Fundamental*
Elster 2009	**Strategic uncertainty**: strategic action of other actors is a spiral source of uncertainty that cannot be defined	**Information gathering uncertainty**: the gathering of information cannot be rationally stopped	**Brute uncertainty**: no uniform distribution of cases can be invoked
Beckert 2016	**Social interaction uncertainty**: third parties' actions cannot be accurately predicted, even in game theory models	**Complexity uncertainty**: a complex situation does not allow utility maximization	**Fundamental uncertainty**: innovation is unpredictable and cannot be estimated in present calculus
Tuckett & Nikolic 2017			**Radical uncertainty**: equivocal situations in which uncertainty about the outcomes of actions is so profound that it is difficult to set up the problem structure to choose between alternatives and impossible to represent the future in terms of a knowable and exhaustive list of outcomes to which to attach probabilities

In discussions of uncertainty and its diverse conceptualisations in the educational domain, the work of Barnett (2000, 2004, 2012) has been of key influence, including his notions of the contemporary world, which he himself has described as the world of *change*, *uncertainty*, and *supercomplexity.* He

also leans against other scholars' notions, such as the world of "*fluidity*, as a *liquid modernity* (Bauman, 2000) and as an age of *fragility* and (Stehr, 2001) or *risk* (Beck, 1992)" (Barnett, 2012, p. 66). In his writings, Barnett refers to two kinds of uncertainty. First, there is uncertainty, which stems from the multitude of worldly objects and phenomena, "the world of information overload, of multiplying performance indicators and of unpredictability in the environmental response to any intervention. [...] This is a world that is radically unknowable: even though we make modest gains here and there, our ignorance expands in all kinds of directions" (2012, p. 68). The second kind of uncertainty refers to destabilisation rooted in our understanding that we are no longer able to establish a stable relationship with the world, where "descriptions of the world that are available to us – especially in a global and multicultural world – multiply and conflict with each other" (ibid).

Additionally, Barnett also positions uncertainty as *unknow-ness*, which stems from the swiftness of how the new world that replaces the one which we have known until the present moment, as well as the speed of change which takes place in a single lifetime, is unprecedented in human history. He argues that the contemporary world differs qualitatively from previous historical periods. While earlier transformations, for example, the agrarian or industrial revolutions, or the rise of democracy, as well as individual freedom, primarily altered external structures, current changes are internal in their nature. Today's transformations affect how individuals understand themselves, their identities, and their ways of being in the world, thus shifts defining our times are ontological rather than infrastructural (Barnett, 2012, p. 66).

What is evident in Barnett's work is a strong ontological position in education, particularly in the context of learning for and *with* the unknown or the unknowable future. This needs to be made more explicit, particularly in the sense that this shift *towards* the ontological position is, largely, a move *away* from the epistemological one. The following chapters intend to make this ontological shift more explicit.

1.1.2. Philosophical and scientific underpinnings of certainty

The question of whether we could ever know anything *with certainty* has been foundational among philosophers throughout centuries, most often in a sense that certainty implies not only that one *knows* something, but also that this knowledge is tied to the *highest level of confidence* (Brice, 2022). For ages, philosophers were exploring ways to counter the sceptics' arguments that "knowledge, let alone certain or absolutely certain knowledge, is impossible" (Dale, 2022, p. 1). One of the most renowned attempts is the

Cartesian concept of certainty, which is deeply rooted in the epistemological approach. Eager to develop a doubt-free system of knowledge, Descartes argues that any scientific theorising insists upon absolute certainty – or absolute knowledge – and this, in turn, requires indubitability (Dellsén, 2017). According to Descartes (2017), "we're bound to have many preconceived opinions that keep us from knowledge of the truth […]. The only way to free ourselves […], is just once in our lives to take the trouble to doubt everything in which we find even the tiniest suspicion of uncertainty" (p. 2). The challenge of attaining certain and doubt-free knowledge has been further explicated by various modern philosophers, including Moore (1925, 1939, 1959), who argued that common-sense knowledge, justified by ordinary experience and resistant to the possibility of doubt, constitutes the basis for all other forms of knowledge (ibid). In response to Moore's attempt to ground the certainty of knowledge in common-sense beliefs, Wittgenstein (1969) sheds light on the overall limitations of treating certainty as an epistemological concept.

Wittgenstein suggests that it is a fundamental philosophical error to assume that all forms of certainty and certitude depend solely on knowledge. "His observations constitute a remarkably coherent discussion of what is arguably the central problem of epistemology: the question of whether, in what sense, and by what methods it may be possible to attain absolute certainty in knowledge" (Dale, 2022, p. 1). Wittgenstein makes a clear distinction between knowledge and certainty as two different categories. He emphasises that there is no philosophical notion of certainty, which could allow for absolutely certain knowledge, because fundamental certainty is not rooted in our language, thoughts, and writings, but in our unreflected actions or behaviour: "What we have here [certainty] is a foundation for all of my action. But it seems to me that it is wrongly expressed by the words 'I know'" (Wittgenstein, §414, as cited in Brice 2022, p. 3). By the end of his *On Certainty*, Wittgenstein (1969) remains far from any concrete ideas about this special non-epistemic category of certainty, nor does he present a clear ontological position in his writings. However, Wittgenstein's attempt to challenge the notion of certainty as merely epistemologically framed provides a significant philosophical underpinning for addressing the major question this doctoral thesis addresses: how can translator competence be conceptualised so that it encompasses uncertainty?

Yet another perspective – that of the philosophy of science – sheds light on the limitations of certainty, particularly concerning the future of science. A physical chemist and complexity scientist, Prigogine (1997) assumes that in today's world "we are observing the birth of a science that is no longer limited

to idealised and simplified situations but reflects the complexity of the real world" (p. 17). In his seminal work, *The End of Certainty* (1997), Prigogine suggests that we have entered the era where one of the basic traditions of Western thought – the belief in certainty – is confronted by the challenges related to determinism and Western understanding of time – issues which have remained central to Western thought as early as the pre-Socratics. Prigogine assumes that certainty is tightly linked to Newtonian physics, where time is understood as an arrow; thus, all phenomena are expected to yield to laws of determinism. However, humankind has arrived at the era of a *new rationality*, where the laws of nature are no longer rooted in certainty but rather possibility, and the future remains completely undeterminable – the times of the end of certainty, or the end of Newtonian determinism. As a result, a "new kind of knowledge" (Maxwell, referenced by Prigogine 1997, p. 5) emerges, which implies that probabilities can be treated as integral within the basic laws of physics; thus, the future can no longer be defined by the present moment. This conception of *the end of certainty in science as we know it* is particularly relevant for re-examining the already established ways of conceptualising competence based on our present understanding and evidence, which will again be addressed in this thesis, in Chapter 4.

1.1.3. Certainty and a post-structuralist lens

Yet another philosophical thought I need to elaborate upon in this study is proposed by the French philosopher Derrida. First, Derrida's (1967/1997) philosophy of *deconstruction*, particularly in the binary opposition of absence and presence, assumes that what is present is more real than what is absent. Therefore, I argue that when conceptualised through the lens of this binary opposition, *certainty* would be defined as complete and true; meanwhile, *uncertainty,* as the opposite of certainty, would be something that is missing or not relevant to presence. By deconstructing this dependence between the two, we can presume that *uncertainty* is not a lack or absence of certainty, but a state or attribute of reality that cannot, and should not, be defined based on what is known and certain. As a result, the actual meaning of uncertainty arises through the difference between the two concepts rather than from the concept of certainty being determinative of the concept of uncertainty. I suggest that this is particularly important when conceptualising competence for the present world in contrast to conceptualising it for uncertain contexts and the future. From a first glance, conceptualising competence for uncertainty and the future seems like an impossible task, because here "uncertain contexts" already

imply that we can never be certain of, and thus trust, such a conceptualisation. But by deconstructing uncertainty's dependence on certainty and treating it as an ontological condition, we open up avenues to search for conceptualisations that could allow us to incorporate uncertainty into the concept of competence, rather than treat it as something outside of competence just because we cannot define it. As I will explain in the methodological part, this is exactly why conceptual complexity modelling has been undertaken for this study.

Secondly, Derrida's philosophy, alongside other post-structuralist ideas (like Lyotard and others), has extensively shaped the writings of Cilliers (and also other complexity thinkers), whose seminal work *Complexity and Postmodernism: Understanding Complex Systems* (1998) is foundational for this study. According to Cilliers (1998), Derrida's approach to "the dynamics that generates meaning in language can be used to describe the dynamics of complex systems in general" (p. 37). In other words, the deconstruction of the system by using the notion of *différance* provides a wider philosophical perspective towards phenomena under study. Cilliers argues that "post-structuralism is not merely a subversive form of discourse analysis, but a style of thinking that is sensitive to the complexity of the phenomena under consideration. Since science can benefit from such an approach, the relevant ideas must be made accessible to scientists" (Cilliers, 1998, p. 22). While post-structuralist approaches are often associated with language, literature, and culture, their theoretical scope extends to our understanding of the life-world and scientific inquiry. Unlike modernist advances in science, which were closely aligned with logic and positivist philosophy, post-structuralism highlights the proliferation of meaning, the breakdown of hierarchies, and the limitations of purely analytical approaches, offering science a way to engage with complexity more thoughtfully and flexibly (ibid). In a similar vein, Chapters 2 and 3 introduce predominantly positivist and analytical approaches towards the concept of translator competence, as well as competence more broadly, followed by a proposal to conceptualise competence beyond these approaches.

All in all, as one of the key figures in post-structuralist thought, Derrida's theory of deconstruction is to a major extent relevant to both complexity theory (which is the underlying theoretical and methodological framework in this study) and the conceptualisations of certainty and uncertainty. Having touched upon some key philosophical underpinnings for conceptualising certainty, I proceed to elucidate *uncertainty* and its relation to the aspect of time.

1.1.4. Uncertainty and the dimension of time

Uncertainty and the role of time have already been addressed in the preceding section through the discussion of Prigogine's (1997) work. According to him, questions about the roots of time and the preexistence of our universe are the most difficult because they push us to the cutting edge of our understanding of space and time. In many respects, Prigogine's work is dedicated to the denial of what he refers to as the *arrow of time*, where no distinction between past and future is made, the implied "equivalence between past and future", or "unidirectional time" (1997, p. 2). In other words, not only does the concept of certainty insist upon conceptualisation in today's VUCA world, as mentioned previously in this thesis, but the concept of time needs to be revised as well. Prigogine argues that classical science prioritised stability, order, and deterministic predictability, and the laws of nature are treated as expressing certainties. Meanwhile, contemporary perspectives recognise that natural – or social – systems exhibit fluctuations, instability and limited predictability across all levels of observation. The incorporation of concepts, such as chaos, allows both classical and quantum physics to account for evolving systems, introducing the arrow of time and breaking the symmetry between the past and future. Consequently, the laws of nature are conceptualised as no longer conveying absolute certainty but describing possibilities and probabilities, reflecting the complex, dynamic character of the universe, where "the meaning of the laws of nature changes radically, for they now express possibilities or probabilities" (Prigogine, 1997, p. 4).

In other words, once instability is recognised as inherent to worldly phenomena, or a particular phenomenon under study, the future can no longer yield any certainty, which means that uncertainty is also embedded within the dimension of time. On the one hand, such a claim does not say anything that humanity has not known before: the future has never been certain, the world has forever been characterised by uncertainty and change, and, thus, "learning has always, then been a matter of learning for an unknown world" (Barnett 2012, p. 66). On the other hand, in the current VUCA world, the sense of change within a single lifetime of a human being is, to a large extent, a relatively new occurrence (ibid).

The dimension of time and future uncertainty has also been addressed by the French philosopher and complexity thinker Morin (1999, 2007), who, just as Cilliers (1998), accounts for a specific philosophical interpretation of complexity, which resonates with post-structuralist thought and deconstruction. According to Morin (1999), our theories and ideas about the reality we live in are never reflections but rather translations and

mistranslations of our reality: “So we should not be realistic in a trivial way (bending to immediacy) nor unrealistic in a trivial way (escaping from the constraints of reality); we should be realistic in a complex way, understanding the uncertainty of reality, knowing that the real holds invisible potential” (p. 49). To a great extent, Morin resorts to the aspect of the future whilst conceptualising uncertainty in education. In his *Seven Complex Lessons in Education for the Future* (1999), he addresses the need to confront future uncertainties in science and education, which I will come back to later in this thesis. In addition, Morin promotes the emergence of a new kind of consciousness, which could provide us with the ability to engage with uncertainty in the era of constant change, and in a world defined by value ambivalence and extensive interconnectedness. Therefore, the education of the future needs to take four types of uncertainty into account: cerebro-mental uncertainty, logical uncertainty, rational uncertainty, and psychological uncertainty. For this reason, future education must critically examine the uncertainties inherent in knowledge (ibid). The following subchapter argues that this reviewing of uncertainties is closely linked to the paradigm shift in HE, which places ontological aspects among the major educational goals.

1.2. Towards the ontological turn in higher education

Over the past two decades, the concept of *ontology* has been gaining significance in both the social sciences and humanities, in pursuit of bridging the gap between discourse and materiality (Hojgaard & Sondergaard, 2011, as cited in Zembylas, 2017). According to Zembylas (2017), in educational sciences, the notion of an *ontological turn* has been given many names, including *non-representational theory*, *new materialism*, *posthumanism*, and *diffractive methodology*. One of the underlying themes emerging in the literature on the ontological turn in social sciences and humanities is the rejection of representationalism, which is further explored in the final section of this subchapter. Meanwhile, the next two sections proceed with reimagining educational tasks and exploring educational challenges in the VUCA world. This is particularly relevant whilst addressing the notion of competence, which, as I will argue, is conventionally conceptualised from the perspective of epistemology and representationalism.

1.2.1. Higher education and its tasks

Barnett (2012) suggests that learning for the unknown and supercomplex world, or the world of constant change and uncertainty, has two essentially

different tasks: (1) to prepare students for this world, and (2) to enable them to prosper in uncertain situations. To make his claims more explicit, Barnett resorts to the three Modes of knowledge proposed by Gibbons et al. (1994) and Nowotny et al. (2001), where Mode 1 knowledge refers to formal knowledge about the world, Mode 2 knowledge is creative knowledge aimed at problem-solving *in situ* that is bounded by uncertainty, and Mode 3 knowledge recognises that "knowing the world is a matter of producing epistemological gaps [...]: our very epistemological interventions in turn disturb the world, so bringing a new world before us" (Barnett 2012, p. 69). In other words, Mode 3 refers to the knowing *in-and-with-uncertainty*, which also implies that knowing generates additional uncertainty (ibid). Therefore, the second educational task cannot be conceptualised by knowledge and knowing, because the VUCA world is increasingly more indescribable; it "recedes from us, even as we approach it" (ibid). Barnett argues that within this context of uncertainty, the educational task is primarily an ontological, not an epistemological one. The educational challenge is to equip individuals to navigate a world of supercomplexity, where stable descriptions and certain concepts are unavailable. According to Barnett, this, in turn, requires a curriculum and education that recognise fragility, uncertainty, and instability as fundamental both to our understanding of knowledge and to the nature of reality itself:

> "Under such conditions, a double educational task arises: first, bringing students to a sense that all descriptions of the world are contestable and, then second, to a position of being able to prosper in such a world in which our categories even for understanding the situations in which we are placed, including understanding ourselves, are themselves contested".
>
> (2012, pp. 69–70)

This ontological view contrasts with the current rise of the learning economy, which has led to a strong emphasis on measurement and learning outcomes, or the so-called *learnification* of education (Biesta, 2009) – a reorientation of the vocabulary of educational processes and practices as primarily learning-centred. Biesta insists that, in a time when educational practice is governed by measurement and comparative evaluation of educational outcomes, the questions of the purpose of education and what constitutes *good* education should remain open to ongoing discussion. In other words, in the era where we keep "valuing what is measured, rather than [...] engage in measurement of what we value" (Biesta 2009, p. 10), the ontological approach in education encourages us to readdress these questions at all the

levels of education, including educational practices and study curricula, as well as the overall educational policy.

In a similar vein, Dall'Alba and Barnacle (2007) question the current emphasis on the development and attainment of knowledge and skills within university programmes. One can argue that this kind of knowledge and skills-oriented epistemology is essentially problematic, because from this epistemological perspective, knowledge and skills are often treated as transferable attributes that can be *decontextualised* from the specific practices in which they are applied. This approach is increasingly observable in research degrees, which were historically somewhat resistant to the emphasis on generic capabilities but are now incorporating them into study programmes. Despite some exceptions, curricula that prioritise the acquisition of knowledge and skills continue to dominate (Dall'Alba & Barnacle 2007, p. 680). What could make a difference is an ontologically oriented approach to education that emphasises learning beyond the individual mind and fosters educational approaches that integrate ways of knowing, acting, and being across various educational practices. In other words, a *revitalisation* of HE is crucial to address the concerns above; therefore, an ontological – reflexive – turn means a shift from focusing on knowledge *acquisition* and *transfer* to ways of *being* (ibid). Accordingly, this calls for a conceptualisation of competence that moves beyond predetermined knowledge, skills, and personal dispositions towards more dynamic, fluctuating ways of enabling and empowering learners in increasingly VUCA contexts.

All in all, the ontological turn in education has the potential to help us address the limitations of representationalism in teaching and learning, and to reframe the focus on measuring learning merely through learning outcomes (Zembylas, 2017). Leaning against Heidegger's view that "our problems in everyday life are fundamentally ontological, therefore the 'solution' has to be ontological too" (Zembylas, 2017, p. 1407), Zembylas suggests that ontological learning is more authentic to "our mode of being in the world [...], that of dwelling with and among things and others rather than the dominant epistemological approach of representationalism" (Zembylas, 2017, pp. 1407–1408).

1.2.2. Educational challenges in an uncertain world

The most disruptive challenges brought about by VUCA phenomena, particularly in the educational domain, are fostered by "big data, artificial intelligence, machine learning, blockchain, robots, digital automation and the explosion in the speed and connectivity of smart technologies" (Brown &

Duignan, 2021, p. 2) or in other words, the *fourth industrial revolution* – the revolution of technology and skills, which has devastating consequences to most of the industries in the world (World Economic Forum, 2016). In turn, these global challenges foster the unpredictability of what learners may need to be able to do in the future (Markauskaite et al., 2022) as well as the rapidly changing understanding of what kind of knowledge is necessary for daily life (World Economic Forum, 2020). On a global scale, UNESCO has been concerned with this for over thirty years, when it began the implementation of the International Work Programme on Education, Public Awareness and Training for Sustainability (launched by the United Nations Commission for Sustainable Development in 1996), which articulated the *new concept of education for a sustainable future*. This resulted in a partnership with the aforementioned French philosopher Morin and his seven principles[†] on the fundamentals of education for the future, rooted in what he referred to as *complex thought*. Of Morin's (1999) seven principles, the fifth necessitates the need for education to be able to confront uncertainties:

> "We have acquired many certainties through science, but 20th-century science has also revealed many areas of uncertainty. Education should include the study of uncertainties that have emerged in the physical sciences, the sciences of biological evolution, and the historical sciences. We should teach strategic principles for dealing with chance, the unexpected and uncertain, and ways to modify these strategies in response to continuing acquisition of new information. We should learn to navigate on a sea of uncertainties, sailing in and around the islands of certainty".
>
> (Morin, 1999, pp. 10–11)

However, as already reiterated throughout this study so far, the focus in our educational system, speaking more broadly, and learning practices more specifically, today is often based on linear approaches which privilege the *bright* dimensions of HE – "coherent logical progression, consistency and criteria-based options for assessment and evaluation of student competences and learning outcomes" (Bengtsen & Barnett, 2017, p. 115). Even though these approaches should not be considered essentially wrong, they should be complemented by shedding light on the *darker* dimensions of education – the ones that are not as easily measurable and determinative (ibid), i.e. not as

[†] Only one principle is discussed here, as not all are directly relevant to the focus of this study.

easily representational. This brings me to the concluding section of this chapter, which sheds light on the representational as well as non-representational aspects of education. Addressing representationalism is crucial, as this study will further argue that current conceptualisations of competence are to a large extent rooted in representationalism, in that they are based on representations of knowledge, skills, and personal dispositions, as discussed in Chapter 2. In doing so, such conceptualisations risk undermining the complexity of competence and its potential to encompass uncertainty – an endeavour this study addresses by eventually modelling translator competence as a CAS.

1.2.3. From representation to non-representation in education

Over the past decades, educational sciences have been paying increasing attention to various approaches rooted in non-representational theories (NRT), for example, new materialism, posthumanism, performance theory, post-phenomenology, etc (Zembylas, 2017). These theories move beyond the traditional view in which, in our mind, meaning is sustained as a representation of what we encounter, but rather they focus on engaging directly with practices, events, and relations as they occur (ibid).

NRT sprouted back in the middle of 1990s in the context of social and cultural theory "claiming that it invents new ways of addressing the world's living, ongoing and performative achievements" understood to "constitute a collection of approaches that locate meaning in the 'manifold of actions and interactions' (Thrift 1996, p. 6) rather than in discourse, ideology and *re*presentation" (Zembylas, p. 394). According to Zembylas, the emergence of NRT to a certain extent took place in response to the limitations – both ontological and epistemological – of social constructivism, preoccupied with representation, particularly that of a cultural representation (Anderson & Harrison, 2010, referenced by Zembylas 2017, p. 394).

Furthermore, Osberg and Biesta (2007) suggest that in today's world, there is an overall tendency in epistemology to move away from representational approaches that characterise knowledge as passive and rigid and reframe knowledge as something dynamic and resilient. Osberg and Biesta lean against Taylor's notion of *modern representational epistemology*, which defines knowledge as a "correct representation of an independent reality" (Taylor 1995, referenced by Osberg & Biesta 2007, p. 5). This approach relies on a binary relation between the representation itself and what it stands for. In a similar vein to Derrida's deconstruction discussed earlier, Osberg and Biesta (2007) argue that in representational or binary models of signification, the

signifier is understood as inherently empty, deriving its meaning solely from a preexisting presence that it represents. As the signifier does not generate meaning independently but merely represents what is already given, its value is assessed according to the degree of accuracy with which it corresponds to that prior presence (p. 5). Extending this logic, this study argues that if competence is conceptualised on the basis of what is presently known – for example, current industry needs – such a conceptualisation lacks the capacity to "generate meaning independently". In other words, such a conceptualisation of competence has limited potential to inform study curricula that foster learners capable of navigating future and uncertain contexts, as it ultimately contradicts the non-representational nature of uncertainty.

All in all, leaning on this explanation of representationalism, I suggest that in the educational domain today, *competence* is conceptualised in this exact manner, i.e. it is defined as a representation of various aspects of reality that consists of diverse signifying elements (most often, as we will see, knowledge, skills, and, to a limited extent, values and attitudes), which can be assessed and recognised as possessed by the learner. In this way, during assessments or upon graduation, we look for these representations as proof that the learner has yielded these elements, which we believe align with our present reality, i.e., the world we currently live in. The question remains: what signifying elements can we resort to when we are not certain of the truth or reality, or the world? How can we represent something that is not yet present, something we are uncertain of? And, above all, if uncertainty does not yield to representation, how does this affect our ways of conceptualising knowledge and the overall educational task?

To this end, the study adopts a non-representational approach rooted in complexity theory, which, together with narrative foresight, serves as a methodological foundation for this study and is introduced in Chapter 4. Before turning to this framework, however, the primary object of research – the concept of translator competence – and competence more broadly – must be established. As already mentioned before, the following chapter presents an in-depth analysis of scholarly literature and policy documents, highlighting the predominantly rigid, componential, and representational approaches that currently prevail. This analysis provides the basis for subsequently developing an alternative, more dynamic and fluid conceptualisation of translator competence as a CAS.

2. COMPETENCE DEVELOPMENT IN THE ERA OF UNCERTAINTY

2.1. Competence-based education as the guiding principle in the European Higher Education Area

The European HE policy to a great extent relies on two visionary pillars, one erected by the European Commission with the Treaty of Maastricht in 1992, and the other by the Bologna Process, which dates back to the Sorbonne Declaration of 1998, and the Bologna Declaration of 1999, both of which fostered the establishment of the European Higher Education Area (EHEA) (Davies, 2017). Ever since, curricula of various professions have shifted towards the competence-based approach set within the parameters of the Bologna Process, or in other words, "the shift from teacher-centred training to student-centred learning, orchestrated by the Bologna Process; and the determination to integrate the EU labour market following the financial crisis of 2008" (ibid, p. 2). However, what was initially meant to be a voluntary action eventually became a commitment serving certain future goals of the European educational and vocational systems, with its own implications for the countries involved (Želvys & Akzholova, 2016).

Corbett (2005) offers an exhaustive overview of the *Europeanisation* of HE throughout the continent. On the one hand, this Europeanisation has become evident from the opportunistic attempt to provide vocational training for migrant workers, as well as offer education for their children, which had previously attracted the political interest of Community member states. With the Action Programme on education of 1976, the grounds for educational collaboration were with the "initiatives including action for the education of migrant workers' children, school leavers and the young unemployed and for higher education and the promotion of languages" (Corbett, 2005, p. 11). Over the next few decades, various transformations within the Community followed, including the Single European Act aimed at creating a single European market, which consequently led to the implementation of various educational programmes throughout the Community, such as *Commett*, *Lingua*, *Tempus*, and *Erasmus.* The latter stimulated significant activity concerning university policy (ibid). On the other hand, from the perspective of HE rather than that of the educational policy, a different version of the story emerges, claiming that already in Messina back in 1955, the governments of the six countries, who had pooled resources within the European Coal and Steel Community, "embarked on a still bolder experiment to unite Europe"

and "at this same meeting a proposal was made that the Community should create a European University – the starting point of the European Community's higher education policy history" (Corbett, 2005, p. 25). Originally referred to as a means for the European Community to emerge as a *Community of the Intelligence* and serve as a foundation for European research, the European University was envisioned as *a model for innovation* and a means to catch up with the US (Müller-Armack, 1971, referenced by Corbett, 2005, p. 27). As of today, given the transformations which took place along this gravel road stretching over half a century, a new concept of HE curriculum has been adopted, which focuses not so much on knowledge – or what previously was sought after as the Community of the Intelligence – but on a curriculum model rooted in market-oriented, instrumental competences and skills that are grounded in the assumption that they directly support innovation and economic activity, thereby strengthening Europe's global competitiveness.

This neoliberal turn with the "fetishisation of the market" at its core has created its own pressures for the universities, for example, reducing their responsiveness and efficiency and fostering universities' orientation towards research quantity rather than teaching quality, and as "the market fetish in education policy will pass, nothing is permanent, but what kind of education system it will leave behind is unresolved" (Marginson, 2004, p. 47). Although a more explicit insight into this aspect is beyond the scope of this doctoral research, it will be addressed later in this study, as it explores the major educational task of the university.

Therefore, it should be made explicit that the choice of **competence as the major research object** in this study has been shaped by the initial controversy over the major goals of HE in Europe (and globally), which are oriented towards industry demands. Being well aware of the critique of the notion of competence, which is almost inextricably linked to this market-oriented context, I nonetheless opted to investigate its conceptualisation for several reasons. Firstly, as of today, the competence-based approach remains fundamental in HE (and education more generally) throughout the EU and beyond, so in HE research, there is hardly any way around but to explore *the elephant in the room*. Secondly, approaches underlying the holistic aspect of competence (e.g., Rychen, 2004; Vitello et al., 2021, etc) suggest there is plenty of room to contribute to this ongoing discussion on conceptualising what competence *actually* is, or could be, as the discussion will last as long as either "the market fetish in education policy will pass" (Marginson, 2004, p. 47) and the concept will be revoked altogether, or the competence-based approach will establish itself for the time being. In the latter case, it is

particularly significant to understand whether and how the conceptualisation of competence today aligns with a VUCA world. For the most part, this doctoral study aims to explore the three different realities of what we **believe competence is**, **how we define it**, and **how it actually manifests itself**, as seen from the stakeholders' perspective in the empirical part of this study.

2.2. Competence and its relation to learning outcomes

One of the means to implement the Bologna Process in HE throughout Europe and beyond (today, EHEA comprises 49 countries, two of which have been suspended) was *Tuning Educational Structures in Europe.* This change programme began as a pilot project (its two phases spanned 2001–2002 and 2003–2004) intended for HE institutions within the framework of the Socrates programme, supported by the European Commission (ehea.info). It evolved into a process or an approach aimed at tuning the educational structures in Europe that embraces the development of common reference points for university degree programmes, including easily readable and comparable degrees, ECTS credit transfer, the adoption of the degree cycle systems (initially two, eventually three – Bachelor, Master's, Doctor), etc. The Tuning project emphasised learning outcomes and competences, in this way positioning the latter at the centre of the educational process: "Competences (both subject-related and generic) should be central when designing educational programmes" (González & Wagenaar, 2003, p. 24).

In the Tuning project, competences serve as a means to describe learning outcomes, or in other words, learning outcomes are defined as "the set of competences including knowledge, understanding and skills a learner is expected to know/understand/demonstrate after completion of a process of learning – short or long" (González & Wagenaar, 2003, p. 24). On the one hand, flexibility and autonomy regarding curricula construction across the universities have been highlighted; on the other hand, the underlying idea behind formulating the level indicators, tied to competences and learning outcomes, which would be common for all universities, is to consolidate learning programmes with final *qualifications*. Whether the final qualifications are the primary goals of the university is the question yet to be addressed in a separate section.

A crucial aspect of the Tuning project is to exploit learning outcomes and competences as a means to examine university degrees. For this, competences are divided into two types: generic (systemic, interpersonal, and instrumental) and subject-specific. The Tuning project assumes that none of its agreements can be carved in stone, but rather has to continuously develop in the constantly

changing society, thus recognising a certain kind of *dynamism* within the provision of these common reference points (González & Wagenaar, 2003). The question remains whether this dynamism is actually oriented towards the ever-changing society or the rapidly changing market and its needs.

2.3. The concept of competence in policy documents in Europe

Within the EHEA, the Tuning project is certainly not the only reference point for the definition of competence, as there are various policy documents which must be taken into account whilst exploring its definition, including:

- Bologna Communiqués (from Prague in 2001 up to Tirana in 2024);
- Qualifications Framework of the EHEA (2005, 2018);
- European Qualifications Framework (EQF) Recommendation (2008, 2017);
- Council Recommendation on Key Competences for Lifelong Learning (2006, 2018);
- Council Recommendation on a European Approach to Micro-credentials for Lifelong Learning and Employability (2022);
- European Skills Agenda (2020);
- European Union of Skills (2025).

It should be noted that the recent EU Artificial Intelligence Act (EU Regulation 2024/1689) is also relevant to this study to a certain extent, as it relates to the use of AI-related machine translation, which might have a significant effect on translator competence development. This is referred to in the later chapters of this study.

Bologna Communiqués. In short, having analysed these communiqués, two major aspects have emerged: (1) they provide no definition of competence, and (2) they increasingly emphasise employability. For example, the Yerevan Communiqué (2015) states that study programmes are meant to foster students' competences "that can best satisfy personal aspirations and societal needs" (p. 2), and yet just a few lines below the Ministers of the 47 EHEA countries at the time shift to the "need to ensure that, at the end of each study cycle, graduates possess competences suitable for entry into the labour market which also enable them to develop the new competences they may need for their employability later […] throughout their working lives" (ibid). This leap from *personal aspirations* and *societal needs* straight into the *entry into the labour market* and *employability* suggests that, from whichever way we look at it, the latter two are at the forefront of teaching and learning, and that employability is the major aspiration that a person has or society needs. A similar thread of thought is present in other communiqués as all of them –

from Prague (2001) to Tirana (2024) – yield a notable sense of repetition (Davies, 2017).

Qualifications Framework of the EHEA (2005, 2018). This framework is primarily concerned with learning outcomes and qualification descriptors rather than competence. Although the notion of competence is mentioned throughout the document, its actual definition is not provided. The document emphasises not so much the importance of the CBE, but rather the outcomes-based approach as one of the fundamental approaches of 21st-century education and a tool for curriculum design, by placing learning outcomes at the centre of the study process. According to the framework, learning outcomes are also significant for national qualifications and quality assurance, as well as internationally relevant recognition and transparency regarding the education gained. While learning outcomes are defined as "statements of what a learner is expected to know, understand and/or be able to do at the end of a period of learning" (p. 37), a footnote explicates that "the use of the verb 'do' in the definition used above underlines the aspect of competence or ability rather than the way in which this ability is demonstrated" (ibid). Therefore, presumably, the framework discloses that the underlying aspect of competence is that of *performativity*.

European Qualifications Framework (EQF) Recommendation (2008, 2017). Interestingly, in the recommendation on the establishment of the European Qualifications Framework for Lifelong Learning (2008), it is made explicit that "competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of "responsibility and autonomy" (p. 4). However, in the definition of *learning outcomes*, it is noted that "learning outcomes [are] defined in terms of knowledge, skills and competence" (ibid). The latter use seems ambiguous because competence is placed *next to* knowledge and skills, whereas the definition in the same document states that competence *means* the proven ability to apply knowledge, skills, etc. This confusing parallel use of knowledge, skills, *and* competences is very common in most of the EU-related policy documents. In the revised version of 2017, this ambiguous use has been revoked from the definitions section but remains in other parts of the Recommendation.

Key Competences for Lifelong Learning (2006, 2018). In this recommendation "competences are defined as a combination of knowledge, skills and attitudes, where, knowledge is composed of the facts and figures, concepts, ideas and theories which are already established and support the

understanding of a certain area or subject; skills are defined as the ability and capacity to carry out processes and use the existing knowledge to achieve results; attitudes describe the disposition and mind-sets to act or react to ideas, persons or situations" (European Commission, 2018, p. 7).

In addition, it is presumed that the development of key competences occurs throughout life in formal, non-formal, and informal ways of learning in diverse, community-related environments (for example, family, school, workplace, neighbourhood, etc.) (ibid). The key competences listed in this recommendation are as follows:

- Literacy competence
- Multilingual competence
- Mathematical competence and competence in science, technology and engineering
- Digital competence
- Personal, social and learning to learn competence
- Citizenship competence
- Entrepreneurship competence
- Cultural awareness and expression competence (European Commission, 2018, p. 7–8).

What is significant in this conceptualisation of competence is that it highlights the interconnected nature of all key competences by claiming that "aspects essential to one domain will support competence development in another" (ibid).

Recommendation on a European Approach to Micro-credentials for Lifelong Learning and Employability (2022). According to the recommendation, the recovery following the COVID-19 pandemic, together with the green and digital transitions, has "accelerated the pace of change in how we live, learn, and work" (Council of the European Union, 2022, p. 1). As new opportunities for lifelong upskilling and reskilling have become increasingly important, the recommendation seeks to address the perceived gap between labour-market demands and the formal education and training acquired by European citizens. Micro-credentials are therefore proposed as a means of certifying additional learning outcomes alongside traditional qualifications obtained during full degree programmes in initial education and training. They are defined as smaller units that can "help learners to develop or update their cultural, professional, and transversal skills and competences at various stages in their lives" (ibid, p. 3). As in previously mentioned policy documents, the recurring triad of knowledge, skills, and competences is employed throughout, reinforcing its ambiguous and often interchangeable use.

European Skills Agenda (2020) and European Union of Skills (2025). These two most recent documents suggest Europe's "paradigm-shift on skills"

(European Commission, 2020, p. 3), as if leaving the idealised notion of competence in the margins of the whole narrative. Major areas where competence is still kept in the big picture include the development of a European Competence Framework (Action 5), European Competence Framework on education for climate change, environmental issues, clean energy transition and sustainable development (Action 6), and fostering the systematic use of EntreComp: the European Entrepreneurship Competence Framework (Action 7) (European Commission, 2020). Otherwise, the notion of competence is scattered across both documents inconsistently. Interestingly, the Union of Skills uses the skills-and-competences conundrum, only in the opposite manner: "Skills should be understood in a broad sense through the entire communication. It encompasses skills, knowledge and competences for life, well beyond the skills needed for the labour market" (European Commission, 2025, p. 1).

There is also a number of other frameworks and handbooks which, to a certain extent, refer to competence, such as DigComp (2013, 2016), LifeComp (2020), GreenComp (2022), European Skills/Competences, Qualifications and Occupations (ESCO) (2024), just to name a few. Interestingly, the latter is rather straightforward about the synonymous use of *skills* and *competences*:

"While sometimes used as synonyms, the scope of the terms "skill" and "competence" can be distinguished. "Skill" refers to the use of methods or instruments in a particular setting and in relation to defined tasks. "Competence" is broader and refers to the ability of a person, facing new situations and unforeseen challenges, to use and apply knowledge and skills in an independent and self-directed way. However, there is no distinction between skills and competences recorded in the ESCO skills pillar" (European Commission, 2020, p. 20).

These frameworks do not provide more detailed insights into what has already been discussed, having reviewed the aforementioned documents. To sum up, the EU-relevant policy documents do not provide a stable definition of competence; the term is used inconsistently – skills are defined as a constituent element of competence (or even vice versa), but often both *skills* and *competences* are used next to each other. Last but not least, these documents tend to highlight aspects of employability and performativity as if taking for granted that these coincide with the major educational goals of HE institutions.

2.4. The concept of competence from the global perspective

There is also a body of international taxonomies and frameworks beyond Europe which provide various definitions of competence, including OECD's

DeSeCo project (1998 and its later revisions, see below) as well as 2030 Learning Compass (2024), UNESCO's IBE Competency-based Curriculum Studies (2017) as well as Global Convention on the Recognition of Qualifications Concerning Higher Education (2019), UNESCO's AI Competency Framework for Students (2024) and Teachers (2024), the World Economic Forum's Building a Common Language for Skills at Work: A Global Taxonomy (2021), 4D Competencies Framework (2024) by the Centre for Curriculum Redesign, etc.

A significant attempt to define competence was undertaken by OECD in 1998, when it initiated the project *Definition and Selection of Competencies: Theoretical and Conceptual Foundations* (DeSeCo), commissioning research to develop a conceptual framework. The framework intended to define universal key competencies most relevant for OECD countries, as well as develop guidelines for future work on their assessment internationally. The executive summary of the project provided the following definition, (2005), "a competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context" (p. 4). Key competencies promoted by the OECD are closely connected to the outcomes valued by both societies and individuals themselves. They must help members of society meet demands in various contexts and are key not only in terms of specialisation but also for the individual as such. The DeSeCo project suggests three categories for these key competences: using tools interactively, interacting in heterogeneous groups, and acting autonomously (ibid). On the one hand, the individual's ability to think and act reflectively is central to DeSeCo's notion of competence – it is regarded as a prerequisite for addressing change and adopting a critical stance when needed. On the other hand, the executive summary clearly states that the underlying approach towards the concept of competence is demand-led:

"Key competencies are not determined by arbitrary decisions about what personal qualities and cognitive skills are desirable, but by careful consideration of the psychosocial prerequisites for a successful life and a well-functioning society. What demands does today's society place on its citizens? The answer needs to be rooted in a coherent concept of what constitutes key competencies. This demand-led approach asks what individuals need in order to function well in society as they find it. What competencies do they need to find and to hold down a job? What kind of adaptive qualities are required to cope with changing technology?" (OECD, 2005, p. 6).

In addition, the project outlines both individual (including gainful employment, political participation, social networks, etc.) and collective

(economic productivity, democratic processes, social cohesion, ecological sustainability, etc.) goals that are to be achieved while acquiring key competences (ibid).

In 2015, the OECD launched a subsequent project – *Future of Education and Skills 2030 (Education 2030)*, which is currently better known as the *OECD Learning Compass 2030*. The major goal of this project is to help countries adjust their educational systems for the future. As a result, one of the underlying shifts that the OECD has taken with this project is the shift from *key competencies* to *transformative competencies*. During the first phase of the project, "a vision of education and a learning framework that sets out the types of competencies today's students need to thrive in and shape their futures" (OECD 2019, 8) was co-developed; meanwhile, the second phase from 2019 onwards, is aimed at addressing the "how" questions, i.e., how to build educational environments which could foster the acquisition of these competencies necessary for the future. It should be noted that in *Education 2030*, secondary education is regarded as a starting point; however, the importance of the development of transformative competences at all levels is recognised. The learning framework and its metaphor of a compass for learning and navigating the future are introduced in Figure 1.

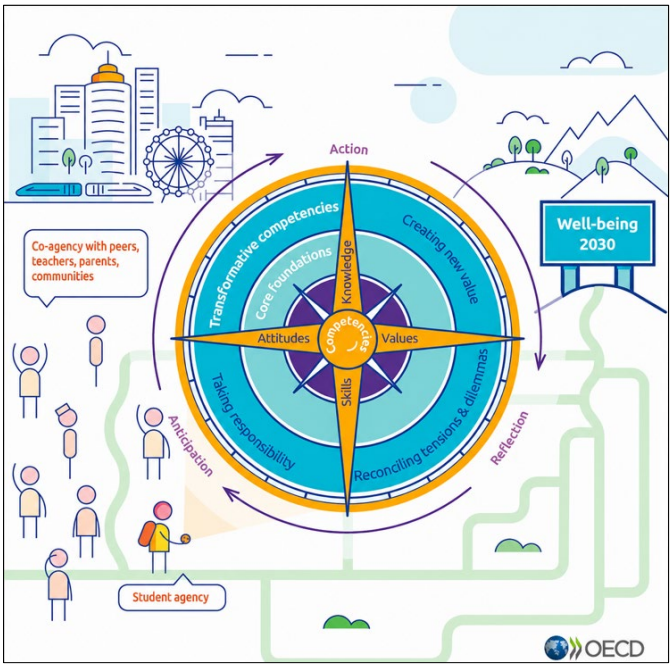

Figure 1. Visualisation of the OECD Learning Compass 2030 framework (adapted from OECD, 2019).

As seen in the picture, the OECD Learning Compass 2030 is a future-oriented educational framework that aligns with the vision of how learners need to navigate and orient themselves in a VUCA world. The metaphor of a compass here represents the student's need to find their own direction in unfamiliar contexts, rather than following instructions preset by the educators.

In UNESCO's IBE Competency-based Curriculum Studies (2017), competence is defined as "the developmental capacity to interactively mobilize and ethically use information, data, knowledge, skills, values, attitudes, and technology to engage effectively and act across diverse 21st-century contexts to attain individual, collective, and global good" (UNESCO IBE, 2017, p. 27). In addition, UNESCO's Global Convention on the Recognition of Qualifications Concerning Higher Education (2019) does not provide any definition of competence; however, it refers to *competencies* as constituent elements, next to knowledge, skills, and attitudes, within the definition of *lifelong learning*.

Meanwhile, UNESCO's AI Competency Framework for Students (2024) and Teachers (2024) are rather specific because they mainly focus on AI-related competences. On the one hand, they shed light on data indicating that there is no unanimous conceptualisation of AI *literacy*, *skills* and *competency* among different countries, and attempt to fill this gap. On the other hand, the core concept of competence (competency – in these frameworks) is not specifically defined in neither of the frameworks, except for a brief mention that "competency aspects stand for the interlinked key elements of knowledge, skills, values, and attitudes that teachers need to develop in order to integrate AI effectively and ethically into their teaching practices" (AI Competency Framework for Teachers, 2024, p. 21). Interestingly, the Framework for Teachers also mentions *competence*: "the framework recognises that competence development is a complex, context-dependent process that is neither hierarchical nor linear" (p. 21–22). In this way, it represents a very accurate aspect of competence development; however, this interchangeable use of "competence" and "competency" seems inconsistent.

Furthermore, the World Economic Forum has attempted to build a common language for *skills at work* and proposed A Global Taxonomy (2021), where "competency [is] a collection of skills, knowledge, attitudes and abilities that enable an individual to perform job roles" (p. 7) that was later reiterated in the documents and reports which followed.

An interesting conceptualisation of competence is proposed in the 4D Competencies Framework (2024), developed by the Centre for Curriculum Redesign (a global non-profit organisation, headquartered in the US). The four-dimensional approach here refers to the idea that the dimensions of *skills*,

character, and *meta-learning* need to be infused with the underlying dimension of *knowledge*, and that this infusion is the key principle in the so-called 4D education. Between the lines, one could even expect that from this perspective, competence (or competency as in the original framework) could be defined as a four-dimensional entity, which is very promising for the context of complexity modelling. However, the problem is that the framework suggests this infusion should take place by *breaking down* these three dimensions into sets of *competencies* and *sub-competencies* – a common practice in competence conceptualisation, which will later be addressed in the chapter on the complexity of competence.

The following section examines a range of terms that are often used interchangeably with the concept of competence.

2.5. Synonymous use of the notion of competence

The synonymous use of *skills* and *competences* has already been made explicit while reviewing EU, as well as global, documents and frameworks. While this may indicate inconsistency or a lack of shared understanding in *terminology*, it simultaneously reveals a more fundamental absence of consensus about the *concept* of competence itself. On the one hand, at its core, competence refers to a person's ability to *do* something, which, in turn, emphasises the skills that are essential for performing competently. However, based on European and international documents, as well as research on competence development, skills are only one part of competence; meanwhile, competence involves the appropriate performance of context-specific tasks through the integration of relevant skills, knowledge, and psychological resources (Vitello et al., 2021). Or even more precisely, "the term 'competence' (a holistic concept) designates a complex action system encompassing knowledge, cognitive skills, attitudes and other non-cognitive components, while the term 'skill' is used to designate an ability to perform motor and/or cognitive acts" (Rychen, 2004, p. 321). And yet, the term *skills* has been criticised as being too narrow to account for the unpredictable demands that individuals may face in the future (Markauskaite et al., 2022).

Furthermore, there is frequent confusion in the use of the terms *competence* and *competency*. The notion of competence is a rather holistic term, which embraces the broad qualities of the individual in relation to a particular standard; meanwhile, the meaning of competency is restricted to particular elements which are necessary to perform a certain activity or task (Hyland, 1994). Surprisingly, a completely opposite conceptualisation can be found in UNESCO's IBE series on Curriculum, Learning, and Assessment:

> "To establish a strong framework that is lucid and comprehensive, the first step is to clearly define the constituents of knowledge, skills, and attitudes so that one can comprehend their interrelatedness. Secondly, one needs to elaborate a series of constructs (in other words, a defined number of competences) that contain these elements in a fluid continuity of experience and learning. The term "competence" or "competency" relates to such a construct, hence the growing field of competence-based education. The two terms are nuanced in meaning: *a competence is specifically focused on an episteme, while competency tends to be broader*"
>
> (Hughes, 2025, p. 87).

This confusion of the usage of the two terms is also evident from the inconsistent use of competences and competencies throughout both policy documents and research literature.

In addition, several other terms have been used in the literature to refer to a range of concepts that capture what an individual should know and be able to perform successfully within society. For example, *literacy*, which, in a way, refers to the continuous aspect of competence. Rychen shares an interesting standpoint that the evaluation of one's literacy "is not a matter of assessing whether an individual does or does not possess it, but rather of determining where along a continuum of competence an individual's performance falls" (Rychen, 2004, p. 324). The notion of literacy, initially used in contexts of the literate and illiterate, has expanded over the last few decades, emphasising *social practices* rather than skills in a specific domain (Street, 1985), and is now often used in plural forms, such as *literacies* and *multiliteracies*. The latter use of this broad and multi-modal view of literacy has been, to a great extent, adopted in educational policy documents by OECD, UNESCO, as well as EU institutions. It has been particularly important in technology-oriented contexts, such as ICT literacy, digital literacy, and AI literacy. In addition, there is a notion of *capacity* or *capability*, which largely describes the human qualities, as well as potential, that enable the individual to act and attain specific outcomes. Therefore, the emphasis here shifts from "demonstrated behaviours to the potential, dispositions and opportunities within one's reach to pursue specific values and outcomes" (Markauskaite et al., 2022, p. 2).

2.6. Competence for the future and uncertainty

Having looked through various conceptualisations of competence, the question remains: to what extent can competences be as specifically conceptualised in the context of uncertainty and the future? To a certain extent, this doctoral study will attempt to answer that based on the empirical data of translator education, but first, a brief and more general outlook on the topic sets the context for this thesis.

From a historical perspective, in the preindustrial times of the labour society, the primary educational goal was to provide the individual with specific knowledge of a usually narrow domain to be able to perform certain tasks. Industrialisation brought about the so-called practice society and a shift in the notion of performativity, where the growing significance of skills and capabilities became key. In the times of the Fourth Industrial Revolution, or the times of the information society, due to the increasing importance of competence development, particularly in relation to technological-digital breakthroughs, global as well as European organisations have been putting great effort into defining what competences are fundamental in contexts of uncertainty and the future.

One of the most common notions is that of *key competences* (European Parliament and Council of the European Union, 2006; European Council 2018), which refers to a set of competences that individuals need for personal fulfilment, social inclusion, employment, etc., for example:

> "Nowadays, competence requirements have changed with more jobs being subject to automation, technologies playing a bigger role in all areas of work and life, and entrepreneurial, social and civic competences becoming more relevant in order to ensure resilience and ability to adapt to change".
>
> (Council Recommendation on Key Competences for Lifelong Learning, 2018, p. 1)

In a similar vein, in UNESCO's IBE series on Curriculum, Learning, and Assessment, Hughes (2025) defines seven *global competences* which form a foundational framework for curriculum development and are expected to remain unchanged for the time being. These competences are clustered from interim, context-specific, modulable sub-competences:

> "*Lifelong learning*: learning how to learn, curiosity, creativity, critical thinking, communication skills, problem solving, reflection, and innovation.

> *Self-agency*: initiative, drive/motivation, endurance/grit/resilience, responsibility, entrepreneurship, accountability, self-management, exercising rights and responsibilities, self-value.
> *Interactively using diverse tools and resources*: effective and efficient use of resources, responsible consumption, interfacing with tools.
> *Interacting with others*: teamwork, collaboration, negotiation, leadership, followership, conflict management, respect for others.
> *Interacting with the world*: balancing rights with responsibilities, balancing freedom with respect, balancing power with restraint, being local and global, being environmental custodians, having global awareness.
> *Multi-literateness*: reading and writing, numeracy, digital literacy, data literacy, technological literacy, coding, media literacy, financial literacy, cultural literacy, health literacy.
> *Transdisciplinarity*: mastery within and across STEM (sciences, technology, engineering, mathematics), the arts, the humanities, the social sciences, religions, languages, and vocations".
>
> (Hughes, 2025, p. 89)

Other similar notions of competences for uncertain and future contexts adopted in policy and research literature include *21st-century skills*, *transversal skills*, *soft competences*, *future-oriented skills*, and the like. In most cases, these competences emphasise the individual's capacity to develop resilience and adaptability in conditions of uncertainty. However, uncertainty remains outside the notion of competence itself, which, I presume, is one of the underlying limitations to substantially conceptualise competence, in Barnett's (2012) terms, *for* and *with* uncertainty.

2.7. A critical perspective on competence-based education and the neoliberal debate

Before proceeding to elaborate on competence development in a particular domain – that of translator education – I would like to conclude this chapter with some insights based on a somewhat critical perspective on various conceptualisations of competence and the CBE agenda.

While competence is often framed in policy and research as a set of performative knowledge and skills aligned with employability and market needs, the mission of HE should extend beyond merely economic objectives, calling for a broader conceptualisation of competence. Appreciation of the intrinsic value of conceptual knowledge, which has been the traditional viewpoint

in HE for centuries, over the last few decades has been increasingly undermined by outcome-based policies (Wheelahan, 2010). Paradoxically, the concept of competence, which, according to critics, to a large extent is rooted in economic discourse and lacks a pedagogical tradition (Naranjo, 2022), has become the fundamental concept in HE, as well as education more generally, throughout Europe and beyond. As Petkutė (2022) notes, many scholars (Slaughter & Rhoades, 2004; Lorenz, 2010; Ward, 2012; Rider et al., 2013; Muller & Young, 2014) argue that recent changes in HE represent a profound and unprecedented shift, rather than a continuation of past developments. Some even characterise the current era as a *post-academic university* (Bauman & Donskis, 2016). This transformation signifies a profound change in knowledge production as well as challenges the traditional role of universities in society.

Additionally, it is no coincidence that interest in measuring educational outcomes has grown significantly over the past 30–40 years, during which the Bologna Process and the Tuning project, with their CBE agenda, accelerated. One of the underlying implications it has brought upon us is *valuing what we can measure rather than measuring what we value* (Biesta, 2009). Biesta argues that the underlying function of education in today's world is that of *qualification*, which to a great extent is economy-oriented, i.e., education is a means to prepare the future workforce, and consequently contribute to economic growth and development. He also explicitly calls for an ongoing discussion of what constitutes good education, which today is predominantly estimated based on the criterion of effectiveness of the educational processes that are aimed at bringing about specific learning outcomes, regardless of whether these outcomes are desirable: "Sometimes educational strategies that are not effective, for example because they provide opportunities for students to explore their own ways of thinking, doing and being, can be more desirable than those that effectively proceed towards a pre-specified end" (ibid, p. 3).

This critical stance should not be misunderstood as a proposition that the overall CBE approach in HE is flawed and should be revoked. It rather implies that, behind the multiple ways of conceptualising competence as seen in the documents and research literature, there are diverse perspectives and, most likely, agendas that have implications for the implementation of CBE. To some extent, this doctoral study attempts **to reconcile these diverse perspectives by assuming they all speak about the complexity of competence, but in ways that decompose it**. Therefore, conceptualising competence as a complex system may provide a way forward in educational research and practice. To keep this study empirically-oriented, I proceed with the introduction of a specific domain – translator education – where competence development in a VUCA world provides a particularly relevant angle.

3. COMPETENCE DEVELOPMENT IN TRANSLATOR EDUCATION

3.1. Why translator education and translator competence development?

I would like to open this chapter with Cook-Sather's (2006) concept of *education-as-translation*, which she uses to describe changes taking place in the fields of learning and teaching. Metaphorically, it implies that learning is a constant exchange of ideas between contexts, disciplines, and people, where both teachers and learners participate by translating themselves and being translated by others. On the one hand, this approach can be applied directly to translation as a way to cross language barriers; on the other hand, it extensively refers to the idea that education is a process of translation of oneself – "an ongoing process of making and re-making connections" (Cook-Sather, 2006, p. 37). Besides this metaphoric conceptualisation, the reasons behind the choice of translator education as the focus area and translator competence development as its major research object in this doctoral study are discussed in the following subchapters.

3.1.1. Top-down: uncertainty as an inherent part of the translator's job

Translation as a profession has always been subject to uncertainty. First and foremost, the so-called hermeneutic uncertainty, which is "an inherent part of the art of translation, and its consequences are ineluctable features of its products. [...] The notion of hermeneutic uncertainty can be applied both to how we understand the source text and to how we decide how to best translate it into the target language" (Wallaert, 2016, p. 168–169). In other words, translation activity is subject to codes and is always *probabilistic* (Frawley, 2000), as "translation stems from the fact that recodification is an uncertain act, and the uncertainty results from the inevitable structural mismatch of the codes" (p. 256). Or as Pym (2021) puts it, translators constantly face the challenge of indeterminism because they can never be certain about the meaning they provide in their translations, as the source text never fully determines the translation in the target language.

Another kind of uncertainty, inherent to the translator's profession, is the already-mentioned economic uncertainty. Not only is economic uncertainty present in the specifics of translation service provision and the changing nature of translators' tasks, but for decades it has been subject to automation fostered by technological breakthrough. This economic uncertainty, to a great extent rooted in technological developments in MT, evokes the kind of

uncertainty present in the translator's profession. This is fundamental uncertainty, when the creativity implied in the future cannot be deducted from present information (Dequech, 2000), and innovation is unpredictable and cannot be estimated in present calculus (Beckert, 2016).

In other words, translation, both as a discipline and a profession, has been shaped by technological developments since the Georgetown-IBM experiment in 1954, which was aimed at MT research. Thus, the first MT-related experiments, out of which natural language processing (NLP) eventually emerged, were attempted long before the actual technologies came into play. Unsurprisingly, ever since translation theorists and practitioners have been concerned with the implications this technological advancement will eventually have on translators' everyday tasks, and, respectively, the skills and capabilities necessary to fulfil them. As of today, based on the recent development of neural MT and large language models (LLMs)-based translation, the uncertainty regarding the future of translation as a profession is of significant concern among many translator educators and researchers.

3.1.2. Bottom-up: researcher's reflexive account

The particular interest in translator education and competence development has been substantiated by my personal professional context as well. I received my MA in translation studies at Vilnius University in 2021, highly motivated to continue the research I began at the time, eager to contribute to the advancement of translator education at the sight of a technological breakthrough. Initially, as a doctoral student, I intended to research post-editing competence development in the era of neural-based MT and its implications for translator education. I expected I had at least several years to study post-editing competence development in the context of technological uncertainty, but little did I know about the true nature of (un)certainty. Just a year later, in November 2022, the launch of ChatGPT and the emergence of LLM-based MT became an eye-opening experience of what, in Prigogine's (1997) words, was *the end of certainty* within my doctoral research. It equipped me with the understanding that both – technological uncertainty and post-editing competence – make up only the tip of an iceberg, and to approach the underlying complexities of translator competence development in the context of recent technological advancements, I needed to critically examine the fundamental educational challenges inherent in the era of uncertainty. Consequently, the focus of this doctoral research on *uncertainty* related to technological advancements and the respective educational challenges has expanded to encompass various other kinds of

uncertainty, particularly that of the *future*. In this research, a range of theoretical and methodological choices have been made as the notion of *time*, particularly the dimension of the *future*, emerged as foundational for exploring HE in the context of uncertainty. On the one hand, the future has always been uncertain and inseparable from change, but what distinguishes the (post-)modern world we live in today "is not change per se but its character, its intensity, its felt impact" (Barnett, 2004, p. 248), and this kind of change within a lifetime of a single human being is unprecedented (ibid). Therefore, it is worth noting that, to a large extent, my translation-related background has influenced the scope of this doctoral study.

However, from the outset, this thesis was intended as a data-driven study, which necessitates narrowing its scope from a solely theoretical research of competence development in the VUCA world to a particular area of interest, thus enabling the practical implementation of data collection and analysis.

3.1.3. Translator education and the ontological turn

From the perspective of educational sciences, translator education represents an intrinsically engaging domain in its own right, which has undergone various transformations. For a long time, translator education was largely *apedagogical*, i.e., students of translation study programmes learn best by simply translating (Kelly, 2005). This approach was often limited to encouraging students to translate on sight without proper preparation in advance, which, as a result, led to translator trainers "offering their own 'correct' version as a model after public confirmation that the students' version lacked professional quality" (ibid, p. 43). In addition, for years, translator education has been focused on the *content* rather than on the pedagogy and ways of teaching, and even more rarely, translator educators have concerned themselves with *who* they teach, *who* learns and *why* (Washbourne & Liu, 2023, p. 177). Kelly (2005) gives a thorough overview, of how, over the years, translator education has been moving away from this traditional model by adopting various educational paradigms and diverse approaches to teaching, such as establishing teaching goals (Delisle, 1980, 1993), simulating professional practice (Nord, 1988, 1991), situational teaching (Vienne, 1994; Kiraly, 2000), task-based learning (Hurtado, 1999, González Davies, 2004), learner-centred and lifelong learning-oriented approaches (Robinson, 1997/2003), collaborative approach (Kiraly, 2000), etc. In addition, over the past twenty years, there has been a growing body of literature indicating the need for translator educators and researchers to understand the industry "in order to design training programmes which

prepare graduates for professional practice" (Schäffner, 2020, p. 76). On the one hand, it is exactly the industry that places the predominant focus on competences necessary to flourish in the translation market; on the other, according to Kelly (2005), Delisle already gave way towards this direction, which was later advocated by Hurtado (1999) and González Davies (2004), in their approach of learning outcomes being the foundation of translation studies curricular design.

Furthermore, in a VUCA world, yet another dimension of translator education emerges, which is very reminiscent of the *ontological turn* in HE referred to earlier in this thesis. During the last 20–30 years, translator educators' pedagogical approaches have been impacted by what Washbourne and Liu (2023) refer to as the learner ontology, known as a *threshold concept*, which can "transform one's perspective in a way that makes return to previous understandings near impossible, […] perhaps even to the point of a 'turn'" (p. 178). The concept of turns in translation studies was well elaborated by Snell-Hornby, who refers to major shifts in translation studies that can be conceptualised as *new paradigms* (an overall reorientation of the approach) or *shifting viewpoints* (a shift of emphasis within the existing paradigm). Snell-Hornby (2006) mapped how translation studies evolved through the following shifts and turns:

The Cultural turn (Bassnett, Lefevere) represents a move from purely linguistic models of translation towards cultural, ideological, and historical contexts.

The Functionalist shift (Vermeer, Reiß, Holz-Mänttäri) reorientated attention to the purpose (skopos) of translation and the communicative function of texts.

The Descriptive shift (Toury, Holmes, the Tel Aviv School) promotes the empirical, descriptive study of translations as they occur in real contexts rather than prescribing how translation should be done.

The Philosophical turn (influenced by Benjamin, Derrida, Ricoeur) is concerned with hermeneutics, ethics, and deconstruction – the nature of meaning, equivalence, and the act of interpretation.

The Sociological turn (influenced by Latour, Bourdieu, Pym), which focuses on the translator as a social agent, translation networks, institutions, and power relations in practice.

The Technological turn reflects the impact of digitalisation, computer-assisted translation (CAT), localisation, and globalisation.

The Globalisation turn addresses how global flows of communication and the dominance of English affect translation practices, policies, and the profession worldwide.

The Ideological or Political shift stems partly from the cultural turn and examines how translation constructs and contests ideologies, especially regarding postcolonialism, feminism, and minority languages.

The Ethical shift (influenced by Berman, Venuti) stresses ethics, responsibility, and visibility in translation.

The Multimodal shift conceptualises translation beyond text (audiovisual translation, stage translation, advertising, and visual media).

What marks the emergence of the ontological foundation in translation studies more broadly, and translator education more specifically, is the *centrality of the translator* (Halverson, referenced by Washbourne & Liu 2023, p. 182), who, in Kiraly's (2012) words, should become an independent thinker, problem-solver, and neo-professional who emerges during the transformational process of translator education. Washbourne and Liu (2023) argue that beyond measurable skills, the focus of education also encompasses the personal and professional development of the student. A translator's identity and capabilities are shaped by social and technological contexts, including collaborative workflows, networking, co-creative practices, and human–machine interactions. Therefore, what students of translation study programmes need to develop are "skills related to *learning to become a translator*, which are not the same as executive translation skills or competences acquired, and which are not coterminous with objective skills but with dispositions, conative factors, resiliency, adaptability, and the traits noted above. [...] Our courses and programmes can thus ask not only 'What have you learned?' and 'What can you do?' but 'Who are you becoming?'" (Washbourne & Liu 2023, p. 188).

This brings us to the point where the notions of a translator and translation should be addressed more explicitly.

3.2. The notions of translation and a translator

Just as translation can be viewed from various perspectives, such as the profession and the discipline of translation studies, the role and various responsibilities can also provide a different picture of what or who a translator is. The following section of this subchapter briefly explores the variety of translators' profiles in the contemporary world, followed by two sections dedicated to examining how translation is conceptualised from different perspectives.

3.2.1. Translator in the contemporary world

There is no single profile which could describe who or what a translator is; it is indeed a profession as colourful and diverse as no other, mainly due to the diversity of conditions which determine its practice. According to Gile (2009), translators perform a wide range of tasks, from highly creative work such as literary translation to technical and specialised translations, as well as practical texts like business letters, signage, or tourist information. Their responsibilities vary, sometimes carrying significant weight – such as translating political or legal texts – and at other times involving relatively minor tasks. Translators' educational backgrounds, social status, and earnings are equally diverse, reflecting the broad spectrum of roles and contexts in which translation work occurs. "In other words, although their activity is given the same name – "interpreting" or "translating" – intellectually, technically, socially, economically, it is far from homogeneous and perhaps these two words could be seen as hypernyms covering a rather wide range of distinct occupations" (Gile, 2009, p. 5).

In terms of the profession, translators' profiles are generally defined in professional codes of conduct. They are also shaped by specific context and conditions of translators' employment, for example, the professional profiles of translators working in translation departments of large institutions may differ substantially from those who work as freelancers. To a large extent, a translator's profile also depends on his or her subject domain (e.g. financial, legal, technical translation, non-specialised translation, etc.), its purpose (e.g. functional, gist, back translation, etc), mode of translation (e.g. interpreting, literary, audiovisual translation, localisation, etc.) and the like (Schäffner, 2020).

3.2.2. Variety of conceptualisations of translation

The role of translation across the globe is fundamental as long as people are willing to communicate, exchange their knowledge, and trade their goods. Most often, translation is assumed to be fundamental for communication across different cultures and languages; however, the need for intra-cultural communication should not be underestimated in a VUCA world of constant change. Cronin (2013) suggests that the times referred to as the era of information, with the ideal of the knowledge society at its core, should more accurately be termed as the age of translation. According to him, digital tools are highly versatile and capable of generating diverse outputs because words, images, and sounds can all be encoded into universal binary language. In this

way, the widespread transformations caused by information technology can be interpreted in terms of the convertibility that underlies translation:

> "It is precisely the metamorphic or transformative effects of the convertible which are at the heart of the digital revolution that makes translation the most appropriate standpoint from which to view critically what happens to languages, societies, and cultures under a regime of advanced convertibility, and to understanding what happens when that convertibility breaks down or reaches its limits".
>
> (Cronin, 2013, p. 3)

This view of translation as if moves beyond conventional approaches to translation, for example, *translation proper* (Jakobson 1959/2004; Gambier &Van Doorslaer, 2009, 2016) or the approach fostered by Nida (1964) – the key scholar in modern translation studies. According to him, there is an immense variety of types of translations that are determined by three basic factors: "(1) the nature of the message, (2) the purpose or purposes of the author and, by proxy, of the translator, and (3) the type of audience" (1964, p. 127). What is significant in Nida's theory of translation is that he suggests that the form of the message, together with the translator's ability to reproduce stylistic specialities of the text, is of secondary importance in translation. Nida refers to the *new focus* of translation – "the response of the receptor […] to the translated message" (Nida & Taber, 1982, p. 1), as well as highlights "a shift of emphasis from the formal to the dynamic dimension" of translation (1964, p. 130). Yet another widely renowned view of translation was proposed by Vermeer (1989/2000) through his Skopos theory, where translation is conceptualised through a rather functionalist, purpose-oriented dimension. These foundational theories of translation studies refer to the key principles of translation, such as meaning transfer, audience response, and purpose.

In the context of the Fourth Industrial Revolution, particularly with AI affecting most areas of our lives, including those previously assumed to be human-only, one of the underlying themes for various professions is the coexistence of humans and machines. This, in turn, urges the need to foster our awareness of what translation evolves into in the contemporary world and how this affects the notion of a translator (O'Hagan, 2020, Introduction). In a similar vein, Pym (2024) urges us to "rethink the whole field of multilingual communication from the bottom up" and keep "reinventing translation *as we know it*, in part through careful attention to new definitional maxims" (p. 23x). Therefore, ecological (Cronin, 2017), biosemiotic (Marais, 2019), translatorial (Koskinen, 2020), situated-cognitive (Risku, 2012), complexity-based (Kiraly, 2016; Marais & Meylaerts, 2022), and various other approaches

keep emerging, which are discussed in greater detail later in this chapter. However, before moving to emerging concepts in translation studies in the era of uncertainty and unconventional conceptualisations of translation, some other foundational aspects need to be addressed.

3.2.3. Different modes of translation

As a general principle, translation can be categorised into three main modes: written, oral, and audiovisual translation (Baker & Saldanha, 2019). These modes respectively cover literary, non-literary translation, as well as translation of religious or sacred texts; screen translation, including comics or cartoons, and web localisation; simultaneous and consecutive interpreting, liaison, chuchotage, as well as conference, business, community, and court interpreting, and sign language interpreting (Baker, 2013). However, from a much wider geographical as well as historical perspective, modes of translation can and should be moved far beyond these conventional understandings. Baker (2013) argues that the study of translation has often been narrowly defined, overlooking the full scope of the phenomenon. Practices such as translating African drum language into words reveal the diversity and pervasiveness of translation beyond conventional categories. Likewise, intralingual translation – conveying texts within the same language – has been historically significant, particularly in the Greek tradition, where translating ancient texts into the modern vernacular was a primary concern, challenging the common emphasis on interlingual translation in the literature (ibid).

It should be noted that in this doctoral study, I have adapted Gile's (2009) approach towards the definition of translation. He uses the notion of *Translation* as an umbrella term (with a capitalised T) to refer to both written translation and interpreting, since both translation and interpreting are often researched together in a broader sense. In a similar vein, throughout this doctoral study, by using the term *translation*, I do not make any specific distinction between the different modes of translation – written, oral, or audiovisual, but rather use it in a more generic sense (however, I refrain from using the capitalised T). On the one hand, making no distinction between different modes of translation may seem a limitation of this study; on the other hand, as the major object of this research is translator competence, this study has undertaken a more generalised outlook on the profession as a whole and did not consider the specifics of, for example, interpreting, literary translation, etc., even though it is likely that this distinction might emerge during the data collection. In addition, it would have been significant to consider competence development from the point of view of interpreters if *translation competence* (rather than *translator* competence) was the focus of this study – a distinction discussed in one of the sections of this chapter.

3.3. Translator competence as the goal of translator education

This subchapter explores translator competence which is the foundational aspect of translator education meant to equip translators for their future professional life (Schäffner, 2020). Briefly, it refers to the "knowledge and skills translators need to have in order to function in a professional manner" (Schäffner, 2020 p. 68), and that this competence "has often been described as complex and consisting of sub-competences" (ibid).

3.3.1. What constitutes translator competence?

In her *Handbook for Translator Trainers*, Kelly (2005) provides a rather concise overview of what constitutes translator competence as seen in the initial translation competence models (Wilss 1976; Delisle 1980; Roberts 1984; Nord 1988, 1991; Pym 1992; Gile 1995; Hurtado 1996; Hatim & Mason 1997; Campbell 1998; Neubert 2000; PACTE 2000). Overall, translator competence models provide a comprehensive understanding of how scholars conceptualise translator competence and what constitutes it. The most widely accepted of these models are presented in a separate section. Nevertheless, Kelly's conceptualisation of what constitutes translator competence is a substantial introduction to the subject, as she identifies the following elements as foundational to translator competence:

> *Communicative and textual competence* (active and passive skills in the languages involved, awareness of textuality and discourse, etc.).
> *Cultural and intercultural competence* (background knowledge as well as values, perceptions, behaviours of cultures involved, awareness of intercultural communication, etc.).
> *Subject area competence* (basic knowledge of subject areas).
> *Professional and instrumental competence* (use of documentary sources, IT tools, databases, management of basic professional activity, ethics, etc.).
> *Attitudinal or psycho-physiological competence* (self-concept, self-confidence, initiative, etc.).
> *Interpersonal competence* (ability to work with others, negotiation, leadership skills, etc.).
> *Strategic competence* (organisational and planning skills, problem identification, self-assessment, etc)
>
> (Kelly, 2005, p. 83–84).

Furthermore, it should be noted that translator competence is closely linked to the status of translators and the profession as a whole, which is of interest to both translation studies as an academic discipline and the translation industry. As a result, an agreement prevails that translator education programmes need to be translation industry-oriented (Schäffner, 2020) and, next to translator competence, various other concepts, which define the translator as a representative of the industry, exist, such as *expertise*, *performance*, and *professionalism* (Bolaños García-Escribano, 2025).

Undoubtedly, HE aims to equip students for their future professional roles and duties, and this in turn will hopefully ensure the future of the translator's profession (Schäffner, 2020; Gouadec, 2007). However, one cannot overlook the broader responsibility of academia to raise critically thinking, ethical, and responsible individuals who are adaptive, resilient, and oriented towards globally aware mindsets. Therefore, the question remains whether and how broader conceptualisations of competence might expand conventional approaches to students, mainly as future employees rather than individuals in their totality. This juxtaposition is closely linked to the difference between *translator* competence and *translation* competence, which is discussed in the following section.

3.3.2. Translator competence versus translation competence

Until 1995, when Kiraly introduced the notion of *translator* competence based on his then socio-constructivist approach to competence development, the accepted notion – as well as the respective competence models that stemmed from it – was that of *translation* competence (Wilss, 1976, 1989, 1992; Lörscher, 1991; Neubert, 1994). Several of the later models continued to follow the latter concept (Göpferich, 2009; PACTE, 2003, 2009, 2011, 2017), whereas more recent ones have adopted the notion of *translator competence* (Kelly, 2005; EMT, 2009, 2017, 2022; Schäffner & Adab, 2020; Kiraly, 2015).

Shifting the focus from translation to the translator whilst conceptualising this competence places the fundamental emphasis on the "complex nature of the professional translator's task and nonlinguistic skills that are required" (Kiraly, 1995, p. 16). The distinction here lies in the idea that *translation* competence refers to specific translators' skills, which enable them to provide an appropriate target text based on a source text in another language. Meanwhile, translator competence "is not built up bit by bit through the accreation of knowledge but creates itself through the translator's embodied involvement (habitus) in actual translation experiences" (Kiraly, 2013, p. 203).

In a similar vein, Kelly (2005) suggests that even though theorists and practitioners in translation studies have come to some level of agreement on some of the sub-competences of translation/translator competence (e.g. linguistic knowledge), immense conceptual and terminological variations remain, because "indeed, different authors have used the concept in these different ways: some in an attempt to describe the actual translation process as an expert activity from a cognitive perspective, whilst others have used the term from an educational point of view" (Kelly, 2005, p. 82). Interestingly, in the latest version of the EMT Translator Competence Framework (2022), both of the concepts are exploited as complementary. On the one hand, the EMT framework emphasises the role of the translator in today's world, including knowledge and skills in service provision, technology, and interpersonal skills, among others. On the other hand, translation competence, as, in Kelly's words, indicative of the translator's ability to master the translation process as an expert activity, remains a standalone component within the broader concept of translator competence.

The next section outlines models that, based on their authors' respective approaches, refer to both translator competence and translation competence.

3.3.3. Translator and translation competence models

As already mentioned, translators' responsibilities and roles are reflected in diverse competence models, which have been emerging ever since the 1980s, together with the development of translation studies and the growing interest in translator education. Although many of the initial models referred to translation competence, conceptualising it as a sum of linguistic knowledge and skills, many of these models, particularly the later ones, highlight the complex nature of translator competence (Robert et al., 2017). According to Pym (2021), the predecessors of what eventually was referred to as translation and translator competence, initially were defined as *skills* or *proficiency* (Wilss, 1976, 1989, 1992), which later became known as *strategies* (Lörscher, 1991), *expertise* (Risku, 1998), *performance ability* (Schäffner & Adab, 2000), etc. In 1994, Neubert attempted to define translation competence on a multi-componential basis, combining communicative (transferable) skills with subject-specific competence and linguistic skills (Pym, 2021). This multi-componential manner of translation and translator competence modelling has prevailed in translation studies and translator education research over the past two decades: "The multi-componential models also have their detractors. One of the earliest was Pym (2003), who regards the expanding panoply of competences in multicomponent models as

institutionally driven and conceptually flawed, in that the models will always lag behind market demands" (Massey, 2019, p. 1).

A widely renowned multi-componential model of translation competence has been developed by the PACTE group (Process of Acquisition of Translation Competence and Evaluation), founded by Hurtado Albir at Universitat Autònoma de Barcelona, and was initially published in 2000 (see Figure 2).

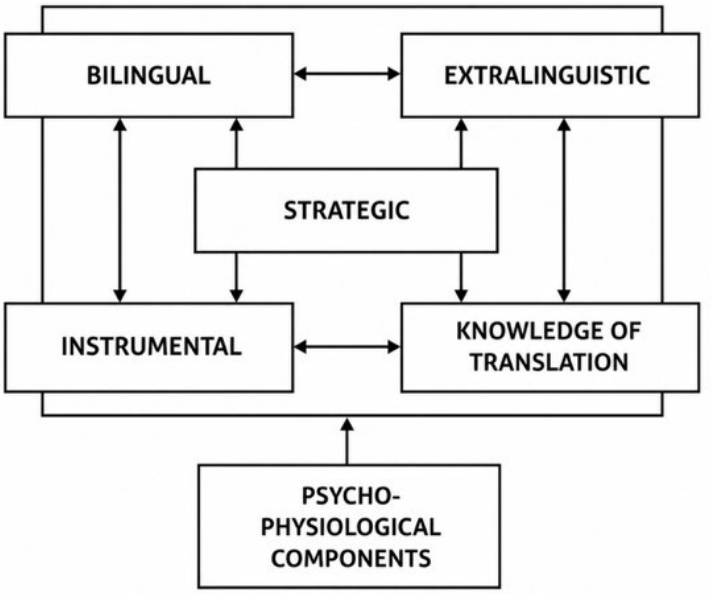

Figure 2. PACTE model of translation competence (adapted from PACTE, 2011, p. 319).

The PACTE model proposes that translation competence is comprised of various sub-competences: bilingual, extra-linguistic, knowledge about translation, instrumental, strategic, and psychophysiological. Over the years, the model was moderately adjusted, with modified versions published in 2003 and 2009, as well as empirically validated in 2011–2017.

Another example of the multi-componential translation competence models is proposed by Göpferich (2009) (see Figure 3).

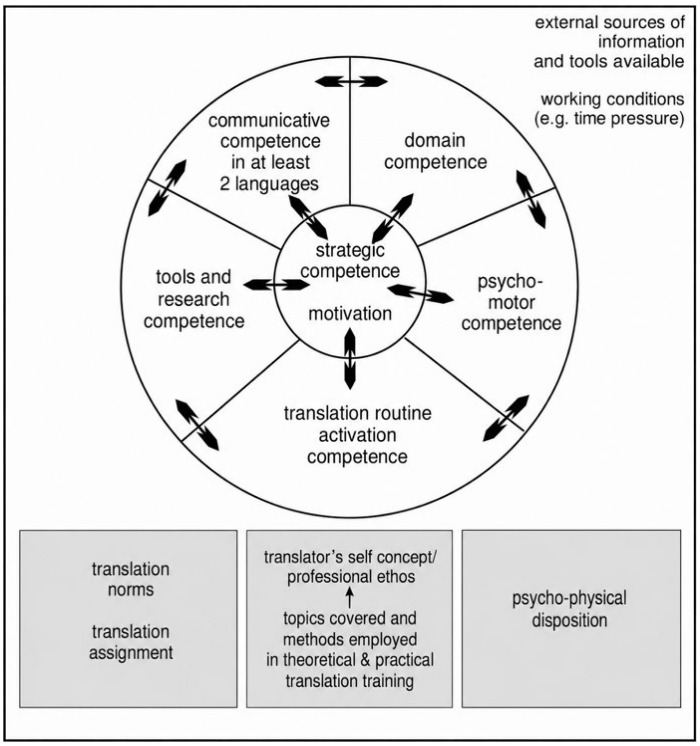

Figure 3. Translation competence model (adapted from Göpferich, 2009, p. 15).

Göpferich (2009) suggests that translation competence must consist of communicative competence in at least two languages, domain competence, strategic competence, tools and research competence, psycho-motor competence, and translation routine activation competence.

Among the most recent examples of a multi-componential translator competence model has been developed by researchers at the EMT (European Master's in Translation) network, known as a "quality label for university translation programmes at master's level [...] created by the European Commission's DG Translation for programmes that meet agreed professional standards and reflect current market needs" (European Commission, 2025). Since 2009, the EMT Translator Competence Frameworks have been designed as reference guidelines for learning outcomes for postgraduate training programmes. In these frameworks, competence is understood in accordance with the European Qualifications Framework as the "proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development" (EMT Competence Framework, 2017, p. 3). The initial EMT wheel of competences from 2009 was later replaced with an updated

framework that takes into account changes in the language industry, even though the visualisation of the model does not clearly depict that (see Figure 4).

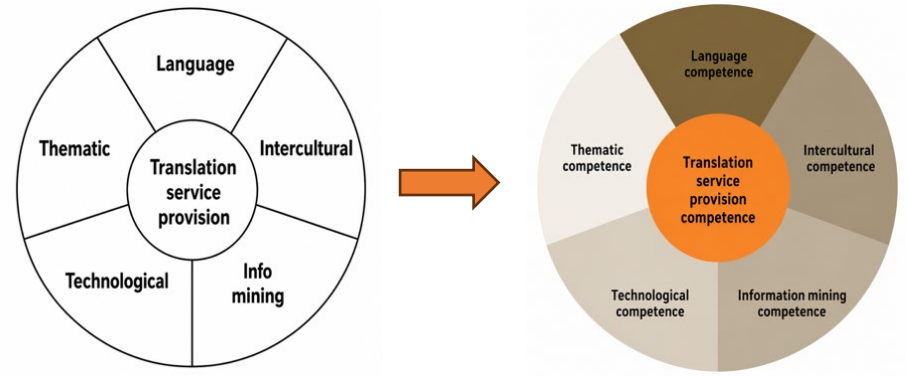

Figure 4. The EMT model (2009) and model (2012) (adapted from Torres-Simón & Pym, 2017).

During the following round, the EMT Framework of 2017, just as the previous ones, defined five areas of competence: language and culture (transcultural and socio-linguistic awareness and communicative skills), translation (strategic, methodological and thematic competence), technology (tools and applications), personal and interpersonal competence, and service provision. These five areas were further elaborated into specific components encompassing practical skills and procedural knowledge, thus reflecting a broader conception of translators' roles and responsibilities: inclusion of personal and interpersonal competences alongside service provision. This kind of model underscored the importance of a translator's ability to manage communication among various stakeholders involved in the translation process and to function effectively in an industrial environment (Schäffner, 2020).

Currently, curricula of translation study programmes in various European universities are designed based on the institution's preference for any of these models (for example, 79 universities have joined the EMT network for 2024–2029) as well as in accordance with the relevant national and international policy documents, including the European Qualifications Framework (2018), Key Competences (2018), the European Quality Standard for Translation Services EN-15038 (2006), Requirements for Translation Services ISO 17100 (2015), the EMT Competence Framework (2022), etc (Levanaitė, 2025).

It should be noted that this doctoral study has no intention of underestimating neither the currently existing translator competence models, nor the multi-componential manner in which they are built. On the contrary, I

am willing to contribute to the field of translator competence modelling regardless of how limiting the attempts "of putting ourselves squarely inside our models" (Haraway, 1997, referenced by Lemke & Sabelli, 2008, p. 121) might sometimes be. However, the approach of complexity undertaken in this study provides a different perspective towards competence modelling, "stipulating just how systems look different depending on where we sit inside them, or alongside them" (ibid). In other words, conventional translator competence models and documents defining its development in HE rely on, in Pym's (2021) words, *deficit pedagogy*, or what I assume is the so-called representational epistemology: "translator competence and its components are described as representations of the capacities and abilities representative of the real world out there, as something they [the students] currently lack and, thus, must acquire" (Levanaitė, 2025, p. 58). Models of translator competence have become so complex, researchers and policy makers seem to be willing to make things simple again, or at least precise, by, for example, providing a list 36 learning outcomes, rather than yet another model, for translation studies curricula developers, which has been the case with the updated version of the EMT Translator Competence Framework in 2022. This effort to define translator competence in terms of learning outcomes is indeed appropriate when students' knowledge, skills, and abilities need to be assessed during exams or upon graduation; however, aspects of students' readiness for the future, as well as life and work in a VUCA world, remain vague. Therefore, this study calls into question the need to introduce the temporal aspect of translator competence, or the overall temporality of competence in today's education. Temporality is crucial whilst exploring concepts in the era of uncertainty, but there are also various other currently emerging concepts in translation studies, which are discussed in greater detail in the next subchapter.

3.4. Emerging concepts in translation studies in the era of uncertainty

The following sections introduce some of these recent and, to some extent, unconventional approaches towards translation as well as complexity-theory-oriented inquiry in translation studies.

3.4.1. Beyond traditional paradigms

Schäffner (2020) provides a concise overview of how early linguistics-based theories conceptualised translation as a faithful transfer of meaning and translators as invisible mediators. This was followed by the functionalist, normative approaches, where translation was conceptualised as a purposeful

activity within socio-cultural contexts; thus, translators had to become "experts in text design for transcultural interaction" (Schäffner, 2020, p. 71). Schäffner suggests that following the cultural turn of the 1990s, translation studies increasingly emphasised translators as active participants in shaping cultures and driving social change; meanwhile, "more recent approaches to translation build on cultural studies and/or on sociology and define translation as a cultural–political practice (e.g. Venuti, 1995) or as a socially regulated activity (e.g. Wolf & Fukardi, 2007), respectively" (Schäffner, 2020, p. 72).

In addition, according to Gentzler (2001), one should not overlook such contemporary approaches as *intersemiotic* translation theory (Bassnett, Lefevre, Snell-Hornby), *dialogical translation* (Robinson), *postcolonial* translation studies (Niranjana, Spival, Meherz), *feminist* approaches to translation (Brossard, de Lotbiniere-Harwood, Godard), *cannibalistic* or *anthropophagic* translations (de Campos, Pound), *semiotic* translation theory (Lambert, Robyns), *cognitive* approaches towards translation (Lambert & Robyns), etc (Gentzler, 2001). In this study, I will refer to several of the most recent and, to some extent, most relevant approaches that I have come across or which were introduced to me by fellow researchers and scholars during my doctoral journey.

In 2023, during the DOTTSS (Doctoral and Teacher-training Translation Studies Summer School) in Finland, I had the opportunity to meet translation studies scholar Hanna Risku and familiarise myself with her concept of extended translation and her 4E concept of *embodied*, *embedded*, *enactive*, and *extended* translation (later complemented with *affective cognition*). This framework (Risku, 1998, 2012, 2014; Risku et al., 2013) conceptualises the translator as a part of a socio-cognitive system rather than an isolated individual, and argues that translation cognition cannot be confined to the mind but is distributed across body, environments, tools, social networks, etc., thus, underlying the complexity of translators' activity.

At the same event, I had the opportunity to encounter, listen to, and discuss ways in which scholars, based on theoretical and empirical data, explore new conceptualisations as well as terminology used in translation studies. One underlying example has been Koskinen's (2008) notion of *translatoriality*, which refers to translation as an integrated social, cognitive, and textual process, where the notion of translation moves beyond "a linguistic act" and defines a product of complex interactions between the translator, text, and context. With her conceptualisation, Koskinen (2008, 2020) challenges traditional approaches and emphasises translator agency, translation strategies, and the socio-cultural environment, as well as highlights how

translators can emerge from the interaction of individual decisions and systemic constraints.

During another DOTTSS, in 2024, I had the opportunity to meet the prominent Irish translation scholar Michael Cronin and explore the variety of approaches he has developed whilst conceptualising translation in the contemporary world, ranging from *translation as an identity practice* (1996) or *travel-mediated practice* (2000) to *translation as a force and effect of globalisation* (2003), *translation as a digitally networked and distributed practice* (2013), and *translation as an ecological practice* in the age of the Anthropocene (2017, 2022). This abundance of conceptual perspectives towards translation reinforces the underlying approach undertaken in this study – that of complexity, which, on the one hand, highlights the multifaceted nature of translation and the translator's profession. On the other hand, this abundance also underscores the dimension of uncertainty and constant change, as the notion of translation keeps evolving in the world, "in which there are no stable descriptions [...], no concepts that can be seized upon with any assuredness" (Barnett, 2012, p. 69).

Furthermore, the same DOTTSS in 2024 provided an opportunity to engage with the bio(semiotic) theory of translation as articulated by Marais (2019), who argues that for the previous half of a century, translation studies were "held captive by an unhealthy bias towards language, in general, and literature, in particular" (p. 14), as if unable to move the conceptualisation of translation much further than "the translation of lingual meaning" towards "the translation of all kinds of meaning" (p. 16). Marais assumes that translation is the way for societies and cultures to appear during the process, which he refers to as the *semiotic process.* Delving into the overlap of sociology and semiotics, he proposes an exhaustive theory of translation which accounts for both various translational phenomena as well as the creative, functional, and socially embedded power of translation.

All the aforementioned approaches have touched upon me personally during my doctoral studies, and I feel that they had to be mentioned here more explicitly. However, above all, the particular theory which has become foundational for this study is that of complexity. I learned about it through the works of Don Kiraly (1995, 2013, 2016; Kiraly & Massey, 2025), whom I had precious opportunities to meet and consult with on various occasions while carrying out my study. The following sections delve more extensively into complexity theory and its application in translation studies research.

3.4.2. Complexity theory as an emergent paradigm

Several scholars have shed light on complexity theory as particularly relevant for translation studies (see Kiraly, 2013, 2016; Kiraly & Massey, 2025; Massey, 2019, 2021; Marais, 2014, 2019; Marais & Meylaerts, 2022). Following their work, one could presume there are two major directions as to how complexity theory can serve as a framework for translation studies: (1) conceptualisations of translation, and (2) conceptualisations relevant to translator education. Although I find the second aspect to be key in this doctoral study, I will briefly examine how translation studies can benefit from complexity theory in conceptualising translation.

Marais (2022) argues that the predominant reductionist thinking is particularly present in translation studies, thus preventing "translation studies [from] really understanding translation". He also argues that over the past four decades, the field has gone through various paradigmal shifts, from a linguistic to a pragmatic, later on to the cultural paradigm, then a sociological, and eventually to an ideological paradigm. According to Marais, current translation studies increasingly wrestle with the questions of translator agency in geopolitical contexts (Gentzler, 2008, referenced by Marais, 2022) and pay greater attention to the internationalisation of the field, recognising context-specific perspectives on translation (Tymoczko, 2007, referenced by Marais, 2022). The discipline also draws extensively on insights from other fields, including linguistics, literary theory, pragmatics, psychology, anthropology, sociology, postcolonial studies, gender studies and the like – to conceptualise and expand its theoretical and methodological frameworks. However,

> "what we do not know [...] is how all of the above relate to one another. [...] How do all these 'parts' explain the 'whole', i.e., translation? Or do they not? [...] Being a new field of study, studying a particularly complex human phenomenon (Tymoczko, 2007), translation studies has not yet philosophised its grounds".
>
> (Marais, 2013, p. 1–2)

In addition, according to Marais (2014), complexity theory provides translation studies with a perspective to revoke conceptualisations of mere binaries associated with translation, such as source and target texts and cultures, or indigenisation and foreignisation, which remain in persistent, non-equilibrium tension that cannot be reconciled. Instead of trying to dissolve this tension, translation scholars need to "conceptualise translation as a

paradoxical juxtaposition of two fields" as this "relationship will always be one of nonequilibrium" (Marais, 2018) (see Figure 5).

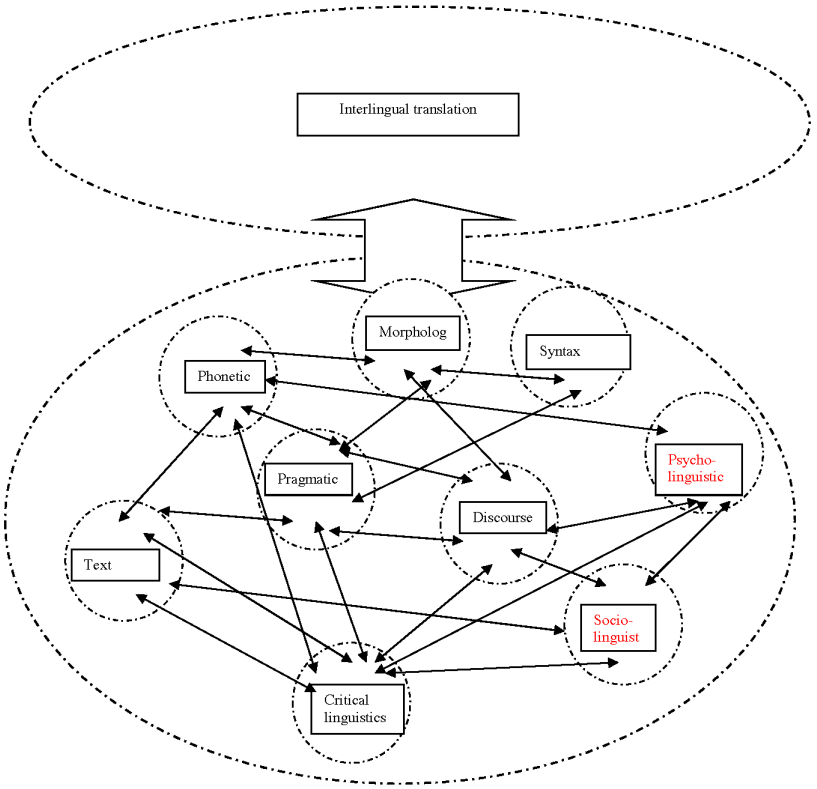

Figure 5. The emergence of translation (adapted from Marais, 2013, p. 107).

Marais' (2013) model depicts the emergent nature of translation. According to him, translation should be conceptualised and treated as a complex phenomenon which emerges out of the interplay of language, text, literature, culture, ideology, history, politics, psychology, and, in its own turn, gives rise to political, scientific, literary, cultural and various other realities (ibid).

Emergence, as already noted in this study, is one of the key attributes of complex systems. Just as Marais attempts to use it as a way to conceptualise translation, Kiraly has undertaken a more educational perspective and adopted emergentism as a way to conceptualise translator competence development. In Kiraly's (2013, 2016, 2025) model, the emergent process – often depicted as swirling vortices which interact among each other – is shaped by the totality of translation tasks, translators' individual and interpersonal dispositions, the resources they can rely upon, and relevant factors. As a result, translator

competence is not something that can be accumulated piece by piece, but rather a phenomenon that self-organises through translator's habitus, or embodied engagement, in situations of actual translational activity (Kiraly, 2013).

Initially, Kiraly began developing his theory, which ended up as a conceptualisation of *translator competence as co-emergence*, leaning against cognitivism (1995) and later social constructivism (2000, 2012, 2013). He also, to a great extent, referred to Risku's ideas of cognitive approaches to translation and the 4E concept, mentioned in the earlier section. Eventually, Kiraly moved away from the social constructivist paradigm, with complexity theory remaining his major theoretical foundation (2016, Kiraly & Massey, 2025). To a large extent, he resorts to Sumara and Davis (1997, 2008), who presume that "while constructivism represents an important departure from cognitivism and other representational models of cognition, it shares one fundamental tenet [...] that the locus of cognition is the individual" (Sumara & Davis, referenced by Kiraly, 2016, p. 21). Kiraly argues that the constructivist view promotes the view of knowledge and understanding as *simple* or *complicated*, thus escaping its essential feature – that of *complexity*. For that, he proposes moving beyond this worldview, which he describes as mechanistic, positivist, and reductionist, towards an emergent kind of understanding, which "does not involve static *knowledge* as much as it does dynamic *knowing* – constantly changing, imminently situated and embodied thinking-in-action" (ibid, p. 23).

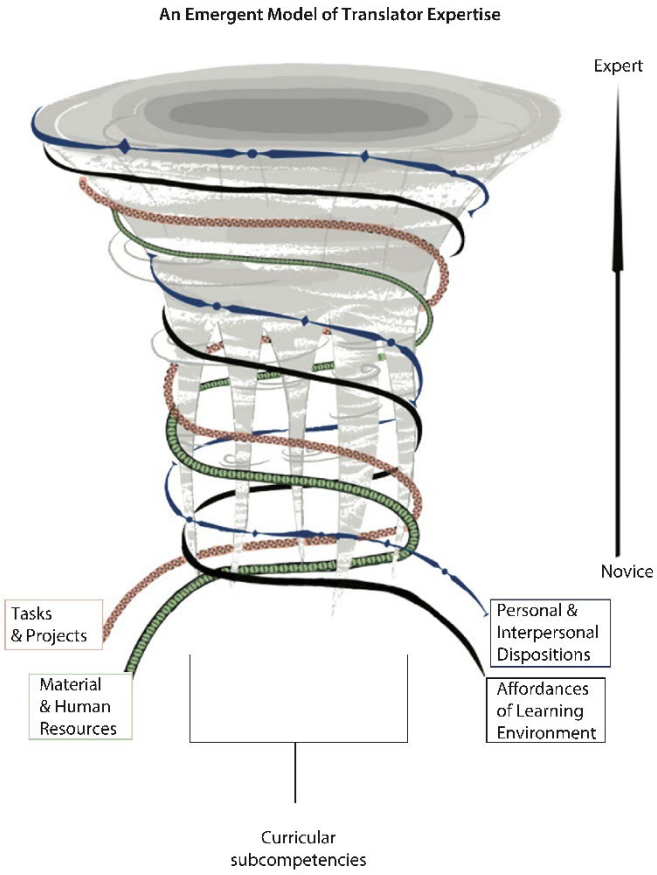

Figure 6. Kiraly's initial model of translator competence as emergence (adapted from Kiraly, 2016, p. 28).

Kiraly's model of translator competence as co-emergence (see Figures 6 and 7) depicts both the complex interdependencies of sub-competences as well as their emergence in a timely manner, which can also take place in a non-parallel way. Kiraly argues that, in contrast to the linear input–output metaphors of early cognitive science models, this model uses swirling, interactive vortices to depict an emergent system in which experience and learning are continually integrated across interrelated sub-systems. The stripes around the vortices illustrate that a translator's competence emerges from the dynamic interaction of multiple factors: the translation tasks and projects they engage with and learn from, their personal and social dispositions towards translating, their learning orientation, the human and material resources at their disposal, and the affordances of their learning environments. According to Kiraly, although instructional interventions may influence the process,

learning is primarily the product of a complex network of interdependent processes rather than a straightforward result of teaching.

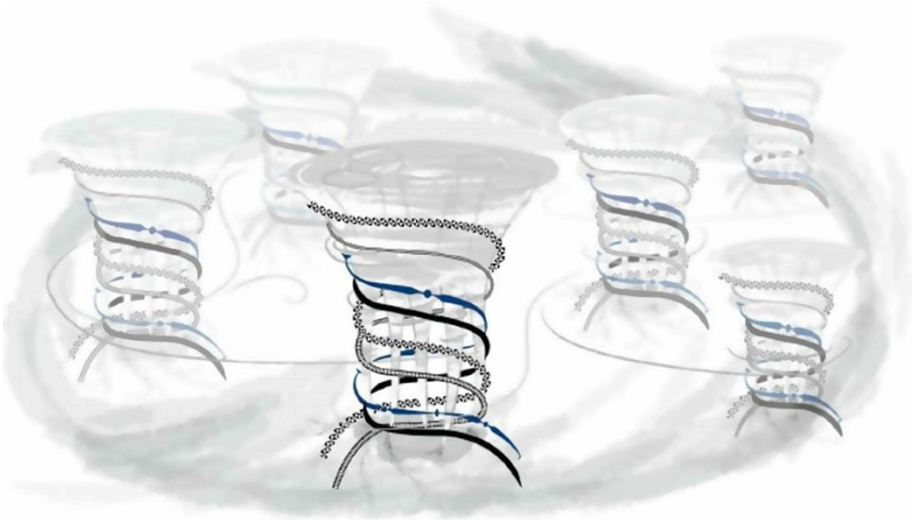

Figure 7. Kiraly's translator competence as co-emergence (adapted from Kiraly, 2016).

As seen from Figure 7, Kiraly emphasises that translators (by interacting with other translators, clients, etc.) or students of translation study programmes (by interacting with each other and their teachers) remain in constant interplay with their changing social and physical contexts. It should be noted that Kiraly's work, as well as the work promoted by other translation scholars who have adopted a lens of complexity theory, has deeply inspired this doctoral study, which aims to further contribute to both the field of translation studies and educational sciences.

4. THEORETICAL AND METHODOLOGICAL FRAMEWORK: COMPLEXITY THEORY AND NARRATIVE FORESIGHT

The remarkable thing about social worlds is how quickly such connections and change can lead to complexity. Social agents must predict and react to the actions and predictions of other agents. The various connections inherent in social systems exacerbate these actions as agents become closely coupled to one another. The result of such a system is that agent interactions become highly nonlinear, the system becomes difficult to decompose, and complexity ensues.

(Page & Miller, 2009, p. 10)

Over the past 30–40 years, new conceptual approaches to the study of complex systems have emerged and been increasingly adopted by scholars in economics, psychology, organisational studies, and various other disciplines in the social sciences (Lemke & Sabelli, 2008). These approaches are supported by both the advances in quantitative techniques as well as novel qualitative frameworks, which allow for understanding social phenomena in complex systems terms, as

> "concepts such as multi-scale hierarchical organization, emergent patterning, agent-based modeling, dynamical attractors and repellors, information flows and constraints, system-environment interaction, developmental trajectories, selectional ratchets, fitness landscapes, interaction across timescales, and varieties of self-organization are becoming key tools for qualitative reasoning about complex socio-natural systems as well as for quantitative modeling and simulation".
>
> (ibid, p. 119).

This chapter provides a detailed elaboration of the theoretical and methodological foundations of this doctoral thesis, which are grounded in complexity theory, complemented by narrative foresight.

4.1. Complexity theory and its major concepts

There is a multitude of terms surrounding complexity: complexity theory, or theories (see Mason, 2008; Morrison, 2008), complexity science (see Gell-Mann, 1994; Prigogine, 1997), complex systems theories including complex adaptive systems (see work by scholars at Santa Fe Institute), critical

complexity (see Morin 1992/2007; Cilliers 1998), complexity thinking (see Davis & Sumara, 2006). The latter – complexity thinking, "representing a way of thinking and acting" (Davis & Sumara, 2006, p. 18) – has been gaining increasing attention in educational research, because it both embraces the philosophical orientation of complexity and, at the same time, the pragmatic implications that undertaking this perspective bears upon.

Regarded as a theory, complexity: (1) underscores its traits to other theories, such as chaos theory and catastrophe theory before that, and (2) offers insights for educational philosophy by challenging its accepted paradigms of teaching, learning, and educational research (Mason, 2008). Interestingly, complexity is often mistaken for a prescriptive theory, even though it does not aim to prescribe but rather explain and describe, as well as introduce interpretative possibilities (ibid). Therefore, resorting strictly to complexity theory has its own limitations in researching educational phenomena, which by their nature are normative and insist upon prescription. As a result, this doctoral study aligns itself somewhere between the terms of complexity theory and complexity thinking. It seeks to explore alternative ways to develop and apply new concepts and tools to understand and explain teaching, learning, and, particularly, competence development in the VUCA world.

Furthermore, complexity theory refers to the scientific field and its many subfields that are concerned with how certain phenomena organise themselves into wholes, referred to as complex systems, which cannot be understood by analysing their constituent elements alone. Jacobson et al. (2019) note that these scientific views are rooted in research conducted in computer science, mathematics, physical sciences (Gell-Mann, 1994; Holland, 2006; Kauffman, 1993; Wolfram, 2002), and also social sciences (Byrne, 2013; Mason, 2008; Sawyer, 2005). However, there is no single theory that could serve as the banner of complexity, even though the behaviour and dynamics of complex systems share some general aspects at a very basic level, and therefore, these systems can be explored through modelling (Cilliers, 1998). Cilliers suggests that the meaning of complexity remains ambiguous, and, thus, he resorts to Luhmann's (1985) idea that "complexity entails that, in a system, there are more possibilities than can be actualised" (Cilliers, 1998, p. 2).

In order for a system to qualify as a complex one, it should exhibit certain properties, such as multi-componentiality, interdependency between the system's components, non-linearity, decentralised control, evolution, open-endedness, emergence, etc., that distinguish it from systems that are merely complicated. Systems which may be analysed on the level of their components, regardless of their multitude and sophisticated performativity,

count as complicated; meanwhile, in complex systems, the relations between their components are so intricate, non-linear, and feedback loops-oriented that the behaviour of the system cannot be analysed at the level of each component. This explication is foundational for the conceptualisation of competence development, because conventionally the complexity of competence is mistaken for its complicacy, which results in a top-down approach that competence can be understood by analysing and defining its major components, often disregarding their interdependencies.

All in all, complexity may not only be used to describe the inherent complex states of the world and its phenomena, but also refers to "a theory of change, evolution, adaptation and development for survival" (Morrison 2008, p. 16). Morrison (2008) argues that adopting complexity theory in education fundamentally shifts the focus from providing correct answers to posing appropriate questions in the context of an unknowable future, for example, *what it means to know under conditions of uncertainty, how diversity, autonomy, creativity, and unpredictability thrive in nationally or centrally prescribed curricula, what constitutes openness in education*, and *how assessment can account for emergence, interactivity, and collective knowledge rather than individual performance alone* (pp. 19–20). As Morrison puts it, "why try to measure performance, when, by definition in complexity, even if it were measurable, the measures may add little of significance to our understanding" (2008, p. 20).

The following extended quotation is included because it exemplifies, in condensed form, how complexity theory reframes curriculum design not as a matter of optimisation of control, but as a sustained practice of questioning under conditions of uncertainty:

> "What are the risks and benefits in moving from imposed control to emergent order in education? How can, and how should, risk-taking be promoted in education? […] How can and should assessment, which is overwhelmingly of an individual's performance, catch interactivity, connectedness and collective knowledge? What kind of feedback promotes emergence, self-organisation and connectedness in education? What should we do as a result of feedback? […] What are the necessary and sufficient conditions for the state of being complex, for emergence and self-organisation? […] On what criteria are some methods, curricula, pedagogies, assessments to be judged preferable to others if their outcomes are, in principle, uncertain?"
>
> (Morrison, 2008, pp. 19–20)

These questions are indeed very broad, and not all of them relate to competence development. However, some of the aforementioned aspects have been taken into account throughout this research, mainly, the role of *knowledge* and *knowing*, or the epistemological dimension of educational phenomena, and our overall ability to perform as well as understand and measure this performativity in the VUCA world, which in this study is linked to the ontological dimension of education. The next section introduces an overview of how complexity has been adopted in educational research during the past decades.

4.2. Adopting complexity in educational research

Being both explanatory and descriptive, complexity theory provides its own language for *a new science of qualities* by reshaping our ways of making sense of both the physical and social worlds (Horn, 2008). With its roots in physics, chemistry, cybernetics, information science, and systems theory, complexity theory has fully consolidated as a coherent field of study over the past 40–50 years. It has been gaining increasing attention across a wide array of social domains, such as family studies, health, psychology, economics, business management, and politics, and, more recently, in education (Davis & Sumara, 2008). Complexity theory can be referred to as a theory of development and change that occurs through evolving relationships (Morrison, 2008) and can be interpreted as an educational theory in its own right (Davis & Sumara, 2008). In a sense, learning is inherent in a process of change, which makes "learning […] a central element in both complexity theory and education. All complex phenomena and systems have to learn, adapt and change in order to survive" (Fullan, 1989, referenced by Morrison, 2008, p. 19).

What, then, makes an educational theorist or practitioner a complexity thinker? Semetsky (2008) argues that, to a certain extent, Dewey himself can be considered a complexity thinker due to his philosophical orientation. In fact, the extent to which Dewey's ideas, as well as Foucault's orientation, are coherent with complexity theory might be striking for philosophers of education (Semetsky, 2008). Dewey refers to *problematic situations*, which give rise to the reorganisation of the learner's experience. According to him, what is inherent in these situations is the perplexity that insists upon a constructive process of reflective thinking, or a model of thought that cannot be reduced to linear reasoning. "Interactions are established between, as Dewey said, what is done and what is undergone, and it is by means of apprehending these connections and interrelations that 'an organism increases in complexity' (Dewey, 1934/1980, p. 23); in other words, it learns" (Semetsky, 2008, p. 81).

In a similar vein, while conceptualising social relations, Foucault underscores the concepts that are central to complexity theory, such as self-organisation, the irreversibility of time, and the like. He also refers to the world as the world of infinite possibility shaped by the principles of openness, indeterminacy, unpredictability, and uncertainty (Mason, 2008, p. 6). As a result, adopting such concepts and insights, which are central to complexity theory, may offer a way to address longstanding tensions between determinism and creativity, or social constructionism and uniqueness (Olssen, 2008), which are central to educational sciences to a large extent.

Yet, utilisation of complexity theory in the philosophy of education, and educational sciences more generally, has not been without criticism. Morrison (2008) argues that many key concepts which in complexity theory refer to self-organisation, emergence, non-linearity, feedback, adaptation, etc, as well as the social construction of knowledge, are already central to educational discourse. Although complexity theory offers a way to integrate these concepts into a coherent framework, it raises the question of "what 'added value' complexity theory brings to an analysis of education which dealing with each of these concepts directly and without complexity theory does not bring" (Morrison, 2008, p. 28).

To address this critique, as well as lay the grounds for the methodological part of this study, I proceed to an overview of how complexity theory as a conceptual framework can make sense of educational phenomena by exploring them in their complexity.

4.2.1. Conceptual complexity framework for educational research

Initial attempts to build a conceptual framework that could allow researchers to analyse educational phenomena as complex systems began around 2000 with Lemke, later accompanied by Sabelli, who aimed to initiate research on this framework. Researchers were exploring new avenues for systemic educational change, and for that, they assumed that complexity thinking as well as its modelling tools could foster our understanding of how "the educational system as a whole is driven by external events and pressures such as advances in scientific understanding, the increasing complexity of problems addressed by communities and societies, changing technologies, and the public demands for reform" (Lemke & Sabelli, 2008, p. 116). Focusing on complexity modelling, meant to model the dynamics and qualitative change of educational phenomena, Lemke and Sabelli recognised that even though these models are not predictive, they are significant due to their ability to identify "possible alternatives, potential problems, and overall qualitative

features of the change process that may not be intuitively evident to a linear logic of cause and effect" (2008, p. 117). Lemke and Sabelli's pursuit to usefully exploit complexity concepts and procedures for the analysis of systemic educational change makes their work seminal for educational inquiry through the lens of complexity. Most importantly, their work encourages shifts in paradigms of how we perceive educational research:

> "Away from input–output 'black-box' causal models to modelling the specific, local linkages that actually interconnect actors, practices, and events across multiple levels of organisation; and away from single interventions and simplistic solutions to the recognition of the need for coordinated changes throughout the system and to its constraining and enabling contexts and resources".
>
> (Lemke & Sabelli, 2008, p. 122)

The work initiated by Lemke and Sabelli has been further advanced by Jacobson, Kapur, and Reimann's (2016) Complex Systems Conceptual Framework for Learning (CSCFL), which provides conceptual perspectives on the properties of complex systems relevant to various educational phenomena. According to the authors, their framework provides a conceptual basis to describe various forms of learning theories and their conceptual requirements from the point of view of complexity theory, assuming that "any theory of learning must be able to account for learning in terms of centrally important properties and characteristics of complex systems, […] [i.e.] any theory of learning needs to account for the emergent nature of human learning" (Jacobson et al., 2016, p. 214). The components of the CSCFL, along with examples from the educational domain, are presented in Table 2.

Table 2. Components of the Complex Systems Conceptual Framework for Learning with examples (Jacobson et al., 2016, p. 213).

Complex Systems Focus Areas	Complex Systems Conceptual Perspectives	Complex Systems Example	Learning of Educational Example
Complex Collective Behaviour in System			
	Agents or elements in system	Ant foraging for food	Neurons in brain Students in classroom
	Self-organisation	Birds flocking	P-prims forming coordination classes Children forming groups on playground
	System levels	Microlevel of chemical interactions, macrolevel of chemical system equilibrium	Individual student cognition, collaborative learning activities Vygotskian learning from interpersonal interactions that are internalised
	Sensitivity to initial conditions and nonlinearity	Butterfly effect	Gap in academic performance of low and high socioeconomic status children increases from kindergarten to high school Cognitive activation in initial learning influences subsequent learning
	Emergence	Classic "V" formation of flocking of individual birds	Collaborative interactions of students leading to convergence in problem solutions Emergence of conceptual understanding in conceptual change, "aha" moments
Behaviours of Individual Agents in System			
	Parallelism	Numerous biological cells typically interact via variety of protean signals	Numerous brain cells activated during problem-solving tasks Collaborative learning activities

Complex Systems Focus Areas	Complex Systems Conceptual Perspectives	Complex Systems Example	Learning of Educational Example
	Conditional actions	If a wolf is hungry and sees a sheep, then wolf will try to eat the sheep	If a student is engaged, then greater persistence and subsequent learning
	Adaptation and evolution	Wing coloration of peppered moth changed (evolved) from mainly whitish/mottled to mainly darkish brown from pre- to post-industrial age Great Britain	Young children often have “flat earth” mental models, primary-age children often have synthetic “hollow earth” mental models, and older students have “globe earth” mental models.

The significance of this framework and subsequent works (Jacobson et al., 2019; Jacobson, 2020, etc) lies in its insights into how the conceptual orientation of complexity theory regarding educational phenomena as emergent within complex, neural, cognitive, situative, social, and cultural systems may provide opportunities for educational research which otherwise may not be possible (Jacobson et al., 2016).

Having analysed these frameworks and, in pursuit of conceptualising translator competence through complexity theory, it became evident that they were insufficient for the purposes of this study. Therefore, a conceptual framework was developed, which could later be used to develop the conceptual model.

4.2.2. Towards a complexity framework for conceptualising competence

Does translator competence organise itself as a collective or a system? What are the key properties of this system? How does its structure change in response to various challenges, and what are these challenges? These questions form a starting point for conceptualising translator competence as a CAS. To address them, data collection and thematic analysis needed to be conducted to identify the underlying properties of such a system. For that, a conceptual framework of key complexity theory concepts was developed and subsequently used as a deductive analytical lens during thematic data analysis (Braun & Clarke, 2006).

This framework was derived from the in-depth review of literature on complexity theory, with particular attention to its application in educational research (Morin, 1999; Morrison, 2008; Jacobson et al., 2016, 2019; Lemke & Sabelli, 2008; Davis & Sumara, 2008, etc). An extended version of the framework is presented in Table A2 (Appendix 2), while Figure 8 provides a more concise conceptual map.

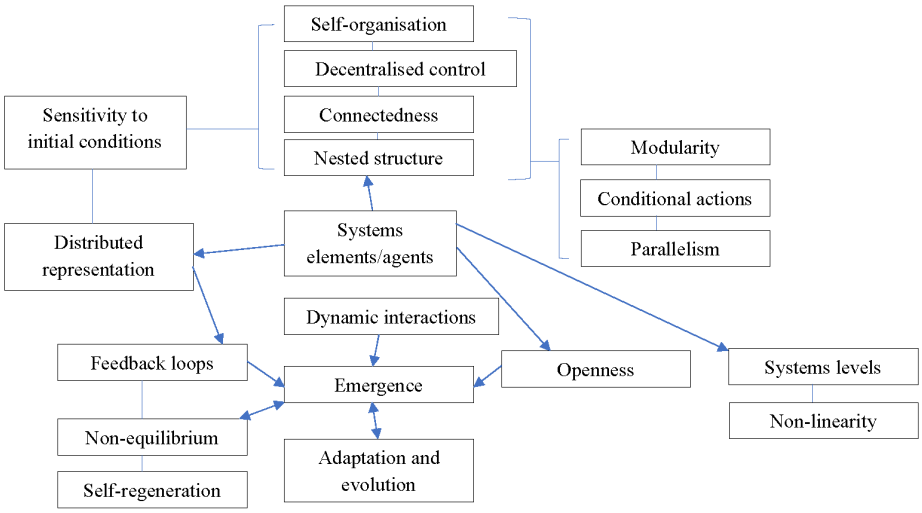

Figure 8. A map of complexity theory concepts.

On the one hand, this map covers major complexity concepts that have already been adopted in, or are relevant to, educational research. On the other hand, it was necessary to broaden the conceptual scope and reintroduce a wider range of concepts that might be relevant to conceptualising competence, so as not to constrain data analysis with a narrower set of systems' properties. To make this rationale more explicit, the following subchapter provides an overview of studies that have applied complexity theory in competence research.

4.3. Complexity theory in competence research: a systematic literature review

In addition to the in-depth literature review, I have also carried out a systematic literature review to gain insights into whether and how complexity theory has already been adopted within the topic of competence and its development. I systematically reviewed 21 articles with the aim of answering the following questions:

1. How can competence be conceptualised from the perspective of complex systems theories?
2. Which subjects are identified as complex systems in the study of competence development?
3. How can competence be characterised as a complex system?
4. Which complexity models are employed for competence development in existing literature? (Levanaitė, 2025, p. 167).

The systematic literature review provided several conclusions. Firstly, it identified diverse ways of conceptualisation of competence in complexity-informed studies, which ranged from competence as a complex system on its own, to competence as a feature of a larger complex system, for example, an educational institution or the overall social system or competence as an emergent phenomena – a perspective already addressed in this thesis when discussing Kiraly's (2016) conception of emergent translator competence.

Secondly, complexity-informed literature refers to various phenomena as complex systems, the majority of which were related to learning and knowledge building, for example, "complex systems such as a *classroom*, *education* or the *educational process*, *competence* or *competence assessment*, *curriculum revision process*, etc. In other instances, complex systems were more directly linked to specific research domains, such as *social-ecological systems* or *society* in sociology, *business systems* or *risk management and supply systems* in finance, or *computer games* or *emerging technologies* in computer science" (Levanaitė, 2025, p. 180).

Thirdly, as indicated by the systematic review, initial attempts to make sense of competence as a complex system have already been made: competence as a *collective structure*, *self-organising complex adaptable system*, *continuous system*, *multitude of entities*, *two-level phenomenon*, etc. (Bonjour et al., 2002; Chen, 2009; Drejer, 2000; Blažinić et al., 2020; Wu et al., 2022). These studies highlighted the multidimensionality of competence, highlighting its temporal dimension, inherent dynamics, continuous evolution, and the interplay between the system and its environment (Levanaitė, 2025).

Lastly, the study examined various modelling approaches presented in the reviewed literature, which are illustrated in Figure 9.

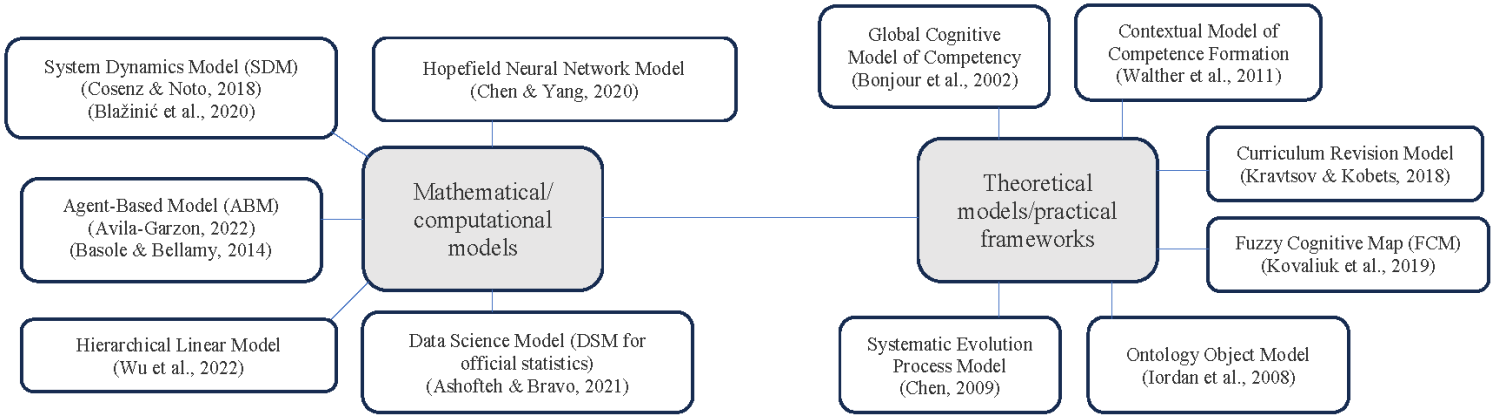

Figure 9. Models and modelling approaches adopted in the reviewed literature (Levanaitė, 2025, p. 179).

As seen in the diagram, a number of reviewed studies resorted to either theoretical models or practical frameworks that adopt a complex systems perspective. In addition, approximately one-third of the papers aimed to develop specific mathematical or computational models.

In addition, Table A1 (see Appendix 1) provides an overview of definitions of competence in complex systems terms identified in this systematic literature review. Even though only one of the five definitions of competence directly claims that competence is a complex system, all of these studies can be considered the initial attempts to characterise competence in terms of its complex system's properties, such as adaptation, inner dynamics, systems-levels, continuity, multitude of its elements or agents, and their interplay.

What I found significant while conducting this systematic literature review is Chen's (2009) conceptualisation of the financial core competence as a complex adaptive system (CAS), which owns subsystems, is open, unbalanced, and nonlinear. This study draws on work conducted at the Santa Fe Institute (USA) as the primary source for this approach. Among several prominent Santa Fe complexity thinkers (Gell-Mann, Kauffman, Arthur, Mitchell, etc.), interdisciplinary scientist John H. Holland is widely recognised as the pioneering figure in establishing the notion of CAS, which is further explained in the next section.

4.4. Complex adaptive systems and their properties

In an earlier subchapter, I defined what makes a system complex. Now, what makes a complex system adaptive? The underlying feature that most of the CASs possess is a certain *evolving structure*, i.e., "these systems change and reorganise their component parts to adapt themselves to the problems posed by their surroundings, […] they constitute a "moving target"" (Holland, 2018, p. 18). In other words, agents continuously adopting and evolving is the major conceptual aspect that distinguishes an adaptive from a non-adaptive complex system (Jacobson et al., 2019).

Also, what distinguishes CASs from other complex systems is their anticipation of the future, where present actions are guided by anticipated consequences. Therefore, it is fundamental to understand how this anticipation in CASs occurs by means of internal models. It is this internal modelling of a CAS that enables the system to anticipate future outcomes from present actions, while refraining from any commitment to take those actions (Holland, 2018). More specifically, the constituent elements of CASs behave under certain rules, most of which are *condition-action* rules: when a certain condition is true, a respective action takes place. Thus, CASs resort to several

mechanisms, such as *parallelism*, *conditional action*, *modularity*, and *adaptation and evolution*, which allow a CAS to adjust in response to its environment (Holland, 2006, pp. 1–2), and that is why these systems are referred to as adaptive systems.

Parallelism is the property of a CAS, which means that a particular system is composed of numerous agents that interact by exchanging signals. These interactions can occur simultaneously and generate many concurrent signals (Holland, 2006). An example from the educational context could be students performing various tasks simultaneously while communicating among themselves (exchanging signals) (Jacobson et al., 2019).

Conditional action refers to the behaviour of system agents, which typically depends on the signals they receive. This behaviour follows an IF/THEN logic, i.e., *IF [signal vector x is present] THEN [execute act y]*, where the action itself may serve as a signal, creating complex feedback loops, or it may manifest as a tangible action in the agent's environment (Holland, 2006). This means that combining agent rules that are relatively simple with the parallelism of many concurrently acting agents can end up with the overall system behaviour being highly complex and dynamically evolving (Jacobson et al., 2019).

Modularity is a feature of a CAS which expresses the system's ability to produce *building blocks* to handle new situations instead of attempting to anticipate every potential situation with a particular new rule. Behind these building blocks are the *subroutines*, which are developed as agents respond to the current situation by following a sequence of rules (Holland, 2006).

A particularly important feature of a CAS is adaptation and evolution, which essentially means that the agents evolve over time in response to their environment, which respectively increases their potential for adaptive behaviour (Jacobson et al., 2019).

> "For example, students in a classroom may be regarded as agents in an educational complex system who, at a given time, have certain internal cognitive structures and affective knowledge related to a subject, and who, over time at school, will (hopefully) construct (i.e., evolve) new or modified cognitive structures from their learning activities".
>
> (ibid, p. 113)

All in all, CASs can be described as states in which "internal systems, flexibility, change and capability must be as powerful as those in the external environment" (Morrison, 2008, p. 19). How does this, then, relate to competence development? As discussed in earlier chapters, the ways competence is conventionally defined in policy documents and relevant

educational literature often underestimate its complexity and the interplay among its constituent elements. This doctoral study assumes that competence development is not only reminiscent of a complex system due to its *structure*, but it also exhibits various kinds of behaviour reminiscent of CASs because its structure is *evolving*. Therefore, competence development in the VUCA world necessitates its conceptualisation as a constantly evolving phenomenon, where uncertainty – and anticipation, for that matter – becomes one of its properties rather than an external force.

According to Holland (2006), CAS models, particularly new computational-based models built in accordance with these underlying evolving structures of CASs, open avenues for novel and valuable policies for various social problems. In other words, making sense of phenomena, which qualify as CASs, enables new ways of "thinking and acting" as already explained earlier, whilst substantiating the theoretical orientation of complexity theory and complexity thinking. The next section of this subchapter proceeds with a more detailed overview of complexity modelling and its methodological implications for educational inquiry.

4.5. Complexity modelling as a methodological tool for conceptualising translator competence

The significance of the philosophical orientation of complexity thinking lies in the shift it offers in how we view the world. The perspective of complex systems highlights "the limits of predictability as well as the possibility of understanding indirect consequences of actions taken, both positive and negative, through the modelling of interdependence" (Lemke & Sabelli, 2008, pp. 121–122). Therefore, studying complex systems necessitates the use of a combination of approaches, including theoretical, computational, and experimental, to observe, analyse, model, and simulate complex phenomena (ibid).

Epstein (2008) addresses a common misconception that complexity models are often presumed to be "crystal balls that can tell the future" and that prediction is their final goal. On the one hand, it can indeed be the intention of complex systems modelling; on the other hand, he identifies at least sixteen reasons for model-building beyond prediction:

1. Explain (very distinct from predict);
2. Guide data collection;
3. Illuminate core dynamics;
4. Suggest dynamical analogies;
5. Discover new questions;

6. Promote a scientific habit of mind;
7. Bound (bracket) outcomes to plausible ranges;
8. Illuminate core uncertainties;
9. Offer crisis options in near-real time;
10. Demonstrate tradeoffs/suggest efficiencies;
11. Challenge the robustness of the prevailing theory through perturbations;
12. Expose prevailing wisdom as incompatible with available data;
13. Train practitioners;
14. Discipline the policy dialogue;
15. Educate the general public;
16. Reveal the apparently simple (complex) to be complex (simple) (Epstein, 2008, p. 2–3).

In this study, modelling as a methodological tool has been adopted mainly with the view of explaining (1) the phenomenon of translator competence and illuminating its core dynamics (3). To a certain extent, the model was intended to contribute to the training of practitioners (13) and pave the way for further policy dialogue (14). As for Epstein's final point, it is difficult to argue that translator competence is a *simple* phenomenon, as most of the literature to date points to how *complex* it actually is. However, the aim of this study is to reveal its complexity in ways that have been underexplored in translation studies; therefore, the aspiration to make a methodological contribution to the field is yet another reason why complexity modelling has been adopted.

With this in mind, the qualitative data collection for this study during semi-structured and focus group interviews aimed to serve as the foundation for developing a conceptual model based on complexity theory. The major reason behind this methodological choice lies in the fact that uncertainty is intrinsic in CAS in various forms, for example, in the unpredictability of the emergent behaviour of the system, the dynamics of the system, which is non-linear, etc., as well as some practical "solutions" offered by the system itself, such as the system's ability to adapt, self-organise, etc. In a similar vein, the conceptual model of translator competence as a CAS assumes that competence may self-organise at different levels of the system, for example, in response to both personal and contextual drivers. In a VUCA world and due to unprecedented change, more often than not, competence can be subject to predetermined trajectories only to a limited extent. Therefore, understanding whether and how competence development can function as a CAS may provide new pathways for translator education, which could take into account those drivers influencing translator competence development which are most likely to remain uncertain and unpredictable.

This is in no way meant to suggest that translator education should abandon the idea of defining the knowledge and skills necessary for translator competence development, of which we are certain today and on which most university study curricula are based. However, by conceptualising translator competence as a complex system, we move beyond these certainties and also address what we are uncertain about, which is often only implicit yet inherent to developing translator competence in the future. Therefore, this model is not meant to replace conventional translator competence models and frameworks, which aim to represent the multitude of knowledge, skills, and dispositions, but rather provide an additional – non-representational – dimension.

Additionally, this conceptualisation moves beyond Kiraly's (2016) model of competence as an emergent phenomenon, foregrounding the emergent dimension of translator competence and introducing complexity into translation studies and translator education research. Meanwhile, the present study conceptualises competence as a complex system, with emergence understood as one of its constitutive properties. It should be noted that the novelty of this thesis lies in its methodological ambition to model translator competence as a CAS on the basis of empirical data, thereby offering insights that may inform future research in both fields. To the best of my knowledge, such a model of translator competence as a CAS, or even competence in a broader sense, has not yet been undertaken.

Therefore, this study uses complexity modelling to develop a conceptual model of translator competence and its development as a CAS to explore the feasibility for future research towards more sophisticated techniques, such as agent-based model simulations and the like. To a certain extent, this study is similar to a proof-of-concept research, which refers to an early-stage research approach and a form of scientific reasoning, closely related to *proof of principle* (Kendig, 2016) and *proof-of-principle demonstration* (Gelfert, 2016), both of which underpin exploratory modelling. Frequently, by presenting proof of concept, researchers demonstrate that a desired theoretical aim is achievable and merits further investigation (Elliott, 2021). However, rather than pursuing proof or confirmation in a positivist sense, this study adopts an interpretative approach and proposes an exploratory conceptualisation of translator competence as a CAS.

In essence, based on narrative foresight-oriented data and following the framework of complexity modelling, this study attempts to conceptualise translator competence as a CAS, propelled by internal drivers of the individual as well as external, contextual, and environmental drivers, and how they dynamically interact over time. A focus solely on the constituent elements, as found in many conventional frameworks (Neubert, 2000; PACTE, 2003,

2009, 2011, 2017; Kelly, 2005; Göpferich, 2009; the EMT Competence Framework, 2009, 2017, 2022, etc.) limits our understanding of the complex adaptive behaviour of translator competence. The lens of CASs sheds light on the interdependencies among these elements and their dependence on various uncertain contexts. This study assumes that these interdependencies continue to shape translator competence and determine its overall function and structure; thus, understanding them can contribute to new pathways in fostering translator competence. Respectively, this knowledge could enhance our understanding of whether and how rethinking translator education in terms of these interdependencies can improve translator competence development with regard to uncertainty.

The rationale for the development of the conceptual model of translator competence as a CAS is elaborated in Chapter 5 on research design. In the meantime, the following subchapter introduces the complementary methodology of narrative foresight.

4.6. Narrative foresight as a complementary methodology to complexity modelling

According to Dewey (1917), "imaginative forecast of the future is this forerunning quality of behaviour rendered available for guidance in the present" (p. 13). With this in mind, this study adopts narrative foresight as a complementary methodological approach aimed at conceptualising competence in ways that are future- and uncertainty-oriented but at the same time *guide in the present*. In addition, to a certain extent, narrative foresight scenarios help address the limitations of *conceptual* complexity modelling, as conceptual models, unlike computational models, cannot be simulated. The rationale for this methodological choice is further elaborated in the following subchapters.

4.6.1. Why complement this study with narrative foresight?

Narrative foresight as a methodology stands at the crossroads of futures studies and the broader narrative turn in the social sciences and beyond, opening up alternative perspectives to purely experimental scientific approaches. In fact, diverse usage of narratives has played a significant role in futures thinking since it was initially developed, because "thick descriptions of potential events and conditions through the use of scenarios, for example, have heavily relied on the use of narrative" (Milojević & Inayatullah, 2015, p. 152).

By means of questioning and searching for alternative stories or scenarios, narrative foresight attempts to explore how we make sense of the world in the present. Thus, indirectly, both as a theoretical framework and as a practice that utilises the future to change the present, narrative foresight is a means to address uncertainty, mainly that of the future. On the one hand, future scenarios are often "implicit or *hanging in the air*" (Milojević & Inayatullah, 2015, p. 161); on the other hand, narrative foresight urges us to link these stories with certain strategies of what action could be taken.

The narrative foresight approach (Milojević & Inayatullah, 2015) is rooted in Causal Layered Analysis (CLA) and the post-structuralist turn. They view narrative foresight as inextricable from the deepest of the four CLA levels: "litany (quantitative problems, trends, often exaggerated); social cause (interpretation given to quantitative data, i.e. STEEPLE analysis); discourse/worldview (core perspectives on time, space, power), and metaphor/ myth (deep stories, collective archetypes, images)" (Milojević & Inayatullah, 2015, p. 157). As Inayatullah (1998) notes, the post-structural critical approach of CLA – and narrative foresight, for that matter – is not aimed at forecasting or juxtaposition, nor better definitions of the future, but rather ways to *undefine* the future. He gives the following example: "Of importance are not population forecasts but how the category of "population" has become valorised in discourse; for example, why population instead of community or people, we might ask?" (Inayatullah, 1998, p. 816). In a similar vein, in this doctoral study, I exploit futures studies methodology as a means to question the concept of *competence*, which, as indicated in the analysis of policy documents and relevant literature, has been valorised in the discourse of HE from Bologna onwards, and whether we should hold on tightly to it or instead look for other conceptualisations.

However, it should be made explicit that, in this doctoral study, narrative foresight is adopted to a limited extent, focusing mainly on ways to highlight the interdependencies of the "inner and outer, individual and collective, reality and possibility" (Milojević & Inayatullah, 2015, p. 161). In other words, as this study does not have the ambition to take action for preferred futures but focuses on how to conceptualise the notion of competence in times of uncertainty, exploring alternative futures is important as a method to investigate the stories that research participants tell themselves about these futures in order to identify major uncertainties that are in play.

All in all, among various concepts in the *post-structural futures toolbox*, Inayatullah (1998) suggests *alternative pasts and futures*, which are rooted in questions such as "which vision of the future is used to maintain the present?" and "which [future] explodes the unity of the present?" (p. 818). The approach

of alternative futures has been utilised in this thesis for data collection, i.e. collective research participants' views on the diverse futures of their profession were part of the semi-structured interviews. Later, the data were analysed with the aim of drafting scenarios of these futures that served as explications for the conceptual complexity-informed competence model.

Needless to say, the dimension of time, or temporality, is at the core of futures studies; thus the notion of time is also inextricable from the narrative, because it is the aspect of time that turns a mere description into a narrative: "Visioning and backcasting provide detailed and robust narratives presented as a sequential movement through time – from preferable to plausible futures towards the present moment" (Milojević & Inayatullah, 2015, p. 152).

In fact, the dimension of time is fundamental for complexity theory as well. Osberg et al. (2008) note that complexity theory conceptualises temporality and process differently from linear models. Rather than treating processes as sequential events unfolding over time and analysable from discrete temporal standpoints, complexity perspectives view time as intrinsic to the system's dynamics. "From a complex systems perspective, however, temporality is not a static variable but an *operator* – functioning from within, an integral part of the structure of the system itself" (Osberg et al., 2008, p. 222).

Osberg et al. underline that in complex systems "structure and process are inseparable", just as Meira and Ferreira (2008) suggest that time "assumes a main role in the narrative not only as an episode structuring and organising element, but also as a dynamic mechanism for constructing meaning through the integration into the narrative of the past, of the present and of the anticipation of the future" (referenced by Milojević & Inayatullah, 2015, p. 153).

In addition, Cilliers (1998) notes that the complexity of the world that we live in is not chaotic but rather organised; therefore, there are no simple, consistent discourses which could describe it. However, when we decide to model complexity, for example, in terms of a network, narratives may serve as paths or trajectories into that network or a system. In this sense, narrative foresight scenarios shed light on the dynamics of a system as it evolves over time, drawing on the stories that research participants tell about the future of the translator's profession. These dynamics have the potential to reveal which contextual factors may be key to the future evolution of translator competence, while also providing guidance on how it can be conceptualised in the present.

4.6.2. Methodological implications of narrative foresight in this study

Methodologically, while developing my semi-structured interview instrument, I dedicated the last part for the future aspect of the translator's

profession by adopting Milojević and Inayatullah's (2015) approach to scenario drafting as proposed in narrative foresight, rooted in CLA. The conceptual framework of CLA relies on six pillars: (1) map, (2) anticipate, (3) time, (4) deepen, (5) create alternatives to the futures that they envision, and (6) transform those futures (Inayatullah, 2019, p. 17). These six pillars accurately describe the process of CLA, which involves bringing research participants away from the taken-for-granted, single future to alternative futures, and then moving on to the preferred future (ibid). As already mentioned throughout this thesis, it was neither intended to forecast the future of the translator's profession nor to define it. Instead, this part of the interview instrument was meant to invite research participants to undefine the future (Inayatullah, 1998) – as well as undefine it as a single possibility – of the translator's profession by reflecting on diverse alternative futures.

Since the overall aim of this thesis is a complexity-informed conceptualisation of translator competence, complemented by narrative foresight scenarios, I did not follow the entire CLA process, which could be considered a limitation of this study. It would have been crucial to follow the entire process of CLA if this doctoral thesis intended to provide, for example, strategies for change for translator educators – a fundamental avenue for future research in translation studies, particularly in the context of challenging the pessimistic narrative of the future of translation as a profession in the context of technological breakthrough (Pym, 2024). However, the reason behind the choice to adopt the approach of CLA, or narrative foresight, more precisely, even though to a limited extent, was that it enabled me to encourage my research participants to critically reassess their assumptions about the future and reflect on possible alternative trajectories – an essential step before tools for envisioning preferred futures can be effectively employed. Thus, narrative foresight has been used as a means to reflect on how research participants' worldviews shape possibilities of alternative futures through narrative and storytelling.

Based on Inayatullah's (1998, 2019) notions of alternative pasts and futures, during semi-structured and focus group interviews, I invited research participants to share their visions of the future and alternative futures of the translator's profession. I used such prompts as "What would be the perfect world for a translator to live in in 2050?", "Can you envision the worst-case scenario for translators 20–30 years from now? What is it like?", etc. While drafting scenarios based on research participants' narratives, I focused on how these scenarios may serve as a lens to develop a complexity model of translator competence today while taking into account its change in the future.

During data analysis, I used MaxQDA Analytics Pro (24.3.0) to code my data inductively, referring to alternative futures of the translator's profession to further analyse the data thematically. Once I coded my data, I used the futures table (Seppälä, 2013) for grouping it. Originally developed for morphological analysis by Zwicky (1967), the adapted version of the futures table has been explicitly used in futures studies for scenario drafting. I present the futures table and elaborate on how it served as the basis for narrative foresight scenarios in subchapter 6.1.

5. RESEARCH DESIGN

This thesis investigates how competence can be conceptualised so that it encompasses uncertainty. Following the established theoretical and methodological framework, this study seeks to conceptualise translator competence and its development from the perspective of complexity theory. Accordingly, the methodological approach is also guided by this theoretical framework, which suggests that if complex phenomena are to be understood and explored in ways that do not disrupt their complexity, this can be achieved through modelling.

Furthermore, if the conceptual model of competence as a CAS is expected to capture the complexity and internal dynamics of the overall competence development, narrative foresight scenarios – as "trajectories into the system" (Cilliers, 1998) – are employed to introduce the temporal dimension into the model as well as provide a more vivid experience of this conceptualisation. In mathematical or computational complexity models, the dynamics of complex phenomena would be examined through simulations; while narrative foresight scenarios cannot replace these simulations, they can elucidate the conceptual model by qualitatively narrating the dynamics of the system.

Figure 10 illustrates the structure of the research design, while the following subchapters present the rationale for developing the CAS model and main organisational aspects of the study in greater detail.

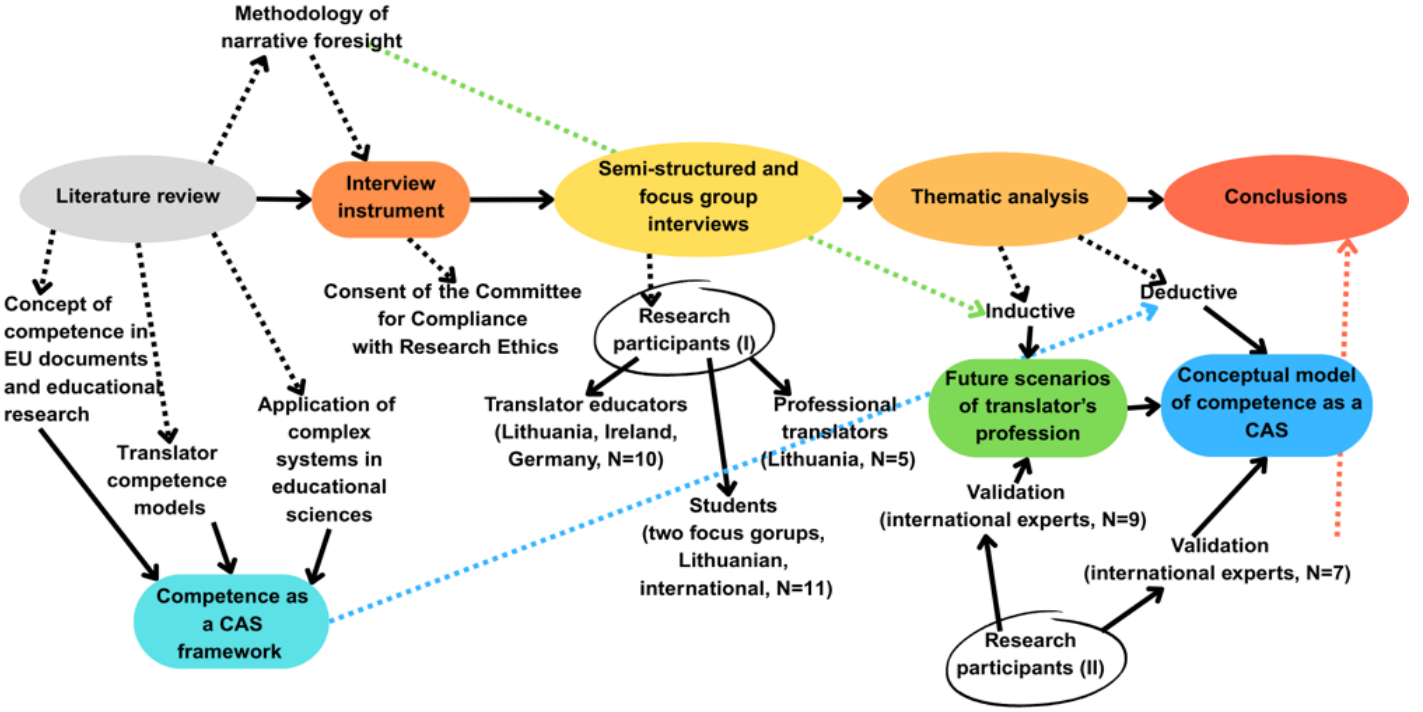

Figure 10. An outline of the research design.

As illustrated in Figure 10, this doctoral study is structured around its anticipated methodological and empirical outcomes. Firstly, I developed two major methodological components: (1) the interview instrument and (2) the conceptual framework of competence as a CAS. Both were developed on the basis of an in-depth literature review, encompassing policy documents, studies on competence in a broad sense, and translator competence in particular. In addition, the theoretical and methodological foundations of complexity theory and narrative foresight informed the development of these methodological components, too.

Secondly, drawing on the interview instrument and the conceptual framework, I conducted semi-structured and focus group interviews to collect empirical data for the development of (1) future scenarios of the translator's profession and (2) a conceptual model of translator competence as a CAS. These outputs, subsequently evaluated by international experts, constitute the main empirical contributions of this doctoral study. The research conclusions are grounded in the empirical findings derived from this process.

5.1. Rationale for modelling translator competence as a complex adaptive system

The conceptual model of translator competence as a CAS was developed by combining both deductive and inductive thematic analysis (Braun & Clarke, 2006) of data generated from semi-structured (N=15) and two focus group interviews (N=11), followed by evaluative expert interviews for narrative foresight scenario drafts (N=9) and the conceptual model (N=7).

The conceptual model of translator competence as a CAS was developed in three stages: (1) the development of narrative foresight scenarios, (2) the identification of the elements of translator competence, and (3) the organisation of these constituent elements into a complex system and its properties. At the end of the empirical part of this study, I provide a visualisation of the conceptual model to enhance its clarity. In addition, I reintroduce the draft scenarios into the model through four additional visualisations that make the dimension of time more explicit by illustrating how different scenarios evolve over time. Overall, having initiated my data analysis and the development of the model from the narrative foresight scenarios, I conclude by returning to them to emphasise that the conceptualisation of translator competence as a CAS should be understood as a four-dimensional model, incorporating time as its integral dimension. In this sense, these future-oriented narratives serve as both a point of departure and a point of return, framing the complexity of translator competence as

inextricably bound to its temporal dimension – an aspect often overlooked in conventional conceptualisations of competence.

Development of narrative foresight scenarios. The first stage of developing the model involved analysing interview data, in which research participants reflected on the futures of the translator's profession, resulting in four narrative foresight scenarios. By capturing the range of plausible future trajectories for the concepts of translation, translators, and, thus, translator competence, these scenarios made the variability, uncertainty, and temporal dynamics inherent in translator competence more explicit. In this way, the scenarios provided the initial basis for conceptualising translator competence as shaped by changing conditions, informing the subsequent identification of its constituent elements that followed afterwards. Some of the constituent elements could already be identified at this stage (see the futures table in 6.1.1).

Identification of the elements of translator competence. The analysis, which followed in the second stage, aimed to identify the constituent elements of translator competence that emerged from the research participants' perspectives (see subchapter 6.2.8). As explained earlier, these elements were identified through simultaneous, iterative, deductive and inductive analysis of the interview data. Together, these elements constitute translator competence as a system; however, what is central to conceptualising them as a CAS is their interactions and interdependencies that enable a more nuanced understanding of the complexity of translator competence.

Modelling constituent elements and their interactions into a system. I conducted a thematic analysis that was simultaneously informed by iterative juxtaposition with theoretical concepts from complexity theory. After the interview transcription, I initially went through the data to identify preliminary patterns or hints of CAS properties. At this stage, the analysis was guided by the conceptual framework of key complexity theory concepts derived from a review of the relevant literature (see subchapter 4.2.3). On the one hand, to a certain extent, this was an inductive process aimed at identifying patterns in the data that might correspond to major properties of CAS. On the other hand, the analysis remained iterative, involving continuous juxtaposition of the conceptual framework with these emerging patterns through repeated comparison between data extracts and complexity theory concepts. This iterative movement between empirical data and theoretical concepts was similar to that found in broader interpretative traditions in qualitative research, where analysis involves continuous interaction between data, concepts, and emerging meanings (Denzin & Lincoln, 2011), and, to a certain extent, also resembles the thinking-with-theory approach (Jackson & Mazzei, 2012).

Eventually, from the data analysis, ten key properties of translator competence as a CAS emerged.

The final step in developing the conceptual model involved organising the identified constituent elements and their characteristics as system properties into a relational system in which all elements are interconnected. Furthermore, it was important to highlight the constant movement of the system, which resulted in a visualisation that represents translator competence as a dynamic, interconnected system, characterised by constant non-linear movement and decentralised control (see 6.4.1).

This provides a brief overview of the rationale for developing the conceptual model. A more detailed account of the analytical process, including the evaluation and expert validation that followed it, is presented in Chapter 6. The following subchapters, in turn, elaborate on organisational aspects of how the study was conducted.

5.2. Data collection and sample selection

The initial stage of this doctoral study, which took place from November 2021 to February 2023, involved an in-depth literature review and the identification of the most suitable theoretical and methodological frameworks, upon which the research instrument was developed. During this period, as a doctoral student, I attended various international academic events in both translation studies and educational sciences that significantly expanded my social academic network. This, in turn, informed the decision to broaden the scope of this doctoral study beyond Lithuania by engaging an international cohort of participants, as well as experts who could subsequently evaluate its key findings.

Given the qualitative nature of this study, the emphasis was placed on capturing the diversity of perspectives on the research topic provided by different stakeholders who represent diverse roles. In qualitative research, this range of perspectives may be just as important as the overall number of research participants. Moreover, qualitative research in social sciences is shifting emphasis from reliability and replication towards comprehensiveness and validity (Morse, 2018).

Following this approach, the study employed purposive sampling (Patton, 2002), complemented by elements of snowball sampling, to recruit participants across three stakeholder groups: translator educators, students of translation, and professional translators. These groups were selected as representative of distinct and yet complementary perspectives on translator

competence: the pedagogical (educators), developmental (students), and practice-based (professionals). In addition, this kind of participant triangulation (Denzin & Lincoln, 2018) was undertaken as a means to both seek this diversity of perspectives as well as research validity, which is addressed later in this chapter. All in all, this research sample had the potential to provide targeted, relevant information to deepen understanding of the research problem and the central phenomenon under investigation (Creswell, 2007). To proceed with data collection, I obtained research ethics approval from the Institutional Review Board of the ISSW and IES of the Faculty of Philosophy at Vilnius University in February 2023, which was subsequently extended in June 2024 to cover the remainder of the doctoral study (see Appendix 3).

Participants were selected based on the inclusion criteria. Translator educators were expected to have active teaching experience in translation studies as well as be familiar with contemporary developments in the field, including MT. Students were invited from translation study programmes at the postgraduate level to ensure engagement with competence development processes. Last but not least, professional translators were selected based on their practical experience in the field; in addition, diverse fields of translation were taken into account (literary translators (N=2), subject-specific technical translators (N=2), institutional translator (N=1)).

Different data collection methods were used for each stakeholder group. Semi-structured individual interviews were conducted with translator educators and professional translators to enable in-depth exploration of individual expertise and professional experience. In contrast, focus group interviews were conducted with students to facilitate interaction and collective reflection on learning processes and competence development.

Purposive sampling began with the identification of relevant institutions and individuals known for their engagement in translation studies and MT research. Collecting the sample from Vilnius University was very convenient for me as a post-graduate in translation studies there. When looking for research participants from European universities, I focused on institutions with a robust foundation in MT research, as it is one of the underlying VUCA phenomena in the field of translation. Snowball sampling was used selectively, as several participants recommended colleagues who met the inclusion criteria.

While making choices about the student cohort, I decided to have two focus groups. To gain a local Lithuanian perspective, one of the focus groups took place at Vilnius University. The group was recommended by one of the

research participants from the first cohort. Furthermore, to access an international perspective, the other focus group was conducted in Finland. During an international event there, I had the opportunity to gather a group of international postgraduate students in translation to explore their views from geographically diverse contexts.

The last group of professional translators was the most limited in terms of geography (only Lithuanian) and quantity (N=5) – this is also later addressed in the subchapter on research limitations. However, major aspects – specifically significant among translators – began to saturate very early on during these interviews; therefore, I decided not to expand this last group and the originally planned number of participants was deemed adequate.

Each interview lasted between 29 and 74 minutes. I found it important to use every possibility to interview my research participants in their usual environment, which also allowed me to acquire a deeper understanding of their universities and their well-established expertise in translation studies. I believe that visiting my research participants in person and properly introducing myself and my study provided grounds for a more open and trusting interview process as well as created a more comfortable atmosphere than interviewing them online without knowing each other in person. There were several exceptions regarding this during the interviews with professional translators (N=4) and international experts (N=4) due to their personal, time-related or geographical constraints. In part, this could be considered a possible limitation for this study.

Finally, two groups of international experts were interviewed to evaluate the study's findings, which is discussed in the subchapter on validity. However, it should be made explicit that these interviews extend beyond mere evaluations of insights derived from data analysis and also function as complementary sources of data. Therefore, the data obtained from two groups of experts, whom I interviewed to evaluate my scenario drafts (N=9) and the conceptual model (N=7), constitute research data in their own right. I discuss these groups in more detail in subchapters 6.1.6 and 6.3.2, introducing the validation process of draft scenarios and the conceptual model.

The major data collection stages that followed are indicated in the table below.

Table 3. Major stages of data collection.

Procedures	Time	Place
Pilot interview with translator educator, refinement of the interview instrument (N=1)	March 2023	Vilnius university (VU), Lithuania
Interviews with translator educators (N=5)	March–April 2023	Dublin City University (DCU), Ireland, Johannes Gutenberg University (JGU), Germany
Focus group interviews with students (N=4, N=7)	May–June 2023	VU, Lithuania, Tampere University, Finland
Interviews with translator educators (N=4)	March–May 2024	VU, Lithuania
Interviews with professional translators (N=5)	May–June 2024	Lithuania; in person and online
Validation interviews (draft scenarios) with experts (N=9)	July 2024	International group (Finland, Ireland, Poland, Slovenia, Turkey, and the USA)
Validation interviews (conceptual model) with experts (N=7)	May–June 2025	International group (Ireland, Finland, Lithuania, Spain, and Switzerland)

5.3. Data analysis and presentation

The data analysis procedures, to a large extent, followed the framework of thematic analysis (Braun & Clarke, 2006) and were used in combination with scenario drafting methods of narrative foresight and conceptual complex systems modelling.

While conducting thematic data analysis, I kept the following research questions in mind:

1. How do research participants conceptualise translator competence?
2. What will significantly affect the translator's profession in the future? What drivers of change and aspects of uncertainty have emerged in research data?
3. What is the range of future trajectories for the translator's profession?

Firstly, interview data concerning narrative foresight were inductively analysed and grouped into various future scenarios, which were later evaluated and validated by a group of experts in translator education. These scenarios served as a starting point to investigate the dimensions of time and the context of the translator's profession in the future, setting the scene for further analysis of translator competence and modelling its complexity.

Secondly, the rest of the interview data was deductively organised into major themes representing the research participants' views on the notions of translation and the translator, the translator's past, present, and future competences, the impact of technology on translators' work, and attitudes towards translator education.

Lastly, inductive analysis was conducted, which was further juxtaposed with the framework of complexity concepts, with the aim to develop the conceptual model of translator competence as a CAS. Firstly, major constituent elements of the CAS of translator competence were identified; secondly, their relations or interdependencies had to be determined. For that, the framework of complexity concepts adopted in education research (based on the literature review and concept mapping carried out at the initial stages of this study, see Table A2 in Appendix 2) served as the guidelines to identify whether and which of the complexity concepts can be applied to make sense of translator competence as a CAS. Once the conceptual model with its CAS properties was built, it was evaluated and validated by the group of experts. Additionally, visualisations were built both for the conceptual model and future scenarios.

It should be noted that data analysis was an iterative process, allowing for modifications based on the insights of experts during two expert validation phases of the narrative foresight scenarios and the conceptual model.

5.4. Research validity and validation

Validity is a fundamental aspect that defines whether a study is methodologically sound. However, according to Cohen et al. (2007), what counts as a valid study, particularly in qualitative research, remains debatable as new approaches to validity continue to emerge. Validity is commonly evaluated in terms of depth, transparency, and breadth of data, the diversity of participants, the use of triangulation, and the researcher's reflexivity and objectivity (Winter, 2000). However, given that qualitative data inherently reflect participants' subjective perspectives, some degree of bias is unavoidable; hence, "validity, then, should be seen as a matter of degree rather than as an absolute state (Grolund, 1981)" (Cohen et al., 2007, p. 133). At the same time, positivist approaches to validity, such as demonstration of concurrence, predictions, convergence, or external/internal validity, should be used with caution in qualitative research (Maxwell, 1992).

With regard to the validation processes undertaken in this study, I adopted Mishler's (1990) position that standard experimental-model-based approaches to validity assessment are, to a large extent, unsuitable for social science

research, and that "validation is a mess of entangled concepts and methods with an abundance of loose threads" (p. 416). In Mishler's reformulation of *validation as the social construction of knowledge*, grounded in historical and sociological research of scientific practice, the relevant scholarly community becomes central in evaluating whether reported findings are sufficiently trustworthy (rather than true). Moving away from the conventional four types of validity – that of content, predictive, concurrent, and construct – a new understanding of validity and its assessment has emerged, emphasising that validation cannot be solely achieved by adopting formal assessment algorithms (Mishler, 1990, p. 418). Since the conceptual model proposed in this study does not aim at measuring translator competence, but rather seeks to capture its complexity, seeking validation in a positivist sense was neither epistemologically nor ontologically in line with this study. Instead, I prioritised expert assessment of the conceptual adequacy of the proposed model, where qualitative reflections and comments were central.

Alternatively, there are five types of validity in qualitative research: descriptive, interpretive, theoretical, generalisable, and evaluative (Maxwell, 1992). Maxwell argues that a clear distinction between these categories cannot always be made and that not every case of validity can neatly fit into a single type. Respectively, this doctoral thesis placed primary emphasis on evaluative validity, while also drawing upon aspects of theoretical validity. Theoretical validity here refers to, in Maxwell's words, the *mental construction*, the purpose of which exceeds the need to describe the participants' perspectives, and serves as an "explanation, as well as a description or interpretation, of the phenomenon" (Maxwell, 1992, p. 289). In this case, this mental construction is the conceptualisation of translator competence as a CAS – a model built by the researcher to explain the phenomenon under study (ibid). Furthermore, theoretical validity raises the issue of whether a new concept or theory is legitimate and whether agreement within the relevant community – in this case, those concerned with translator competence development – can be reached. To this end, evaluative validity was sought by using experts in the field to provide a critical-theoretical standpoint, which might otherwise have been obstructed by the researcher's own evaluative agenda (Cohen et al., 2007) during data analysis. Hence, validity in this study is linked to the trustworthiness of the interpretative accounts rather than the data or procedures themselves. As a result, what matters is the meaning that participants – in this case, experts in translator education – attribute to the data and the conclusions drawn from it, and that is exactly why I brought in the two expert groups.

I sought evaluative validity for two major deliverables of my doctoral study – future scenarios and the conceptual model. Draft scenarios, which I developed through narrative foresight as part of my interviews, were evaluated for validity, ensuring they met relevance, plausibility, coherence, completeness, and impact criteria. The entire validation process is introduced in subchapter 6.1.6. The validation of the conceptual CAS model was more challenging, as there is no common validation technique in the social sciences for this kind of model. In contrast with more conventional simulation models of, for example, complicated systems in biology or engineering, the validation of CAS models in the social sciences varies (Niazi, 2011). Thus, expert validation of the conceptual model was sought to evaluate its correspondence with reality, generalisability, strength, and contributions to theory. The entire validation process of the model is introduced in subchapter 6.3.2.

In addition, to enhance the transparency and rigour of this study, I used triangulation, a powerful method for demonstrating validity in qualitative research (Campbell & Fiske, 1959; Denzin & Lincoln, 2018). In this study, I attempted for *data* triangulation; additionally, since initial interviews with translator educators took place in Lithuania, Ireland, and Germany, and the validation interviews were carried out with international groups of experts, *space* triangulation, which "attempts to overcome the limitations of studies conducted within one culture or subculture" (Cohen et al., 2007, p. 142), has also been employed as a strategy to enhance research validity.

5.5. Ethics

When conducting the study, I adhered to the underlying principle of impartiality and the general provisions and accepted standards of scientific research ethics. This doctoral study has been approved as compliant with the research ethics by the Institutional Review Board of the ISSW and IES of the Faculty of Philosophy at Vilnius University on February 9, 2023 (Minutes No (1.13 E) 250000-KT-17), with the subsequent extension for the entire period of doctoral study on June 18, 2024 (Minutes No (1.13 E) 250000-KT-132) (see Appendix 3). The Board had reviewed and approved the necessary documents that were used to ensure that research participants are taking part in the study in accordance with research ethics, such as the *Informed Consent Form* and *Research Participant Information Sheet*, as well as the guidelines for conducting semi-structured and forms for validation interviews regarding scenario drafts as well as the conceptual model (see Appendices 4, 5, 6, 7, and 8). Participants were informed of the opportunity to discuss aspects of the study and contact the researcher at any time.

Before each interview, each participant was introduced to the topic of the research and its objectives were explained. The participants were informed about the anonymity and confidentiality of their participation, emphasising that they had the right to withdraw at any stage of the study. All participants, regardless of whether they participated in the interviews in person or remotely, were asked to sign informed consent forms. In addition, experts who participated in the validation interviews were provided with the draft scenarios and the conceptual model, along with its visualisation, so that they had time to familiarise themselves with the material to be evaluated and validated.

To avoid the risk of confidentiality breach, I transcribed and anonymised the collected data immediately after the interviews, in order to eliminate the possibility of identifying research participants. Each research participant was assigned a code: E1–E10 (translator educators), ST1–ST2 (students' focus groups), T1–T5 (professional translators), E1(SC)–E9(SC) (experts who validated scenarios), and E1(CAS)–E7(CAS) (experts who validated the conceptual model). For the transcription of my interview recordings, I utilised the AI-powered MAXQDA Transcription feature (available with MAXQDA Pro 24.2), which processes data on GDPR-compliant European servers and ensures robust data protection.

In addition, it should be noted that Generative AI tools were used for language editing, to a limited extent, structuring support of the thesis, as well as providing visualisations of the conceptual model, as indicated in the declaration on responsible AI use (see Appendix 11).

5.6. Limitations

This subchapter provides a critical view of this doctoral study and discusses its main theoretical and empirical limitations.

Firstly, while conceptual complexity modelling enables the exploration of interdependencies, feedback loops, and emergent patterns of the object under study – translator competence – it should not be conflated with mathematical or computational approaches to complexity modelling. Rather, a conceptual model depicts how a system might behave but falls short of providing quantitative precision or simulations, which are often associated with complexity models, such as agent-based, dynamic systems, network modelling, etc. As a result, the findings of this doctoral thesis should be treated as exploratory and interpretive rather than predictive or validated by means of computation. To mitigate this, I complemented this study with narrative foresight-based future scenarios, which enabled me to explore the emergent possibilities and dynamics of translator competence as a complex system

across diverse futures. In addition, computational complex systems models are typically based on substantial quantitative data. Meanwhile, relying on qualitative data is not impossible, but it poses additional challenges regarding the robustness of the study. With this in mind, I opted for building a conceptual model first, paving the way for developing a computational complex systems model of translator competence in the future.

Secondly, future scenario drafting is based on the methods of narrative foresight, which is part of CLA. However, I do not adopt the entire approach; instead, I incorporate only those components which are the most relevant and likely to provide significant analytical value for this study. For example, I do not use all the six pillars (*map*, *anticipate*, *time*, *deepen*, *create alternatives to the futures that they envision*, and *transform those futures*), which describe the complete process involved in CLA (Inayatullah, 2019). As such, the major limitation here is stopping at various futures that my research participants envision and not moving them to the preferred future. It would have been essential to follow the full CLA process had this thesis aimed to provide instructions on how to challenge the pessimistic narrative surrounding the future of the translator's profession amid technological advances (Pym, 2024). However, I adopted the narrative foresight part of the CLA – even if to a limited extent – to enable research participants to reflect on their assumptions about the future and consider diverse alternative trajectories. In this way, the dimension of time, which is present in the research participants' narratives on the variety of the futures of the translator's profession, provides grounds to explore both the complexity of translator competence and its relation to uncertainty.

Another group of limitations concerns the methodological aspects of this study, including the number of research participants. Determining the number of interviewees in a qualitative study remains a recurring challenge. On the one hand, I aimed for an optimal sample size to collect rich and diverse data as well as explore the complexity of translator competence and build the conceptual model. On the other hand, my sample size might have limited the extent to which the findings can capture the full range of perspectives of the wider population of translator educators. Therefore, a larger and even more varied sample might have revealed more nuanced aspects and, respectively, resulted in a more refined model. Additionally, the number of research participants among groups was not evenly balanced as the final group of interviewees – professional Lithuanian translators – was smaller than the other groups (N=5, in comparison with translator educators (N=15) and students who took part in focus groups (N=11). Given that the last group of professional translators was interviewed with all prior data from translator

educators and students in mind, data saturation occurred early, leading to the decision not to expand this group further. Additionally, this group was limited only to Lithuania (in comparison with translator educators (Ireland, Germany, and Lithuania) and students in the focus groups (China, Finland, Ireland, Italy, Lithuania, the Netherlands, and Slovenia)). There were several reasons behind my choice not to interview foreign professional translators. Firstly, this doctoral study was intentionally focused on the educational ecosystem; therefore, expanding the number of participants to include professional translators from other countries was beyond the major focus of this study. Secondly, it would have required additional resources, which I instead used to attract experts in translator education to participate in validation interviews.

Last but not least, during my research, I was advised to expand my study geographically and institutionally to bring some balance to the sample, as some institutions (DCU, JGU) are highly experienced in terms of translation technology and its incorporation into the educational process. Therefore, cases of other countries, like Lithuania, still progressing towards this stage (e.g., Spain, Italy) would have been reasonable. In a similar vein, expanding my sample by including more stakeholders, such as MT developers, translation service providers, and the like, would have also contributed to a more nuanced conceptualisation of translator competence. However, due to the limitations applicable to the scope of this study, as well as due to the fact that this doctoral study is based in educational sciences, I decided to focus on the cohort from the field of translator education.

In addition, this overview of the limitations of this doctoral study provides valuable insights into the directions that future research in competence development could take, including computational competence modelling in the field of translator education and beyond, fostering preferred futures by means of narrative foresight (and CLA more generally), and case studies on comparative approaches of translator competence development across different geographical, cultural, and institutional contexts.

5.7. The researcher's stance

To some extent, my reflexive account regarding my background as a former translator has been introduced in the subchapter 3.1.2 Bottom-up: researcher's reflexive account. Here, I would like to refer to my position as a researcher from a broader perspective, particularly in relation to complexity theory.

Firstly, any researcher might have preconceived ideas about the phenomenon under study, which is a common challenge while conducting

qualitative studies (Patton, 2002). Therefore, one should remain particularly reflective and keep challenging the assumptions that arise during the study. What is specific to complexity modelling is that the researcher does not undertake a neutral or external position but is embedded within the system they are researching. Therefore, since, according to complexity theory, knowledge is emergent and only partial, the dynamics of the study and assumptions made by the researcher also take place in a similar emergent manner. This poses certain challenges, for instance, of applying more positivist methods to both data collection and its analysis, leaving the researcher an informed participant rather than an objective observer. As a result, complexity scholars emphasise the researcher's responsibility and caution not to oversimplify research results (Morrison, 2008; Byrne & Callaghan, 2014). To minimise potential deviations, I planned the expert validation part of the study with great scrutiny and care, as experts' feedback during validation interviews was intended to guide and ensure adherence to the research focus. In addition, at the initial stages of my study, I had the opportunity to directly consult Prof. Don Kiraly, a foundational figure in introducing complexity theory to translation studies research, which also served as a means to maintain my integrity as a researcher.

Interestingly, while in the first half of my doctoral studies, I was challenged by one widely renowned scholar in translation studies with a question, whether I had adopted complexity theory in my doctoral study from the epistemological or ontological standpoint, adding that the ontological complexity-informed stance might be *dangerous*. This single encounter has kept me alert ever since, as the ontological dimension in complexity theory appears inextricable from the epistemological one, mainly because "complex thinking denotes the manner in which one engages with these systems, and therefore concerns both psychological claims (i.e. the attitude with which we approach complex systems) and epistemological claims (i.e. the thought-process or models that we apply to understand our complex realities)" (Woerman et al., 2018, p. 18). In other words, in complexity research, the traditional distinction between the object and the subject cannot be maintained, i.e., complexity is regarded as an *ontological fact* that has epistemological implications for how we deal with it (ibid).

To conclude this chapter and my own positioning, the manner in which this doctoral thesis came into being in its essence reflects that of a CAS, for "to describe a complex system you have, in a certain sense, to repeat the system" (Cilliers, 1998, p. 10).

6. ANALYSIS AND RESEARCH FINDINGS

In this doctoral study, the framework of complexity concepts adopted in educational research provided both the theoretical perspective for the study as well as the orientation for analysing collected data. Furthermore, narrative foresight added an additional dimension to help better explore research participants' views towards the underlying theme of translator competence in the context of uncertainty and the future. As already mentioned, thematic analysis was carried out in several stages, the respective findings of which are presented in the following subchapters.

6.1. Exploration of translator competence through narrative foresight scenarios

As already mentioned at the beginning of this thesis, this study aims to provide a conceptual complexity model of translator competence; therefore, it is not possible to test the model by means of simulation, which is typically performed with computational complex systems models. To address this limitation, narrative foresight scenarios have been used, which serve as paths or trajectories into translator competence as a CAS. This subchapter introduces how scenarios were drafted, four draft scenarios, and the process and insights of their validation by the expert group.

6.1.1. Drafting future scenarios

As already mentioned in the subchapter on narrative foresight methodology, drafting of the future scenarios is rooted in Inayatullah's (1998, 2019) notion of alternative pasts and futures. During semi-structured and focus group interviews, my research participants shared their visions of alternative futures of the translator's profession following my prompts. I began my inductive analysis with these alternative futures before moving on to analyse the rest of the interview data, as I anticipated finding some initial insights into the areas of my conceptual model while drafting the scenarios for these alternative futures. There was a hint of backcasting involved – moving from alternative futures towards the present moment. The actual backcasting technique was not used explicitly because this doctoral study did not intend to provide a robust, detailed explication of how alternative futures could be reached. Instead, while drafting scenarios based on research participants' narratives, I focused on how these scenarios may serve as a lens to develop a

complexity model of translator competence as seen today, while taking into account its future change.

I used MaxQDA Analytics Pro (24.3.0) to code my interview data, referring to alternative futures of the translator's profession, for further thematic analysis. Once I coded my data, I used the *futures table* (Seppälä, 2013) for grouping it. Originally developed for morphological analysis by Zwicky (1967), the adapted version of the futures table has been explicitly used in futures studies for scenario drafting. The table comprises certain qualitative elements, or *themes*, that may appear in various future *states*; the aim is to develop multiple views of the future, which would bring relevance and insight to scenario narratives (Haapanen, 2016). Seppälä (2013) suggests different ways of developing these themes and states of the futures: (1) invent the names for the futures first and then define future states to suit them; (2) select the future states and then match the names of the futures; (3) the midway approach of having "a dominant theme that guides the selection of other future states and names" (Seppälä, 2013, referenced by Haapanen, 2016, p. 32). I have taken the latter, *midway* approach in building the futures table for alternative futures of the translator's profession.

The futures table below (Table 4) indicates major themes which I identified during inductive data analysis. The themes emerged once I began grouping coded data into clusters, and identifying them presented little difficulty. Meanwhile, naming the states did not lend themselves to short and accurate labels, because they needed more extensive descriptions; therefore, in the futures table, I left them unnamed. In principle, these states evolve around the human aspect of translation and the translator's relation to technology – one of the major VUCA world challenges. Therefore, states of the alternative futures mainly refer to the human-in-the-loop scenario, where State 1 represents a world where the translator's profession is in high demand, while State 3 is the complete opposite – it is a world where there is no need for translation as such.

Table 4. The futures table based on inductive data analysis of the narrative foresight part of the interviews.

Theme	**State 1**	**State 2**	**State 3**
Linguistic diversity	Strong multilingualism	Several politically and/or culturally dominant languages	Extinct (due to lingua franca/the Babel tower)
Need for communication	Active face-to-face communication among humans	Communication is mainly enhanced by technology	Severe isolation, individuals/cultures stop communicating

Theme	State 1	State 2	State 3
Need for literature and textual culture	Decreasing interest in literature and texts and increasing interest in visual culture and communication	Interest in human-originated literature and textual culture is decreasing significantly	AI-originated literature/no need for human-origin literature
Technological advancement	Technologies are highly advanced and support all areas of everyday life	All areas of life are strongly influenced/ supported by technologies	Technological singularity, society loses control over technologies
Value of human input/output	High value of human input/output	Human input/output is of moderate value	No value of human input/output
Ethical standards	Human translators maintain high ethical standards	Ethical standards are constantly challenged as AI-output is difficult to control	Ethical standards are not kept up because the flow of input/output has become unmanageable

It is important to mention that the futures table is not an end-product in itself but rather a scaffold for erecting the elaborate narratives or scenarios of the alternative futures. Therefore, eventually, leaning on these themes and states of alternative futures of the translator's profession, I drafted four scenarios, which cover the major themes and states introduced in the futures table. Scenarios 1 and 4 coincide with the States 1 and 3 respectively, meanwhile, Scenarios 2 and 3 provide an insight into the intermediate State 2. On the one hand, the overall number of these scenarios may vary as alternative futures are endless; on the other hand, there is always a risk of getting overwhelmed by the precision and detail of scenarios, which initially were never meant to predict or forecast the future of the translator's profession. Instead, they aim for depth over breadth, where the exploration of the most contrasting alternative futures is key. Therefore, I ended up drafting four scenarios provided in the following subchapters.

6.1.2. Scenario 1

"In the future, ethics will be the key factor marking the distinction between human-based and AI-based translation, because only humans are able to ensure that high ethical standards in translation are being kept up.

In 2050, translators' work is aided by AI and other technologies, but the attitude towards translation itself has changed – translation now is highly sustainable as opposed to the digital landfills of AI and other technologies-based transcreational overproduction. In addition, the supply of translators is low (thus, the demand for them is high) because, besides obligatory university education in translation, an exam is needed to be acknowledged as a professional translator.

Strong multilingualism persists, with a continued emphasis on maintaining and celebrating linguistic diversity. Human translators play a crucial role in this context, preserving the nuances and richness of different languages. Active face-to-face communication among humans remains important, with human translators facilitating meaningful interactions across different languages and cultures.

AI and other new technologies have evolved so profoundly (and are now available to all languages, including low-resourced ones) that converting subject-specific information from one language into another has become fully automated, speedy, and cheap. What has remained human-centred, time-consuming and expensive is the accurate, tailored and "handicraft" effort of (1) certain kinds of literary translation, (2) cross-culture sensitive (and sensitive in a broader sense) translation, (3) conference interpreting in international contexts, (4) certain types of content that do not exist yet as of 2024".

6.1.3. Scenario 2

"In this scenario, translators find themselves in a world which is politically dominated by several cultures and several languages; hence, there is a threat for translation to become a means to ensure dominance. At the same time, the translator's role becomes increasingly more important as a way to resist this dominance and ensure the increasing need for cross-cultural communication and negotiation.

Technological advancement has reached a point where highly advanced technologies support all areas of everyday life. Almost all communication is enhanced by AI and other new technologies. Therefore, translators extensively exploit these technologies to fulfil their roles as mediators and

communicators. Despite the technological advancements, human input/output retains a high value, also ensuring that translation upholds ethical considerations and cultural sensitivity.

In addition, AI and other new technologies have progressed to the extent that almost all communication is enhanced by AI and other new technologies. Therefore, translators exploit these technologies to a vast extent to fulfil their role as mediators and communicators.

Human-originated literature has become rare due to the immensely changed attitude towards textual culture, which is now taken over by the visual one. Reading as an activity becomes rare and outdated, resulting in extremely low demand for literary translation".

6.1.4. Scenario 3

"In 2050, AI and other new technologies have become so advanced in terms of quality, speed, and resources that there is no need for human-originated translation from scratch. The concept of translation per se has become outdated, and it is now referred to as conversion. The volume of converted texts is beyond compare to those 20–30 years ago, and the major tasks of people formerly known as translators include participation in the development of these language technologies as well as ensuring quality input and output of converted texts.

Ethical standards are constantly challenged as AI output is difficult to control. Human oversight is necessary to manage ethical considerations and maintain standards in the face of automated processes. The world is characterised by several politically and culturally dominant languages. Despite technological advances, the role of human experts in navigating and bridging linguistic divides remains crucial.

On the one hand, over time, human ability to translate has been overcome by AI and other new technologies resulting in the disappearance of all human-originated translation. On the other hand, the success of AI and other technologies-based conversion was highly dependent on the inclusion of former translators into these technological developments, making former translators rise like phoenixes in their new roles both as cooperators in language and communication technologies and as highly appreciated content engineers".

6.1.5. Scenario 4

"On the one hand, in 2050, the world lives in times of technological singularity, which could be both dystopian and utopian. In the latter case, people have translation chips installed in their bodies so that everybody can understand each other without any need for outer intervention, or people are able to communicate mind to mind, and no medium of a language is needed.

On the other hand, linguistic diversity may become extinct, with a single lingua franca prevailing globally, making translational activities obsolete. Literature and textual culture are dominated by AI-originated content, eliminating the need for human-origin literature.

The dystopian version of this scenario suggests that individuals stop communicating and get severely isolated, and if there is no need for communication, translation becomes outdated as well. In such a case, the most important aspect is not to define the reasons for this isolation but rather acknowledge that there are uncertainties which will always remain beyond prediction to the extent that they can never be prepared for, such as global catastrophes due to climate change, etc".

6.1.6. Validation process and its results

Four futures of the translator's profession were introduced for validation to international experts in translator education (N=9). I encountered these experts in an international event for translation studies, where I had the opportunity to interview them individually face-to-face. The geographical range of experts who took part in the validation process covered Finland, Ireland, Poland, Slovenia, Turkey, and the USA. The experts' training experience in translation varied between 16 and 35 years. Five experts were familiar with this doctoral study from previous encounters, and four were completely new to it. Semi-structured interviews spanned from 20 to 40 minutes. Before the interviews, the experts were introduced to the ethical aspects of this doctoral research, informed consent forms, and the expert validation form *Shift in Translator Competence Development and Translator Education in the Context of Future Uncertainty* (Appendix 7) which included four future scenario drafts of the translator's profession as well as the evaluation and validation criteria (adopted from Van der Heijden, 2004): *relevance*, *plausibility*, *coherence*, *completeness*, and *impact*.

Agreement-based evaluative responses (according to five response categories ranging from totally disagree to totally agree) were employed to structure expert evaluations of the draft scenarios evaluated according to the

five criteria. This quantitative component was undertaken only for descriptive purposes to complement qualitative comments and as a means to structure the validation process. However, this does not make this research a mixed-methods study, as the evaluative responses do not form the basis for analysis of the validation results. The major focus of the validation data analysis was placed on the experts' views, comments, and further suggestions as to what essential aspects might have been overlooked, and, thus, need revision within the research data.

Firstly, the agreement-based evaluative responses for each criterion were analysed (see Table A3, Appendix 9). Mean values, standard deviation (SD), coefficient of variation (CV), and range values were calculated using Microsoft Excel to provide a comparative overview of experts' assessments of the draft scenarios. These measures provided, respectively, an indication of the central tendency, dispersion, relative variability, and how consistently experts agreed upon each validation criterion. Overall, the evaluations suggest that experts evaluated S1–S3 relatively positively, although the degree of agreement varied significantly across validation criteria. S1 was evaluated most favourably with regard to *relevance* and *impact*, while *coherence* was also evaluated with rather low variability (CV=23.86%). Meanwhile, with regard to *plausibility* and *completeness*, the levels of dispersion and relative variability of S1 (respectively, CV=28,51% and CV=29.43%) were high, which indicated that there was less consistent agreement among experts as to how plausible or sufficiently developed the scenarios were. S2 received strong evaluations regarding *relevance* as well as *impact*, while *coherence* demonstrated the strongest agreement (SD=0.44; CV=10.44%; range=1). However, *plausibility* was the weakest aspect of S2, indicated by high relative variability (CV=32.82%) and the widest gap in responses (range=4). S3 received comparatively high evaluations regarding *completeness* and *impact*, also supported by low variability and stronger agreement between experts. In addition, *relevance*, *plausibility*, and *coherence* showed high in dispersion and variability, reflected by CV values that exceed 30 per cent and a response range of four. This meant that experts' views regarding the overall consistency and credibility of S3 diverged. Last but not least, according to the experts, S4 was the weakest scenario, particularly in terms of *plausibility*, *relevance*, and *impact.* Across all four scenarios, the greatest variability and weakest agreement among experts was regarding the *plausibility* of S4 (CV=48.37%), suggesting substantial disagreement as to whether such a scenario is feasible. Overall, these results highlight that the experts considered S1–S3 more coherent, relevant, and impactful, while S4 generated substantially more disagreement and critical reflection.

Secondly, expert interviews were transcribed and coded using MaxQDA Analytics Pro (23.3.0). In this case, the inductive thematic analysis approach was adopted, which helped extrapolate the experts' views on the alternative futures of the translator's profession while evaluating the already drafted scenarios based on the validation criteria. A comprehensive summary of this analysis is introduced in Table A4 (see Appendix 10).

Based on the thematic inductive analysis, draft scenarios of diverse futures of the translator's profession have been recognised as *relevant* and likely to have an *impact* on translator education today (E1(SC), E3(SC), E7(SC), E8(SC)), regardless of the plausibility of these four future scenarios. Methodologically, one of the major tasks of narrative foresight is not to forecast but rather to provide the opportunity to foster alternative (desired) futures. Even though this was not the ultimate aim of this study, research participants admitted that these reflections are impactful on what should be taken into consideration whilst training translators for the future:

"Well, the strengths of all the scenarios for me are that we need to think of the future, although we never know what will happen, and things are changing so quickly. But I think we always need to at least predict […], even if we are then proven wrong" (E3(SC)).

"I mean, basically all of these are probably going to have an impact on translator education because this is the direction that I am seeing" (E1(SC)).

"I would say that they are all relevant [...]. I don't have the tools to be able to tell [...] [but] I can't think of anything more that you could put in there. And, I think they all have an impact. So I would actually agree. All of them would be 'totally agree'" (E7(SC)).

Regarding the *plausibility* of the four scenarios, research participants' views diverged. On the one hand, since narrative foresight does not aim to predict the future, the aspect of plausibility is not the major concern. However, in terms of validation, it was essential to ask experts to validate these scenarios based on this criterion, as a means to reveal their expectations and extrapolate how their views of plausible futures for the translator's profession relate to their teaching today. This was most evident in the case of S4, the views on which diverged among the experts the most. At one extreme, some research participants (E1(SC), E4(SC), E5(SC), E6(SC)) expressed their strong disbelief in the need to think about the future where translation does not exist whatsoever. As a result, they did not see how reflection on S4 could affect translator education today: "I'm not convinced in my mind that that's [what] I want to try to prepare students for. So, I find myself disagreeing with, like, this scenario having an impact on my teaching. Yeah, I know it exists. Maybe I choose to ignore it" (E1(SC)), "If technology takes care of any translation

needs, and obviously, [there is] no translator training. No need for that. It goes out of the window" (E4(SC)), "If we're no longer needed and if we're gone, what would be the chance for education? […] It's like these utopian visions. And then what do you achieve with this? Like you don't motivate your students, you don't motivate yourself" (E5(SC)), "I don't think I can imagine a scenario where everybody could understand everybody without any need of translation […]. I don't think I can prepare for it. So, I don't know how to prepare my students for something that I cannot envision" (E6(SC)). On the other end, some experts (E3(SC), E8(SC), E9(SC)) agreed that reflecting on the utopian/dystopian futures of the translator's profession works as *a thought-provoking tool* and a means to address the "fear of something that the society that is not from the field [of translation] may encounter" (E3(SC)). Other experts commented that the idea of preparing translators for the future, where they might not exist, puts translator education today into perspective and highlights the need to focus on *soft skills*, *other professional skills*, *lifelong learning and ability to adapt* (E8(SC)), *transferable skills and flexibility* (E9(SC)). Somewhere between these two positions, experts (E3(SC), E4(SC)) shared the opinion that regardless of any *force majeure*, they simply cannot envision a future where communication – and, thus, translation, even in an intralingual form – will become irrelevant; therefore, they would see a strong need for learning languages as well as translation skills as they will be relevant even if translation as we know of today will disappear.

With regard to *coherence* and *completeness*, most of the experts assumed that all four scenarios are rather coherent, but some provided specific comments to each scenario as to what should be clarified. For example, the *significance of community interpreting in S1* (E9(SC)), *prudence not to relegate translator's role to that of mediators and communicators in S2* (E3(SC)), *unlikelihood of the diminishing multi-lingualism in S2* (E3(SC)) and *S4* (E4(SC)), *need to clarify which translators (revolting or resisting) are of high value in S2* (E9(SC)), *clarification whether human-in-the-loop is of crucial or moderate value in S3* (E3(SC)). As for S4, in most cases experts agreed that it is rather complete and coherent, with the exception of E6(SC), who elaborated that "[it] cannot be complete, because we cannot actually know what would happen and it's not totally coherent. It cannot be, again for the same reason".

In most cases, the four scenarios were evaluated as indicative of a diminishing role of a human in translation, with a strong human role in S1 and S2, a strong decline of human-in-the-loop in S3, and the overall withdrawal of human translation – and translation in general – in S4. There was one exception of E4(SC), who assumed a different focus of each scenario, such as

S1 being a more culturally and linguistically diverse future, while S2 being more politicised, and S3 to a major extent being shaped by the economic and technological factors of the future of the translator's profession. The following section provides more experts' detailed insights into each scenario.

6.1.7. Elaboration on the draft scenarios

Scenario 1. According to experts, S1 provides a rather positive picture of the future (E3(SC)) and, based on where translation is today, it is the direction we are actually heading towards (E1(SC)), "not too far away from where we are already, simply a little bit more focused" (E4(SC)). In certain respects, this scenario is an amplification of the present trends (E2(SC)), such as the increasing role of AI and translation tools (E3(SC)), multilingualism (E6(SC), E8(SC)) due to increasing globalisation and migration flows – "this will become the major problem of all our nation states; this how to deal with the constant influx of different languages, of a variety of languages and how to deal with that" (E3(SC)). As a result, translation in situations of high risk will become significantly relevant (E1(SC)), "for example, in health care, courts and police, which largely covers community interpreting. […] Community interpreting in high-risk situations will be extremely needed" (E3(SC)). As E5(SC) puts it, "translators within certain constraints [will] play an important part in those [environments] where they provide high quality input". In other words, in S1, the translator has kept the ethical power and responsibility: "I'm not sure that this would mean that there are very few translators, because […] where multilingualism is very important, I'm not sure it would mean that you have very few translators because you simply cannot cope with the demand. […] It's about the quality of the translators. The translators should be extremely, extremely highly skilled. So only the ones that have these high skills will be translators, because the rest will be done by AI, the people who have been working in AI and in MT. This is what we tell our students – if you are not better than the machine, then there is no job for you" (E6(SC)). E8(SC) further elaborates that the two sectors of AI-assisted translation and human-originated translation will not be completely separated, but the need for a translator to be able to translate without the machine will have to remain an important focus – "what still is done in the EU institutions where they have to translate with just a dictionary, pen and paper, imagining a day without, electricity, stuff like that" (E8(SC)). Last but not least, some experts agree that there will be certain kinds of translation and interpreting that will remain the preserve of human translators: "things like dubbing, subtitling, and audiovisual translation – maybe that would still remain kind of human, mostly

human. […] There will be, you know, certain areas of literature translation" (E9(SC)). The latter is yet another important feature of this scenario. In 2050, our understanding of literature and how we access it, as well as the types and sizes of text that people read, will change:

> "Text hasn't disappeared, it's the ways in which people are accessing text that is changed in 2050. […] The literature will increasingly be accessed on digital platforms; the platform itself will have an impact on the kinds of texts that people will read […], the numbers of texts that my students are reading […] have reduced in size. […] There will be changes in text types, so what translators will be translating in 2050 maybe [will be] a lot more short form types [of text]" (E2(SC)).

To sum up, according to the experts' insights and comments, on the one hand, S1 is the amplification of the current direction in translation and translator education. On the other hand, what S1 needs to focus more clearly on is the overall redefinition of the value of the human aspect in translation in times where multilingualism and AI-assisted translation prevail. This redefinition should be made more explicit in terms of future translators' high-level skills, including risk management, ethical responsibility, and linguistic competence in many languages.

Scenario 2. S2, on the one hand, was evaluated as rather *extreme* (E4(SC)), but on the other, *probably very true and highly likely* (E6(SC)), even to some extent, as *reminiscent of the current reality* (E9(SC)). This relevance was often linked to technological advancements, but one of the major contradictions highlighted by the experts was the relationship between the digitalisation of translation and the value of human translators (E2(SC), E6(SC), E8(SC), E9(SC)). Some of the experts supported the idea that the value of human-in-the-loop can be linked to the changed role of translator as a gatekeeper (E2(SC), E4(SC), E8(SC)); however, the notion of gatekeeping in S2 had to be developed more explicitly. For example, according to E4(SC), S2 provided a very politicised view of translation, which could be both – in the service of power or resisting power: "I feel [it is] a little bit problematic for training, […] it seems to also depend on what university is like as an institution and sort of who will have the power and which gates are the translators keeping?" (E4(SC)). In a similar vein, E9(SC) raised the following questions: "Why that [human-in-the-loop] value? Who's going to ensure that is the case? Is it going to be these, you know, revolting translators or the resisting translators? I mean, why should it [human-originated translation] retain a high value? High value in itself or from the perspective of who? […]

I'm wondering, you know, how can translators resist it? What could they do to stop it? And would they really do anything to stop it?" (E9(SC)). In addition, the gatekeeping scenario is also about fostering the empowerment of the overall human element in translation as opposed to the increased technological dominance (E8(SC), E2(SC)). For example, in S2, translation study programmes should be strongly oriented towards courses on activism, cultural diversity, and intercultural communication (E8(SC)), also translation criticism, life writing, and other modules focused on the impacts of translation on society (E2(SC)) as well as modules related to political thinking, ideologies, manipulation – "basically focus on ethics" (E4(SC)). E2(SC) advances the discussion on the gatekeeping scenario by highlighting future translators' (1) ability to evaluate the resource cost of translation in – what we are currently moving towards – sustainable societies ("virtual technologies have an immense material cost in terms of energy, so, therefore, there is a high cost to translation"), and (2) capability to prioritise what translators actually translate ("the translator is someone who becomes the arbiter of how the translated good is to be deployed in the society […] – we're going to have to shift more of the emphasis from production to reception"). However, some experts also question the role of future translators as gatekeepers: "You relegate the role of translators to that of mediators and communicators. And I think in, in that scenario, they would just be post-editors" (E3(SC)), meanwhile "resistance is difficult, not everyone takes to the barricades" (E9(SC)); therefore, translators might not be willing to take on that role in a world politically dominated by several cultures and languages. As for the possibility of diminishing multilingualism, some experts expressed their strong doubts that this could be the case in S2 (E3(SC), E6(SC)).

All in all, experts agree that the gatekeeping debate is important, even though their opinions diverge as to how gatekeeping should be conceptualised, ranging from *the need to empower the human element in translation* to *translators as part of the surveillance regime* ("on a planet that is increasingly illiberal – we have more and more reactionary regimes, […] this is potentially one of their roles" (E2(SC)).

Scenario 3. To a certain degree, experts referred to S3 as the continuation of one of the present strands or a very likely scenario (E1(SC), E2(SC), E4(SC), E9(SC)), "in some ways, this has already started to show signs of translators being content engineers, multilingual content creators" (E1(SC)). The role of the [former] translator in this scenario was evaluated very diversely, with some experts presuming that translators' skills will remain fundamental, but the task of translation will shift focus to the ability to

manipulate multiple languages (which requires training students to have multiple outputs) rather than being the end in itself (E1(SC)) and advanced technological knowledge ("without which students will be pretty lost" (E9(SC)). In other words, preparing students for S3 implies high competence in linguistics, cultures, and technologies "so that they are able to understand what they are doing […], correcting, […] improving" (E8(SC)). In this kind of scenario, "technological understanding needs to be balanced with communicative skills, because former translators need to understand the tech side [and] they are there to bring in this additional value and relevance" (E4(SC)). However, not all experts were that optimistic about the idea of translators reorienting themselves to a more technologised role. For example, E6(SC) assumed that the role of translators as we know of today is not that easily compatible with AI engineering, regardless of whether it is language-related or not: "Even nowadays, technology, well, these large language models don't need translators. They just need data. They actually don't need us. They don't need humans anymore, except for programmers. […] They don't know what will come out of it because it does its own thing and it's not controlled by, humans in that sense". Some experts (E3(SC), E6(SC)) shared their concern that S3 also represents the present narrative among the broader society of translators becoming irrelevant due to technological advancement, and that manipulation of this particular scenario is one of the reasons why translation study programmes get shut down in some universities: "The fear is that it [translation] will be closed altogether. Like, translation will not be taught anymore, only language, as a set of skills, even. […] I think they don't need us [translators] as experts [in] like AI, MT, and so on. They don't need us for that. […] [This] would have enormous impact because it would mean that you don't actually train translators anymore" (E6(SC)). Other experts (E6(SC), E9(SC)), on the contrary, shared their experiences, how translation study departments attempt to incorporate AI-oriented modules into translation study programmes or vice versa. "I know a lot of students starting to take computer engineering classes as part of their degree. They're going to work in localisation, natural language processing, these kinds of areas […]. There has to be a much bigger, technical kind of component to translator education programmes" (E9(SC)); "for example, in Tampere you have this department which has been, you know, merged into a big Nature Science Faculty, I think with computer sciences and other stuff. Or, for example, in Trieste, you have the Translation department, which has merged with the Faculty of Law" (E6(SC)). Last but not least, E2(SC) shared yet another angle of S3 by referring to the challenges that machine-mediated communication – or the so-called *crisis of presence* – might bear upon translation, which, in turn, could

"trigger a kind of demand for forms of translation and mediation that are invested by physical, human presence in different ways" (E2(SC)).

In summary, S3 and its focus on technological advancement and how it could change the translator's role and tasks were evaluated ambiguously; experts following a rather optimistic direction agreed to the overall extension of the future "translators" profile (shifting focus to content engineering and language mediation) and upskilling (in AI-driven technologies), while some shared their scepticism about whether reimagining translators as content engineers is compatible with technological indeterminancy and were concerned that thinking about the world where translators no longer fulfil their role as we know it today strengthens the current narrative of fear that translators will become irrelevant altogether.

Scenario 4. S4 was referred to as *apocalyptic in many ways* (E1(SC)), *definitely the most extreme of the cases* (E4(SC)), or *utopian visions* (E5(SC)). This scenario can be characterised by the multitude of future pathways which come together under one umbrella due to their disruptive effect on human communication, the evolution of languages, technologisation of our everyday lives, etc. – areas which are fundamental for translation. Experts agreed that, due to excessive variation and uncertainty, S4 is the most challenging to prepare for. They separated into two groups, the first of which assumed that S4 has low or no impact on translator education today (E1(SC), E5(SC), E6(SC), E7(SC)), while the second group of experts agreed that S4 can serve as a thought-provoking tool of what should be taken into consideration in translator education today (E2(SC), E3(SC), E4(SC), E8(SC)). The insights of E9(SC) supported both of these perspectives. On the one hand, as E5 explicitly put it, this kind of scenario demotivates both teachers and students: "You don't motivate your students, you don't motivate yourself. […] We can educate them in the skills and things that are out there today, and how can we educate or impact people in these things that are to come, and we're unsure about them? It's just impossible, not in this dystopian manner; [if] there's the end of 'something, then I just I just don't have to teach and I can't do anything to influence, I'll just lie back on the beach". This first group of experts also spoke about their own lack of willingness or even ability to imagine such a future: "I find myself disagreeing with this scenario having an impact on my teaching. I know it exists, maybe I choose to ignore it" (E1(SC)); "I'm not saying it's not possible, but right now, I don't think I can imagine a scenario where everybody could understand everybody without any need of translation, I don't think I can prepare for it" (E6(SC)); "if you're saying, that this is inevitable, this is going to happen […] that within a certain time, that sector

that career is going to be is going to vanish, I think it will probably seem fairly pointless to teach it" (E9(SC)). On the other hand, the second group of experts agreed that, regardless of the plausibility of such a future, S4 provides insights into translator education today in terms of *critical reflection on what translation is* today and what it could turn into in the future (E4(SC), E8(SC)), *fear of* the broader society that *technologies will revoke the need for translation* (E1(SC), E4(SC)), *linguistic diversity* and *which languages* we should train translation students in (E1(SC), E3(SC), E4(SC)), *intralingual communication* (E2(SC)), *nature of language*, *communication and technologies* (E6(SC)) and the like. The latter aspect was addressed from different perspectives, mainly that of technologies being unable to fully mimic or replace humans' need for and ways of communication, even in the same language. E9(SC) puts it more explicitly:

> "If you're saying that within a certain time, that sector, that career is going to vanish, […] it's important not just helping students develop these translation skills but also transferable skills and becoming flexible and looking out for new possibilities and thinking how they can transfer the skills of translation to other fields that have a longer shelf life. Or I was thinking […] to really make student trainees aware of the value of human translation so that they can resist this, prevent this from happening and make them aware of what are the benefits of these multiple languages. […] We need to prepare for that eventuality […] by opening up different paths, increasing flexibility, transferable skills. Or maybe you could create a bucket list for translators […], say this sector is going to be finished in 20 years, so go and translate God knows what because the end is nigh. But then, if you could combine that with other directions in which they can channel their skills and knowledge – that's an option".

To sum up, experts' views on S4, this umbrella scenario of various utopian/dystopian futures of the translator's profession, if taken with a grain of salt, may provide some valuable insights for translator education today, particularly expanding directions towards future translators' adaptability and transferable skills, critical reflection on the relation between translation and technologies, and last but not least, the nature of languages and communication and how AI-driven technologies affect them. The idea that "I cannot teach for the future that I am uncertain of", which was made explicit by several experts, brings us back to the underlying challenge addressed in this thesis: how to conceptualise education for the future and uncertainty.

* * *

So what do these four futures of the translator's profession that have been evaluated and validated by a group of experts tell us about translator competence and its development today? Firstly, they lay grounds to explore and conceptualise translator competence **on a temporal and contextual basis**, i.e., these narrative foresight scenarios serve as **points of reference in the future as well as in uncertain contexts**, regardless of which – if any at all – of these futures will actually take place. In other words, the function of these scenarios is to provide *perspective* of how translator competence is conceptualised and developed today. Secondly, by analysing stakeholders' views on translation and translator competence and their reflection on alternative futures, we are able to **conceptualise translator competence in a much more complex manner** than we otherwise could if our points of reference were merely placed in the present. To grasp the complexity of translator competence means addressing it as a non-linear phenomenon which is in constant flux; thus, the dimension of time is foundational. Therefore, thirdly, these scenarios, extrapolated from the data of this study, **serve as trajectories** into what I have assumed to be a CAS of translator competence, and they will further serve for the development of the conceptual complexity model. However, before I further elaborate on the model itself, the analysis of the rest of the interview data needs to be introduced.

6.2. Identification of constituent elements of translator competence as a complex adaptive system

The subsequent stage of analysis was aimed at identifying the constituent elements of translator competence as a CAS. For that, following the structure of the interview questions, the data were initially organised deductively into major themes representing research participants' views on:

- What translation is;
- Who or what a translator is;
- Translator competence (in the past);
- Translator competence (in the present; the EMT as a reference point);
- Translator competence (in the future);
- Technology's impact on translators' work;
- Attitudes towards shifts in translator education.

At the same time, it was crucial to remain open to themes that may emerge inductively, thus allowing for the identification of constituent elements of translator competence that could not be anticipated deductively. An overview

of this stage of analysis, including all identified elements, is presented at the end of this subchapter.

6.2.1. Translation

As already addressed in the theoretical framework of this study, defining translation is challenging as the notion itself is very multifaceted. Respectively, research participants' views were diverse, and largely depended on whether they were actively working as translators themselves (as well as on their subject field), and whether they were involved in translator education. Literary translators, for example, referred to some metaphorical notions of translation, such as *building a bridge between two worlds or cultures* (T3), or *transfer by boat to the other bank of the river* (T5). Some translators resorted to more abstract notions, for example, defining translation as *the state of empathy or the ability to experience the thoughts [of the other] and the text itself* (T4), *something where I [as a translator] feel at home* (T3), *something than runs in my veins and is at the bottom of my heart* (T4), *something inseparable from an "aha!" moment* (T5). One translator, who has been translating literary texts for over 40 years, had a very clear inner contradiction on the pragmatic and sensuous definition of translation:

"What is translation? […] A translator is like a mistress; there is a mother, and then there is this mistress. So a good translator is like a mistress, who can feel you and just wants to be with you [...] So translation is one's ability to get inside the thoughts and feel the text" (T4).

In a similar vein, T5 refers to a more philosophical notion of translation, when the translator "needs to get into a different kind of cultural, philosophical, or any other sort of *milieu*, where you must fully understand the content in order to transfer it". But at the same time, some translators, who work or have worked in the industry as translation service providers, attempted to define translation in more practical terms, such as "translation is the transmission of thoughts expressed in one language into another language, preserving the meaning and all stylistic features as much as possible" (T1), "it is a kind of interpretation, or a retelling in another language" (T2), etc. Interestingly, this has been partially addressed by one of the educators, E8, claiming that while defining what translation is, a wider professional context must be taken into account, as a distinction should be made between translators as service providers and literary translators (also broadly addressed in literature, see Kelly (2005)).

Furthermore, translator educators attempted to provide more academically eligible definitions, such as "translation as interlingual and intercultural

communication" (E8), "there is translation as the final result and translation as a certain event" (E7), etc. Some educators rather deliberately refrained from more philosophical conceptualisations of the notion, claiming that "these changes in terminology all the time – I personally do not see the point in them, I am not that philosophically or theoretically inclined. […] I was in a seminar […] about translatoriality, and that it is not translation anymore, that [what we do] is now translatoriality. […] So, I am thinking maybe I am not knowledgeable or old enough to be interested in that debate" (E1).

Other translator educators, on the contrary, highlighted the importance of opening up the discussion of the changing nature of translation and making this part of their classes:

> "I've moved more towards teaching them [the students] about concepts that emerge. And, like, the class I did this week was on transcreation. And so, you know, asking, is that a thing? You know, is it really as people define it, or is it different from translation? Why do you think it is there? Why are they using it? And when you look up LinkedIn and people are looking for transcreation skills, what are they actually looking for?" (E3).

This discussion can be further enriched by the position of E8 that "the notion of translation is a constant, [...] and even if the machine is doing that for the human being, or if it takes place in some other ways, its essence does not change. What changes are the means which enable it" (E8). Additionally, translation, in the same way as language, is never monolithic and does not exist in a vacuum (E10), which means that its definition, in many respects, is contextually and culturally bound.

Finally, most of the research participants shared their views on whether translation as a field of study belongs to the humanities or the social sciences, which is discussed in greater detail in the section, Attitudes towards shifts in translator education (6.2.7). However, positioning translation within a certain scientific and study domain is also closely linked to its conceptualisation, determining whether the linguistic or cultural-communicative aspects are placed at the centre, and, largely, directing the focus of the study curricula towards competences considered as fundamental.

6.2.2. Translator

Respectively, conceptualisations of the translator also diverged, with some asserting that "translators have been described in many ways, that they are invisible authors, negotiators, and even traitors, to quote Borgese […]. I believe that translators are mediators […] who live or find themselves in-

between, between two worlds, two states [of being]" (T3); meanwhile, others claim that "up till this day it has not been defined who a translator is and who he is not" (E10).

There are many ways to characterise a translator, depending on the observer's perspective; however, for the most part, who a translator is or what their functions are depends on the initial view of the notion of translation, as well as the role that a translator is supposed to perform in society. For example, in E7's view, rather than seeing translation merely as a product, viewing translation as an event in a wider societal context expands the role of the translator, on the individual level as a human being and a citizen, and on a wider societal level as a communicator.

In other words, translators are part of a specific discourse and participants in discussions that occur within broader societal contexts (T5); therefore, their inner beliefs, political views, and attitudes are important aspects that constitute who a translator is. In a way, this puts translators' responsibilities at the forefront of the notion of a translator, particularly in the context of the technological breakthroughs. For example, some research participants (T1, T2, E10) referred to the preservative function of the translator as the protector of proper language use, particularly one's mother tongue, given the widespread use of MT as well as policies aimed at language digitalisation.

Throughout the interviews, it was obvious that the changing nature of translation keeps redefining the notion of the translator as well – an issue already addressed in the theoretical framework of this doctoral study (see Pym (2024) on the need to keep reinventing translation). In addition, the idealised notion of a translator as the one who can *transfer to the other bank of the river* has ceased to exist and will no longer re-emerge, because the pace at which innovation takes place rips off the longstanding label from the translator as the *all-knower*:

> "One does not even need to know another language; it is almost enough to understand the words. Then, of course, the translator can no longer bear the responsibility for the content [of MT output], because he or she can no longer manage all this output, let alone understand everything, and this 'aha!' moment is also lost. All that is left is this reasoned, or unreasoned, trust in the output received, and the translator's task is to put together this output in such a way that the text is sound and can be read coherently. That is all" (T5).

According to T5, a completely new competence of a translator emerges, which could be labelled a *content manager* or *engineer*, rather than a *translator.*

On the other hand, this massive use of sketchy output provided by MT actualises the need for *professional translators* in certain areas, where *accuracy*, adequate text *comprehension*, and *creativity* are crucial (E7). In the future, the notion of a translator may even get elevated, if human ingenuity in combination with MT becomes in short supply, resulting in an actual lack of *human translators* who "can do more [than just output control] because they understand how [translation] technologies work, and there would be fewer of them" (E2).

Lastly, to add to this discussion, there is also the issue of prestige and pay, too, which has significant influence on how translators define and position themselves in the industry, where "they often get employed as *specialists*, because according to the [Lithuanian professional] standard, translators' level of qualification is lower than that of a specialist" (E8).

To sum up, there is no single concept that can cover all the aspects of what and who a translator is, as the idealised notion of a translator does not always coincide with the reality of what a person called a *translator* does when employed, particularly nowadays. Additionally, the notion of translation itself has always been evolving, depending on how it is conceptualised by society at large. Finally, given the technological context, a certain contradiction within the notion of a translator keeps emerging: (1) the widespread use of MT and its output makes the boundaries of who a translator is and what they do, rather blurred and ambiguous, meanwhile (2) the need for professional or human translation in areas where accuracy, comprehension, and creativity are crucial, invites narrowing down the notion of the actual translator to a professional with specific skills, including technological proficiency, and at the same time "expanding the understanding of what a translator is into other areas" (E2). After all, in the past, translators have never been conceptualised as merely translators, which is further discussed in the following section.

6.2.3. Translator competence in the past

In the theoretical framework of this doctoral study, the historical perspective on translators' competences has been addressed by referring to Pym's (2021) insight that translators have not always been limited to being only translators. The idea that the fundamental competences today were the same 20–50 years ago (E5, E9) was not mainstream among research participants: "All [competences] of them [are fundamental]! I mean, we had different technologies, but we also needed technology! […] They all were important 20 years ago and are still important now" (E5).

When asked about the most important translator competences in the past, most of the research participants resorted to the *evolving* aspect of translator competence, underlying its constant change and contextual differences, rather than specifically focusing on foundational aspects of the past, for example, "service provision also had a way smaller role back then, you did not need to push yourself in the same way as you need to today", "the market was different, the situation was not the same" (ST2).

From a historical perspective, there have been different periods where the notion and the tasks of a translator were narrowing down and expanding all over again, just as the notion of translation itself, only certain terms were not employed as they are today, such as translators being mediators or communicators (E7). In certain contexts, translation was a generic skill which only later evolved into subject-specific competence. For example, historically in crisis contexts, warriors naturally had to become translators because they had to communicate and negotiate with people from culturally and linguistically different regions (E10), or even:

> "Way back in the Roman Empire or during Antiquity, as well as later at the times of St Jerome, translation was one of the linguistic competences which only later evolved as an applied activity, because if you knew several languages and the other culture, you could actually transform this knowledge, and that is where transcreation comes from [...]. Translators have also been creators, [...] or, for example, doctors – a certain group of them continue to be translators even today. [...] Or [Lithuanian] writers, most of whom have been polyglots and, thus, often translators" (E10).

Next to the technological challenges which stimulate change in translator competence, another factor is globalisation, as today

> "almost everyone is now very well-travelled and very knowledgeable about all kinds of cultures, and can translate, while, in earlier times, [actual] translators used to be these erudites, who had made huge amounts of reading, surrounded by these piles of dictionaries. Meanwhile, I can barely imagine my job without the Internet! And they were also writers and poets. [...] So they really did various other things. But today, in that sense, can you just be a disseminator of some culture and just be a translator, other than in this narrow sense, of a text? I do not think so. There are probably a lot of people here who would claim such a title" (T1).

In other words, previously, due to their wide and deep knowledge and skills, translators, also as creators, often served as mediators, or both inter- and intra-cultural communicators. Meanwhile, today, increasing globalisation, prevalence of foreign language acquisition, and, for the most part, the advent of various technological enablers of this intercultural communication, shift the focus of translators' tasks, highlighting the applied dimension of translation in today's world, aspects of which are discussed in the following section.

6.2.4. Translator competence in the present

The starting point, or common ground, for defining and identifying translator competences today, as undertaken during semi-structured interviews, was the EMT Translator Competence Framework (2022), already introduced in Chapter 3 of this study. The framework provides five major areas of competences, which all together make the foundational translator competence. Interestingly, the etymological meaning of *complex* "comes from the Latin root *plectere*: to weave, entwine. In complex systems, many simple parts are irreducibly entwined, and the field of complexity is itself an entwining of many different fields" (Mitchell, 2009, p. 4). Therefore, it was fascinating to hear some of the research participants (E1, E2, E5, E9, ST2) bringing up the idea that translator competences introduced in the EMT Translator Competence Framework (2022) are so *intertwined* that there is no way one could actually dissociate, divide them or even prioritise some of the competences over the others. Additionally, some translator educators (E7, E10) considered that there is some internal logic, or causality, of how translator competence evolves and that certain sequences of competence acquisition are of significant importance as well.

Language and culture. In many cases (E3, E5, E7, E8, E9, E10, ST1, ST2, T1, T2, T3), language and culture are considered fundamental for the overall development of translator competence. There is no unanimous agreement among researchers in translation studies on whether it does any justice for the initial knowledge of the target language and translator's mother tongue, as well as the cultural knowledge of the target culture and the source culture in particular, to be valued next to any other translator competences, because these are *the basic fundamentals* (E3), *the foundation of the foundations* (E8), *something that translation just cannot take place without* (E9). However, language and culture are also *clearly the foundation out of which the rest [of competences] emerge* (E7), *which embeds all the other [competences]* (ST2).

Therefore, there is no way around but to embrace these skills within the entire system of translator competence.

Translation. Translator's ability to translate *per se* is another fundamental competence today (E1, E2, E5, E7, E8, ST1). Translation competence is referred to as *the core of everything that needs to be done [in translation]* (E1), and it embraces *the knowledge of translation strategies and procedures*, *the ability to reflect on and argue about them* (E5), *the knowledge of suitable strategies to transfer content in accordance with the situation as well as transfer meaning*, *the ability to address the function and the objective of the text*, *and the ability to make proper choices* (E7). In the words of one of the focus group students: "A translator is someone who knows how to translate – not merely transfer content from one language to another, but take into account diverse aspects, details, and functions related to the [target] message and being able to transfer them" (ST1).

To contribute to this discussion, I would like to delve deeper into one of the research participant's insights where three significant topics meet: the already discussed inextricability of various translator sub-competences, diverse approaches towards what translation is, and the fundamental importance of translation competence. According to E2, making a clear distinction between various competences that a translator needs is extremely difficult, and translator educators should keep up the conversation with students about whether translation is an overarching concept which includes, for example, service provision and the like, or whether it is part of a complicated workflow where the translator is moving between two languages. Hence, entering translation studies with a view to becoming a translator means

> "you cannot do it without knowledge of the language and culture, you cannot do it in many environments without suitable technologies […] And even a freelancer who does not work in a big team is going to need personal–interpersonal competence because they are going to work with agencies, etc., and service provision, you know. But if I had to say, okay, if I had to teach you one thing, and I could not teach you the rest of them, I would translate texts with you" (E2).

Technology. The role of technologies for translator competence development is discussed throughout this thesis in various regards. In this section, I focus on the aspect of what it means to have technological competence. Other aspects, such as how technologies have been changing translators' work and the impact of technologies on translator education, are discussed separately in later sections.

To begin with, the importance of technological competence among other translator competences is well captured. E3 argues that technological

developments have significantly transformed the translation field, expanding both the volume of translation activity and access to translation work. While the profession has grown, this expansion has been largely enabled by technological advancements. At the same time, the accelerating pace of global communication has shifted the focus of translation practice towards increased speed and efficiency. As a result, this has significantly affected competences which are crucial for the translator:

> "Now I think the focus has moved more towards technology, personal and interpersonal skills, and service provision. Translation, language and culture – that is the basic fundamentals. You have to have that! If you do not have that, we are not even going to engage. But on top of that, you must be technologically competent. I have to be able to talk to you, and negotiate with you, and rely on you. You need to know how to provide me with a service and at speed. […] So yeah, the world has changed. The technological revolutions, I think, have pushed us in that direction – some good and some not so good, I suppose" (E3).

For a translator to be technologically competent it means *to be technically adept and understand how technologies function* (E2), *to be able to provide service at speed [by using technologies] and negotiate the use of translation technologies* (E3), *to be critical and adapt fast to new technology* (E4), *to be able to contribute to the development of translation technologies* (E8), *to be one step ahead of the technologies in order to be able to verify their output* (E8). In many cases, research participants referred to the adaptability to technological development, which in the EMT Competence Framework is defined within the area of *Technology* as the ability "to adapt rapidly to new tools and IT sources having critically assessed their relevance and the impact of change on their work practices" (2022, p. 9).

Additionally, the framework juxtaposes the technological factor with that of human-originated skills, such as linguistic, sociolinguistic, cultural, and transcultural skills as "a differentiator in a technologised employment market, where linguistic, critical, and ethical competences can combine to produce a transversal skill set to equip graduates for the future" (2022, p. 2). Interestingly, students of translation have raised the very same topic during the focus group, emphasising that the most important aspect among all translator competences defined today is that of being a human: "I would like to highlight and bring value more to the human aspect in all of them [competences defined in the EMT Competence Framework] in order to accommodate this new reality" (ST2).

Finally, some contradicting views by research participants highlight the dilemma of whether today translation can still take place without technologies,

as some (E8, E4) research participants support the idea that there is no way to translate without using technological tools, while others (E7, E9, E10) emphasise that translation can take place without technologies but it cannot take place without most other competences, such as language and culture, personal and interpersonal skills, and the overall competence of translation.

Personal and interpersonal. According to the EMT Competence Framework (2022), the personal and interpersonal competence area embraces various generic skills that help the students become more adaptable and employable, such as time and workload management, autonomous and teamwork exploiting relevant communication technologies, responsible use of social media for professional purposes, continuous self-evaluation, development of skills through personal strategies, etc. (2022, p. 10).

In the context of translator education, the importance of developing personal and interpersonal skills is well described by one of the educators, who highlights them in uncertain and constantly changing environments. E3 argues that as automation increasingly challenges the perceived relevance of translation as a profession in the society at large, students may question the value of pursuing translation studies. What is even more problematic here is that the pace of technological development outruns the speed at which university programmes are able to change, and by the time the students graduate, things will have changed, and "so, then they are coming out [as graduates], going "oh, well, I got all those skills, but now the tools can do that!" or "an AI system is covering that, and it is hard for me to get a job or persuade people that my skills are relevant!" (E3). The question remains, what can we do for these students? According to the translator educator:

> "We can make sure that they are really good at learning how to do stuff. Maybe be very good at changing, so if this is your skill set, how do you build on that to do the next thing that has added value? And without stressing people too much, because you do not want someone to have to relearn everything every couple of years or reinvent themselves. So, I think that personal and interpersonal skills – how to present yourself and what you bring to the table – is really important, but also how flexible or agile you are in terms of learning and being able to move or take that skill set and build on it to do something else that brings value" (E3).

Service provision. Familiarising ourselves with this competence brings us back to the fundamental topic of what translation is in general, which has already been discussed in the theoretical part of this thesis. Translation as an activity or as a service has grown – more is being translated, and *the focus has shifted towards technology, personal and interpersonal skills, and service*

provision (E3). To a great extent, the major enabler for this shift is the technological advancement. As one of the students notes: "I was actually thinking of this technology and service provision aspect because these are sort of rising now in the 2020s" (ST(1)). Additionally, another student during the focus group adds that the importance of service provision in translation *was way smaller back then, and translators did not need to push themselves in the same way as they need to today* (ST2(2)). This "push" is linked to the *changing capitalism-orientated markets and the wider public's inability to understand the basic concepts [of translation]* (ST(3)).

Interestingly, one translator educator asserted that such translator competences as technology or service provision can be learned either on one's own or developed at the workplace: "Perhaps you make more mistakes at the beginning, but you learn how to talk with clients […]. That is the area that is not something that can really be taught at the university level" (E1).

6.2.5. Translator competence in the future

On the one hand, not a single research participant underestimates the influence of technological advancement on translator's profession presently and in the future; on the other hand, the extent to which this advancement affects the profession and the notions of *translation* and *translator* divide these views into two distinct groups.

In the view of the first group, the essence of translation and a translator will not change, because "the notion of translation is a constant, because what is translation? It is interlingual and intercultural communication, and even if the machine is doing that for the human being, or if it takes place in some other ways, its [translation] essence does not change. What changes are the means which enable it" (E8). As a result, fundamental competences related to translational tasks will essentially remain the same:

> "Of course, technologies and technological knowledge will become important, as well as service provision, including translation ethics – that is certainly very important. But I presume that the foundational competences will remain the same. I would particularly discern the importance of cultural [competence], and I keep telling my students that [...] half of our work is our accumulated knowledge, and ability to orient oneself in a situation, what I call background knowledge" (E9).

The second group of research participants (E2, E4, E10) shared the attitude that in the future, translator competences will change considerably. For instance, the future of translator competence is largely a continuation of its past, i.e. it moves in a spiral way (E10) as translators keep coming back to

where they have always been, and technology is a catalyst for that. It is more extensively explained by another research participant: "I always tell the students that all the ideas that we have regarding translation and translation technology are never new. They are always old ideas that, every time we have a new technology, we keep bringing them back". According to E10, for centuries translators could not do without a certain small set of skills enabling them to work between languages and the advent of computer-assisted translation (CAT) tools made translators' work much easier. However, the pace at which new technologies are being developed is so fast, that we will need to learn to catch up, in fact "we are going to need the *human thing* that the machine cannot have, and it is going to be more creative, open, and [require] more skills that you are going to need as a translator, I think so" (E4).

Then, what is this *human thing* that translation technologies cannot have? Here I would like to refer to various constituent elements of translator competence which, according to research participants, need to be at the forefront in the context of evolving translation technologies: *quality assurance* (E5, E10), *ethics* (E10), *clarity regarding authorship* (E10), *risk management* (E5, E6), *ability to improve translation technologies* (E8), *ability to assess one's information (sources)* (E2), *ability to protect oneself (in the times of constant surveillance)* (E2), *knowledge of how technologies work* (E2), *conceptual openness* (E1, E2, E7, E8), *critical thinking* (E1, E4), *rapid adaptability to new tools* (E4), *consulting* (E5), *creativity* (E4), *ability to see the bigger picture* (E2, E4).

Yet another picture depicted by E3 sheds light on the aspects of the shifting nature of translators' work, as well as the name of the profession, due to the expansion of the overall translation output and, respectively, the increased responsibility. According to E3, in the future, we might need fewer translators – or whatever these people will be called – and their work will be much more expansive:

> "They will become these kind of remarkable language consultants who can really *advise on technologies* but also then *evaluate them*. This means that they do know the target language; they probably know the source language as well, or they can work with people who do know the source language, etc. And they should be paid more, you know, […] because they will ultimately be responsible for much more output" (E2).

A crucial aspect addressed by E2 is the changing nature of translators' work and the notion of the translator. I examined how research participants positioned themselves in this regard and used MaxQDA's concept-mapping function to produce a comprehensive overview presented in Figure 11.

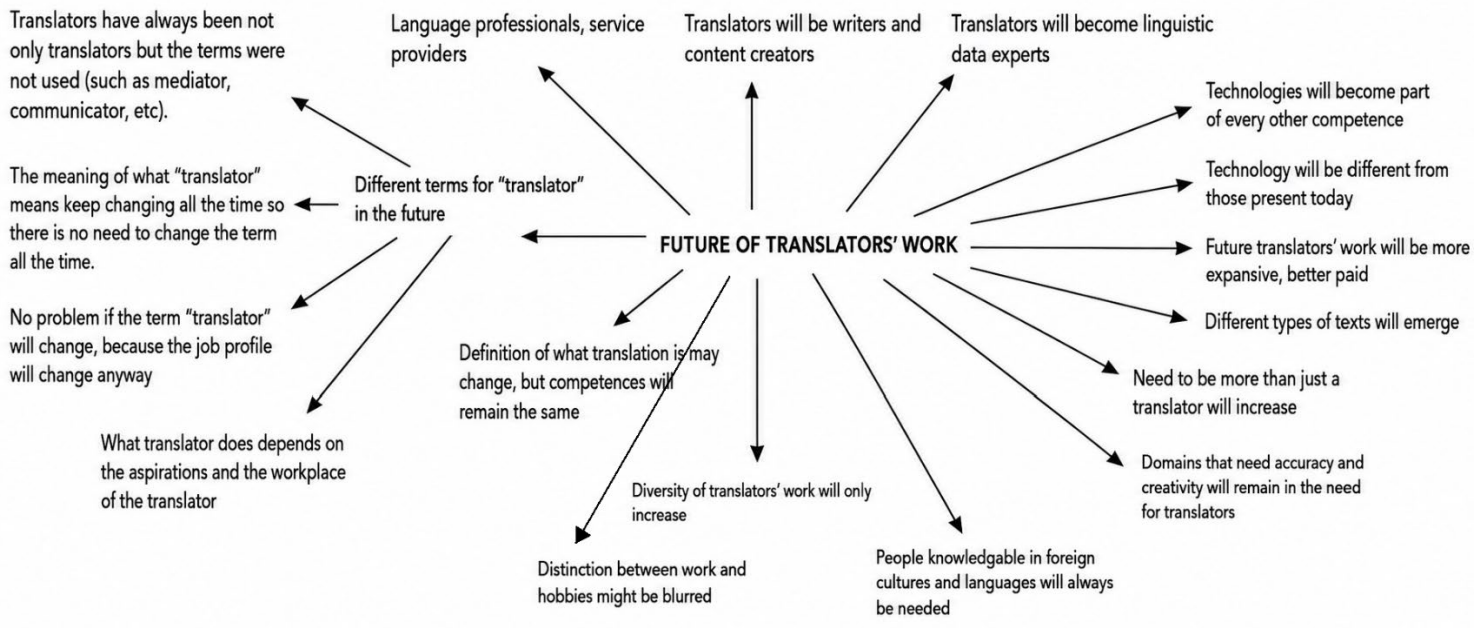

Figure 11. The future of translators' work.

As depicted in Figure 11, in the future, the role of the translator may diversify and expand beyond traditional boundaries, potentially blend with other professions and require adaptability, continuous learning, and engagement with new socio-technological environments. In addition, human expertise in linguistic, cultural, and creative competence will remain essential. All in all, in the future, translators' work will be shaped by expanding roles and evolving professional identities, with technological advancement remaining at the forefront of these developments.

Additionally, a distinct aspect of translator competence development in the future that research participants referred to was a particular mindset or consciousness regarding one's own development:

> "This consciousness means willingness to learn the translational process, what we actually refer to during our translation strategy [classes] – [...] you actually need to develop your linguistic skills constantly, as well as all other competences necessary for translation – subject specific, linguistic, translation competence [...] and you have to be curious. [...] Consciousness means performing your work consciously and entering one's studies not with the aim of putting texts into MT software and correcting the most obvious mistakes" (E7).

To sum up, research participants unanimously agree on the significance of translation technologies for translation in the future; however, their views diverge on whether this will essentially change the notion of translation and translator competence. Various aspects have been identified as coming into focus due to technological advancement, as well as the importance of fostering students' consciousness of acquiring the necessary skills prior to extensive MT use in their everyday work. The following section introduces a more thorough analysis of how technological advancement affects translators' work, and, respectively, translator competence development.

6.2.6. Technology's impact on translators' work

The technological advancement is not only central in a VUCA world, but ever since "the moment when a homo sapiens moved to the next level by picking up a stick and writing something, this was already the first technological level that has been driving us forward" (E10). In the context of translation, there is a significant distinction in how the technological impacts translators' work, and this distinction emerges between the perspective of the industry and that of translators themselves. Even though translators are inherently part of the industry, their views towards translation may differ

significantly, as the "industry is mainly occupied with the *result*, and does not see into the whole process [of translation]" (E9), meanwhile translators, and respectively translator educators, are concerned with translation in a much broader sense – as an *activity which leads to* a certain result.

Similarly, as with the CBE, following a market-oriented approach, technology affects various aspects of translators' work, particularly, it enables *more of translation* (E3, E5), *makes translation work easier* (E9), and *saves time* (E8). In the meantime, research participants who work as translators themselves note that technologies also *cheapen* their work (E8), make people *lazier* (E9), *anxious* (E9), and foster a different sense of *ethical responsibility* (ST2). Additionally, the automation of certain professional responsibilities "leads to a situation where work is optional, and the distinction between hobbies and work is blurred" (E6) or "makes the job easier but far from simplified" (E9). Meanwhile, people at the other end of the translation service provider spectrum – translator educators and translators themselves – believe that, in E9's words, "this fear of technologies has been present in all professions at all times, so I do not think we should refrain from or be anxious about the technology, rather we should think how to exploit them in the best possible way" (E9). On the one hand, technologies enable translators, for example "during COVID, when everything was closed and no one could travel, we thought that we [as interpreters] are done, that no one will need us […] and it was exactly at that time when technologies were very benevolent for us" (E9). On the other hand, technologies also pose considerable challenges for translator's professional roles and responsibilities, and this needs to be analysed in greater detail.

First and foremost, technological developments bring about the issue of human–computer interaction, which is relevant to most professions, particularly the urge to redefine human added value or the question of keeping human-in-the-loop. In the case of the translator's profession, a growing concern is that AI-generated content will not be properly regulated; therefore, this will require high competence among translators (ST2). To be more precise, human-in-the-loop in translation means ensuring the *ethical standards are kept up with* (ST2), *risk is managed* (E6), and *quality is assured* (E5). Even today, some domains need fewer translation services, because they are satisfied with the level of MT output (E7); meanwhile, other domains cannot get by with MT and highly skilled professional human translators remain in great demand in these areas (E8, E10). In other words, "human translation is narrowing down to a certain domain, a craft" (T2).

Some of the research participants are concerned that the use of the technology in translation hinders their professional development: "Your work

pace increases significantly, but what about your own improvement? […] Our brain processes are already different, since we are mainly focusing on editing and comparison" (E9). Some translators already today either do a lot of post-editing or already refer to themselves as post-editors (T2, T3, T5).

In addition, the narrative prevalent in the broader public – a topic that recurs throughout this doctoral study – requires explicit attention. Students during the second focus group interview discussed that very often, both the employers and the wider society have a *skewed idea about what translation is and how it works* (ST2), and that it is the responsibility of translators themselves, as well as educational institutions that provide translator education, to challenge this dominant narrative. This is significant for confronting the employers, who "often lack knowledge about how MT works and what it means, [therefore] they push this agenda of faster, cheaper, and […] this is not really good" (ST2). At present, the prevailing narrative suggests that technologies will soon replace translators, leaving the profession's future obscure. This discourse is among the key factors contributing to the significant decline in student enrolment in university study programmes of translation. This obscurity of the future, which is and has been essential for many professions as long as they exist, was well described by E6:

> "I think that it is possible that not only translators, but many, many professions have to rethink many things. […] It opens up many questions for society because, I mean, translators won't be the only people. Many people in many different professions will not be needed anymore – we've been there many times before. [But] it's different kinds of people now, so it's people with much more education, much more knowledge, much more intellectual capabilities and competencies than before. […] We've lost control in many ways, not only translators, but I mean humanity as a whole" (E6).

E6 argues that with these developments in mind, both democracy and teaching are at stake, and the only way forward is to regain control and authority, which becomes an ever more pressing concern for society as a whole and for education in particular.

6.2.7. Attitudes towards shifts in translator education

The last category of the deductive analysis presents research participants' attitudes towards shifts in translator education. Throughout the interviews, this category was touched upon by almost every translator educator, as well as during the students' focus groups. Professional translators hardly ever touched

upon this issue. This category covered a range of attitudes to changes that have been taking place in translator education, which I systematised based on the individual (student and/or teacher), curricular, institutional levels, and societal level, or the level of the entire profession. All these aspects of translator education provided a bigger picture of how translator competence is conceptualised as well as the challenges that translator education faces in today's VUCA world.

Individual level. The individual level here refers to both the level of a student as well as the level of a teacher; therefore, both of these perspectives are taken into consideration. First and foremost, technologies play the central role here, both as a threat and as an enabler.

To begin with, a certain contradiction exists between foundational IT competence and the overall inclination towards technology use. For instance, E8 notices that students' IT skills are very poor and that they have not acquired relevant substantial IT competence in secondary schools ("they are unable to format a simple table or even perform certain functions on Word, let alone use Excel sheets" (E8)). Meanwhile, E10, on the contrary, underlines that the current generation of students master technologies much faster than the previous ones:

> "I teach translation technology and how to use Trados [...], so if we compare today's students with those five or ten years ago – I used to be their lead, moving at the forefront in technological application. Today it is vice versa, and the accessibility of technologies is so vast, as well as their [students'] IT literacy, and that makes a fundamental difference" (E10).

Next to this contradiction lies the problem that students tend to use translation technology during their first study years, when the overuse of technology hinders the development of students' translation competence. Students bring identical output as their homework assignments, which is clearly indicative of translation technology use and the lack of conscientiousness among students, as they are not acquiring the fundamental skills for translation by merely using MT (E9). Therefore, at the individual student level, translator education faces the challenge of reconciling certain gaps, in some case *students' poor IT skills* (E8) while in other instances *vast accessibility of translation technologies* (E10), but in most cases the worrying *students' attitude towards excessive use of translation technology*, particularly before the actual fundamental skills – linguistic and cultural – have been gained (E7, E9).

An interesting discussion sparked during the second focus group with the students, who touched upon such aspects as the need to foster students' *ability to create and transform knowledge* themselves, and raise their *awareness* while using the technology, for example, "in what sense machine can be used to emancipate the student and not feel oppressed by the systems through the machine" (ST2). Additionally, during the focus group interview, students noticed that encounters with technologies take place much earlier in life than they used to a decade or two ago, thus influencing students' opinions and choices of their use is becoming increasingly harder. The instrumental aspect of MT has also been underlined, suggesting that students need to be taught not to relinquish control to technology, i.e. "know that they can take full control of it and not be controlled by it, and this is the difficult part [of teaching]" (ST2). Lastly, the students insightfully touched upon the changing role of the teacher: "Even if you put machine or MT in the loop, the role of the teacher is still to foster that environment, that place where students can create and transform knowledge, but also being aware of how that machine, that tool, or how MT may impact their relation with the world" (ST2).

To further contribute to this discussion, even though student-centred learning is at the core of the CBE, during the educational process very many things will continue to depend exceptionally on the educator, such as their *willingness to introduce translation technology* (E8), *perception of what translation is (ex., to use a more philosophical approach or not)* (E1) and the like. In the same manner, teachers' aversion towards translation technology will have respective consequences on their teaching:

> "Some teachers are unwilling [to introduce technologies in their classes], for example, if they do not use them in their own work. There are teachers who work as translators and keep using Word, particularly if they are translating books. They do not find technologies very helpful, so they keep translating without them, they do not use them and do not want to introduce them into their teaching, either" (E8).

Meanwhile, literary translators themselves disagree that they can do without technologies, which they use while searching for information or grasping the broader context (T1, T3). Even the students themselves suggest this is no longer an option in translator education, because in the near future, "translators working without technologies will be replaced by those who work with them" (ST1), and there is no other way around it but the technological factors being incorporated into, most likely, all translation study modules.

I would like to conclude this section with E10's broad outlook on how students' perceptions have been changing and how this needs to be taken into

account whilst educating future translators. According to E10, technological convenience has transformed learning practices profoundly, for example, the ease of recording lectures and instant access to information have reduced the need for handwritten note-taking and deliberate in-depth information searching. Earlier, students engaged more actively in seeking, interpreting, and adapting knowledge, while immediate access may discourage deeper cognitive effort and reduce engagement in exploratory learning.

> "What is interesting, that even when introduced to project-based learning methods [...] students are discontent, because it is more convenient for them to see the 'talking head' in front of the class as it needs far less cognitive effort, because they receive the information which otherwise they would need to mine themselves and leave their comfort zone. [...] So technologies do change the entire process [of teaching], but they also provide a different opportunity for learning – learning here and now" (E10).

Curricular level. Throughout the interviews, research participants mentioned a range of readjustments at the level of study curricula, including *increased focus on technology* (E4, E5, E6, E8) and its *critical assessment* (E3), *risk management* (E5, E6), *quality assurance* (E5), practicalities, such as *time management and negotiation over pay* (E5), as well as less focus on *cultural, historical, philosophical, and literary aspects of translation* (E6). A more extensive outlook was provided by E5, who together with their colleagues have readjusted their BA and MA university study programmes in translation, to include translation memories, terminology programmes, database content, content management systems, project management, and the like:

> "I mean, there is more than just MT; there is a whole bunch of technologies you can use. In our Master's programme, we have one specialisation, which is called Technical translation, language management, and artificial intelligence. So, this is our very new master's programme, and there we teach how to use MT systems, how to train MT systems, and how to prepare training data for these systems" (E5).

Furthermore, during the focus group, one of the students asserted that, on the one hand, translation studies as a field is introduced from the theoretical perspective, including various approaches to translation, its certain philosophical origins, etc.; on the other hand, most of the lecturers share the same and similar, rather applied, view of translation, as what-strategy-shall-I-

choose approach, with "translation seminars feeling almost like learning a craft" (ST1). Additionally, the increased focus on the technology-related aspects in translation poses respective challenges to study curricula and teaching, such as "do not just try to make sure they [the students] know how to use the tools but also know the limits of their usage and are able to question [these tools]" (E3), "we train our students to become prediction machines, [...] and in the future, teaching and learning will be interacting with data and machines to teach them" (E6),

> "you have to make them [the students] aware of the fact that if they have the machine substitute them in their everyday tasks, they are not becoming translators, they are becoming slaves of the machine; taking full control of the machine and knowing when to trust and not to trust the machine – […] this is the difficult part of the teaching" (ST2).

To sum up, what remains crucial at the study curricula level is a more balanced view between the aspiration to provide students with the knowledge of every single translation tool, but also the ability to critically assess them and their use, which seem like competing objectives (E3).

Institutional level. In the context of a technological breakthrough, a significant concern is the universities' inability to remain agile, as the notion of knowledge is evolving rapidly, and they are not always able to catch up with technological advancements (E3, E6). This is particularly relevant to traditional European universities, in contrast to the applied and industry-focused institutions, established during the last century. Thus, extensively, it is the universities' profile and vision that determine certain curricular approaches, for example, E2 shares the experience of how having a visionary leader of their translation studies department provided avenues for a specific, technology-orientated profile of their school:

> "The profile of the staff here is that everybody has a kind of technological profile at this point. [...] So even during translation theory classes, we are talking about MT as well as human translation, and we are talking about cognition and about interaction with tools, and I think that here, for the full-time staff, it is just a given [...]. The head of school was very, very conscientious about going out and talking to people who were running translation studies programmes in other European countries and from the very beginning factored in translation technology, which is extraordinary" (E2).

This highlights the growing need for universities to engage in collaboration and share expertise or even carry out joint translation study programmes to respond more effectively to rapid technological change. An illustrative example is the *Arqus Joint Master's Programme in Translation, Technologies and Artificial Intelligence*, which is currently being jointly developed by the University of Graz (Austria), Vilnius University (Lithuania), the University of Minho (Portugal), and the University of Granada (Spain).

Societal level, or the level of the profession. Lastly, the level of the translator's profession encompasses aspects relevant to translator education from a broader societal perspective. It encompasses the perspectives of the research participants regarding the scope of translator education, its orientation towards lifelong learning, and its interdisciplinary character. Firstly, the field of translation is frequently conceptualised in a rather narrow sense, whereas the actual education provided at the university level is, in fact, considerably broader:

> "I believe that competencies developed [during university studies] open up various avenues in communication, management, guide services […] Of course, you cannot become a guide or conference organiser right after graduation, but your outlook and perception are very broad. Once during the pandemic, my colleague and I were discussing that there are so many things we [as translators] could do, of course we should upskill and learn things anew, but although this field [of translation] seems very very narrow, the education itself is very broad" (E9).

Secondly, the aspect of lifelong learning within the profession underlines translators' constant becoming, which hinders student assessment upon graduation (E9, ST1). In one of the research participant's views,

> "contemporary education, university, and school, to a certain extent, provide a framework, help the person orient themselves, provide opportunities, and the ability to choose. Maybe they also protect [the student] from getting lost while choosing which direction to follow. But education itself is never final. One has to work a lot on one's own because there is a lot of independent work in translation, and it is hardly possible to master this skill [of translation] if you do not continue developing it" (E9).

This aspect of professional continuity is fundamental in the conceptualisation of competence, and it will be more explicitly discussed in the next subchapters of this study.

Thirdly, translator education is, largely, determined by its positioning in terms of "certain scientific or study classifiers, which probably come as the result of certain political or economic decisions" (E10). Most of the research participants (e.g., E4, E10, T3) highlighted the interdisciplinary nature of translation as a field, which bridges the humanities and social sciences, mainly intercultural-linguistic communication. In participants' words, "it is a hybrid mix of humanities and natural language processing and everything, [because] you need to be focused on so many more fields than just translation" (E4), "in its essence, translation as a product is aimed at communicating a certain message" (E10), "it crosses the boundaries [of humanities and social sciences], it is much broader as it embraces intercultural activities, which include not only linguistic and social dimensions, but also philosophy, science, and art" (T3). Additionally, translator education and study curricula are shaped by the interdisciplinary nature of translation, which attracts students from diverse educational backgrounds, and, consequently, with varying competences developed prior to entering translation studies. Even though, in Lithuania, for example, translation studies are classified within the humanities, and a substantial proportion of students from philology proceed to translation programmes, this diversity remains a defining feature of translator education:

> "The majority of them are [students of philology], but definitely not all of them. And I have very good examples of people who have graduated from biology, law, or philosophy, and have an excellent general education, and they studied languages additionally. [...] They rely more on their background knowledge, and maybe they have more limited linguistic ways of expression, but their final result is not at all worse; it is really good. [...] Maybe those people who have graduated from some kind of law school do not even know about such a possibility [to study translation]" (E9).

Finally, it is important to note persistence of a relatively pessimistic narrative in society concerning the translator's profession and its future, which has implications for student enrolment in translation studies either because young people are affected by the idea that the profession might become extinct due to technological implications, or due to the belief that increasingly more people know foreign languages and, therefore, translation is becoming *irrelevant* (E9). What is foundational here, in Pym's (2024) words, is to *challenge this narrative* – to speak up for what translation actually is, to explain to the wider society that "ways that languages function are based on different models [than generative AI]" (E10). Of course, there is a possibility

that the need for translators in the future will be different, but it should not be underestimated that translation is also part of language politics, and, thus, part of political decision-making (E10), and universities should use their means to challenge this dominant narrative, too.

6.2.8. Identified constituent elements in brief

As seen in the data analysis, the themes identified at this stage reveal translator competence not as a fixed set of knowledge, skills, and personal attitudes, but as a totality of interrelated elements that can be clustered individually, professionally, and contextually. These constituent elements that emerged during the interviews refer to the multitude of factors as well as more general aspects that shape translator competence through continuous interaction.

These elements encompass individual characteristics of a translator (the notion of a *translator, personal dispositions, perception, ethics, risk*), situated aspects of translator's work (*translation, translator's work, translation competence, competence in culture and language, technological competence, service provision competence, personal and interpersonal competence, other competence, human-in-the-loop*), and broader contextual conditions within which translator competence evolves (*socio-political factors, economic factors, industry, technologies, education, communication, cultural and linguistic diversity*).

While some of these elements correspond to those identified in existing translator competence frameworks, others extend beyond them, thus reflecting the dynamic, evolving, and context-dependent nature of competence. Taken together, these 21 elements form the basis for the conceptual model of translator competence as a CAS, which is developed in the following subchapter.

6.3. Modelling constituent elements and their interactions into a system

The idea to develop a model of translator competence as a CAS based on a set of underlying properties of complex systems has taken inspiration from Cilliers' *Complexity and Postmodernism: Understanding Complex Systems* (1998), where he introduces a list describing the properties of complex systems. In this doctoral thesis, these properties emerged in two stages of data analysis: (1) the interview data were analysed inductively, and (2) during a reiterative process, they were juxtaposed with the framework of complexity

concepts developed during theoretical literature analysis (see subchapter 4.1.7.).

6.3.1. Conceptual model and its properties

To further explain the conceptual model, during the data analysis process, the following properties of translator competence as a CAS have been distinguished:

1. *Initial conditions* determine the development of translator competence.
2. Translator competence is determined not only by its *constituent elements* but also by their *interactions* and interdependencies.
3. These interactions between the elements of translator competence co-occur (*parallelism*).
4. Translator competence has no central constituent element (*decentralised control*).
5. Translator competence development is nested, i.e. it evolves on different *levels of the system*, and should be accounted for respectively.
6. Translator competence development can be *self-organising*.
7. Within the system, new patterns and properties keep *emerging* that continuously redefine translator competence development.
8. Translator competence development is *non-linear*, i.e. changes in one part of the system can lead to disproportionate outcomes in the other part of the system.
9. The output, or effect, of agents or their interactions feed back into the system as input and affect future behaviour of the system (*feedback loops*).
10. Translator competence is a continuum (*adaptation and evolution*), i.e. the constituent elements of translator competence keep adapting and evolving over time, thus, the system evolves continuously.

6.3.1.1. Initial conditions

Sensitivity to initial conditions means that where there is an amplification of initial state differences in a system (often based on positive feedback interactions), that may contribute to major behavioural changes in a system.

(Jacobson et al., 2019)

To begin with, the development of translator competence, in many respects, depends on the starting position of the student upon admission to the university, i.e. the level of various skills and knowledge which the student has already achieved prior to entering translation studies. To a certain extent, it aligns with the idea of *sequencing* (Kelly, 2005), which addresses crucial pedagogical questions, such as whether theory or practice should come first, or whether linguistic competence should be prioritised. To what extent should they be acquired prior to translator education? Should they be developed simultaneously?

Some research participants expressed the need for sequencing – and the significance of the initial conditions, for that matter – very clearly:

> "There is a variety of courses and training offered on how to master those [technological] competences, which focus on translation technology and so on. However, in the initial year, you cannot start teaching the alphabet by beginning with the letter M, you must maintain the order of the alphabet. […] So it is not the question whether these competences are important, and they must be developed, but this sequencing is very important" (E7).

One of the most significant of the initial conditions is that of *linguistic competence* (E3, E5, E7, E8, E9, E10, ST1, ST2, T1, T2, T3). On the one hand, a translator should first of all have "love for languages", particularly one's mother tongue, because "poor translation output very often is not the result of the translator's inability to understand the source text, but one's inability to express it in the target language" (T2). Most often, competence in languages is mentioned in combination with *competence in cultures*: "Language and culture – that's the basic fundamentals – if you don't have that, we are not even going to engage" (E3); "Language and culture are the basis for everything, together with one's values and understanding oneself from the perspective of one's mother tongue as well as one's national identity – everything starts here" (E10).

Yet another fundamental initial condition is *background knowledge*. An interesting translator educator's observation provides a deeper insight into this condition: "Because our experience […] shows that people who come from other disciplines into translation are, in a sense, better translators than people who come from, let's say, English philology. […] Just because they have a different worldview, they have more background knowledge, more context" (E1). Interestingly, some research participants (E1, T2) referred to *curiosity* as an integral part of background knowledge.

Another observation, taking into account both language and culture as well as background knowledge, was made by a student during a focus group interview:

> "I would assume that people with a certain level of background who are entering a Master's programme in translation have quite a bit of language and background knowledge to begin with. So maybe in a Master's program it should be something more focused, something more refined, and I was actually even thinking of this technology and service provision aspect, because these are sort of rising, now in the 2020s" (ST2).

What is crucial here is that these initial conditions, be it competence in language and cultures, or subject-specific background knowledge, or any other aspect, the development of the overall translator competence cannot be predicted merely from these initial conditions (following Morrison's (2008) explanation), but may contribute to significant changes in the behaviour of the system. In other words, how translator competence evolves depends on what has or has not been acquired by the students prior to their admission to the university, which, in turn, determines certain pedagogical choices made by the educators.

6.3.1.2. Constituent elements and their interactions

Complex systems are complex in the sense that very large numbers of constituent elements or agents are connected to and interacting with each other in many different ways.

(Mason, 2008)

Throughout the interviews, as well as apparent from the narrative foresight scenarios, a multitude of elements emerged which are directly or indirectly linked to translator competence. Some of them, for example, specific skills and knowledge, are clearly stated in the EMT Translator Competence Framework (2022), and were thoroughly discussed with research participants: *competences in language and culture, translation, technology, personal and interpersonal, and service provision.*

Additionally, *other competences and personal dispositions* have also emerged as significant constituent elements of the overall translator competence. These elements embrace various aspects that emerged during inductive data analysis and were grouped into clusters, such as *translation*,

translator, and *translator's work.* Contextual factors, which were referred to during the interviews, were also included, for example, *economic factors* or *socio-political factors*, which were closely linked to the industry and *technologies*, and *linguistic diversity*, *communication*, and *education.* Additionally, certain abstract concepts, such as *risk*, *ethics*, etc., also found their way as constituent elements of this complex system, because they have kept re-emerging during semi-structured interviews as well as during validation interviews with the experts.

Based on the inductive analysis of the data, all these elements, whether contextual or more situated, constitute translator competence. But what is even more important for this conceptualisation are the interactions, or interdependencies, between these elements. By highlighting them, we can make better sense of the complexity of translator competence and provide further grounds to make sense of other properties of the system. For example, the technological advancement is directly linked to the economic landscapes, respectively rooted in certain socio-political contexts:

> "In a world again where you're constantly being told that AI is doing half of the work [...] having a broader understanding of how certain families of technologies work [is necessary]. So how kind of language-centric AI works [...] will be very useful as well, because [...] all of that has to do with technological change and the political environment" (E2).

As shown by the data analysis, this interaction within a complex system occurs in many different ways, the most frequently referenced by research participants being the following:

Technologies ↔ industry ↔ economic factors (E1, E2, E3, E4, E5, E6, E7, E9, ST1, ST2, T1, T2, T3, T5);

Socio-political factors ↔ cultural and linguistic diversity ↔ communication (E2, E3, E5, E8, E10, ST1, T3, T5);

Translation and translator ↔ translator competence and/or translator's work ↔ human-in-the-loop (E1, E3, E4, E5, E6, E7, E9, ST2, T1, T2, T3, T5).

And yet, not all the interactions seen in the proposed model could be directly accounted for based on the initial interview data; however, expert interviews have played a crucial role in making sense of the overall interconnectedness of such elements of translator competence as *risk*, *ethics*, and *perception* (E1(SC)), E3(CAS), E6(CAS).

Throughout the interviews, research participants kept reinforcing the idea of the interrelatedness of various elements of translator competence and how

challenging it is to prioritise some over the others, as already discussed in section 6.2.4. Translator competence in the present. However, various contextual factors also need to be assumed as part of translator competence and its development because translation as an activity is inextricable from these contexts.

Furthermore, interaction between system elements is dynamic; thus, the system keeps changing with time and this change can take place simultaneously at different parts of the system as introduced in the following section.

6.3.1.3. Parallelism

Parallelism is exhibited when agents in a complex system have simultaneous interactions with each other by sending and receiving signals.
(Jacobson et al., 2019)

As already explained in the theoretical part, CASs comprise large numbers of elements, or system agents, that interact through the exchange of signals – these interactions can take place in parallel, resulting in numerous simultaneous signals. In terms of translator competence, this redirects attention from linear causal relationships to spatial forms of causality; i.e., translator competence evolves as a whole, depending on the activated agents and how they affect the rest of the elements that constitute translator competence, which occur simultaneously. To make it more explicit, elements of translator competence, for example, *risk* and *ethics*, are embedded in a translator's work, which, in turn, has a significant influence on how a translator is seen in a particular culture. This also depends on the economic landscape and, respectively, the specifics of the industry. On the one hand, this may be related to the extent to which translation technologies are developed and implemented within the industry in which a given translator operates. On the other hand, industry-specific factors may be socially bound. For example, during one of the focus group discussions, Lithuanian students argued that the Lithuanian translation industry is relatively small; therefore, social connections and recommendations serve as indicators of one's competence: "There is a limited number of trustworthy people, and in a small industry [such as ours] they are likely to get the job, so either you know the people or your don't, and this also applies to other professions as well" (ST2).

A robust example of parallelism taking place in the complex system of translator competence was provided by translator educator E4. The translator

educator highlighted the need to place major emphasis on: the overall technological developments (non-related to translation technology, such as an increase in computer power) ↔ translation-related technological developments ↔ translators' critical awareness (E4).

In other words, in their translation technology classes, E4 encouraged students to remain attentive to emerging technologies, regardless of whether these were explicitly designed for translation purposes. By drawing the students' attention towards the need to adapt, E4 keeps encouraging their students to remain open to the speed in which technologies develop, proving the example of statistical machine translation (SMT) which was suddenly replaced by neural machine translation (NMT), resulting in most of the research at the time [around 2016] being redirected towards NMT.

> "But of course, there's going to be more things. The change for NMT happened when our computer power increased, and I said as soon as we have more computer power, there's going to be another change. And then ChatGTP happens just like at the end of the year. […] I said to them, okay, so how are you going to deal with ChatGPT now? And then they started a discussion that it's not really machine translation. [...] So they are critical, but they're not like freaking out like so many people are" (E4).

However, parallelism encourages a broader perspective and highlights an array of concurrent societal changes beyond technological advancement that influence translation-related services, including, but not limited to, *shift from textual to visual culture* (E10), *decreasing appreciation of literature and reading* (T4), *abundance of information* (T3), *broader shift in societal values* (E10), *repositioning ethics* (ST2), etc. Recognising that a translator needs to be concurrently attentive to various contextual changes enables translator competence to generate respective further action, allowing translator competence to be understood as an adaptive phenomenon. Adaptation, in this case, is not an additional component of competence but an intrinsic property of competence emerging through ongoing recombination of its constitutive elements and their interactions. In other words, translator competence evolves through its use and interaction with changing contexts, which need to be made explicit whenever possible in translator education and study curricula as well.

Furthermore, these parallel interactions take place in a decentralised manner as there is no central agent that controls the evolution of translator competence.

6.3.1.4. Decentralised control

Complex unities manifest properties that do not depend on central organisers or over-arching governing structures. The system itself "decides" what is and is not acceptable. The system's coherence depends mostly on agents' immediate interdependencies, not on centralised control of top-down administration.

(Davis & Sumara, 2008)

Within the context of translator competence as a CAS, the notion of control can be defined in several regards. First and foremost, control refers to the manner in which translator competence develops or is developed, i.e., whether its development is primarily subject to external forces, like that of the educator, study curricula, technological advancement, etc., or whether, for the most part, competence emerges as a result of the interactions taking place among any of its constituent elements.

One of the most prominent examples here would be translation technologies perceived as a significant "controlling" force, which, in the prevalent pessimistic narrative, will overtake translators' jobs and overall direction of the translator's profession. However, the students' focus group argued that "it [technology] should be an instrument for them [translators], but you have to teach them [the students] that it is an instrument and not something they have to submit to; and they need to know that they can have full control of it and not be controlled by it, and this is the difficult part" (ST2). In a similar manner, students in the other focus group discussed that "technologies will never replace translators but translators who can use technologies will replace those who cannot use them" (ST1). Translator educators have also brought up the aspect of the relationality of translation technology: "translation technology is knowledge building […] and because it's a hybrid mix of humanities and natural language processing and everything, you need to be focused on so many more fields […], so I have to teach them [the students] how to get this knowledge" (E4). In other words, one of the major perceived factors – translation technology – that presently keeps shifting the notion of translator competence should be conceptualised *in relation* to other factors that together occasion translator competence rather than any single controlling force.

Secondly, no system's element can be regarded as the central one around which the whole system organises itself. In other words, just as any social educational system, such as a classroom, seeks collective knowing rather than *interpersonal collectivity* (Davis & Sumara, 2006), translator competence

evolves as a collective adaptive capacity rather than a mere combination of individually fostered knowledge, skills, and personal dispositions. This can be supported by the following insights shared by research participants: "I kind of conceptually would like them [my students] to be more open […] [than] actually present yourself as like a Lego block in a building or a cog in a bigger machine, you know, whereas it would be better to have the bigger picture including all the detail" (E2); "I do not think we can dissociate them [areas of translator competence] […] [and] I would like to highlight and bring value more to the human aspect in all of them in order to accommodate this new reality" (ST2); "I agree that it would be a problem to kind of put something above the others, because […] they are all equally important, and I would say that they are equally important in the industry" (ST2).

Moreover, this decentralised manner in which translator competence evolves takes place across different levels of a complex system, discussed in the following section.

6.3.1.5. System levels

Interactions between agents may occur within or across system levels. The notion of levels in a system refers to a macro-level as meaning a higher, less granular level, and micro-level as meaning a lower, more granular level.

(Jacobson et al., 2019)

From the point of view of complexity, learning is inherently a cross-level phenomenon, where interactions across different levels of a system "expand its repertoire of possibilities" (Davis & Sumara, 2006, p.142). Thus, as already mentioned, in complex systems, the relations between their components are so intricate, non-linear, and feedback loops-oriented that the behaviour of the system cannot be analysed only at the level of each individual element, but rather the complex structure of the system with all its levels.

In a similar vein, elements of the CAS of translator competence cluster into and interact at different levels and none of the levels of translator competence as a CAS alone determine the system's behaviour, i.e., translator competence cannot be understood separately at the level of the individual or solely from the perspective of, for example, the industry needs, but rather emerges through cross-level interactions.

Based on the inductive thematic analysis of the research data, I reiteratively examined the initial 495 codes searching for patterns to cluster them into thematic groups, which could serve as the foundational structure of the CAS model. The micro-level of translator competence as a CAS comprises such system's elements as *the translator*, *translator's work*, the notion of

translation, *translation competence*, as well as *other competences*, and the macro-level is constituted by the *socio-political* and *economic factors*, *industry*, *technologies*, *education*, *cultural and linguistic diversity*, the notion of *communication*, and the like. Both these levels can further be divided into sublevels as well, as the boundaries between the system's levels cannot always be made explicit. In addition, some of the system's elements cannot easily yield to this level-clustering, for example, notions of *perception*, *ethics*, *risk*, *and human-in-the-loop*, which refer to both the individual and societal level, but can also be treated as a separate conceptual dimension.

What is significant here is that the conceptualisation of translator competence as a CAS puts the complexity of translator competence, rather than the multicomponentiality of its constituent elements, at the forefront, which, in turn, insists upon *incorporating* various aspects into the concept of competence that are conventionally treated as *external* contextual factors, which brings us back to the aspect of the ontological turn in HE – a shift from strong focus on performativity towards one's identity. In other words, conceptualising translator competence as a cross-level phenomenon makes it explicit why changes in socio-political landscapes or technological environments reshape not only what translators *do*, but who they *become*: "I think students can benefit from learning about how corporations communicate to different markets and clients and not only according to one channel but also across channels […]. I think translators are very good at producing texts and they shouldn't be reduced to just translating, but also producing original texts" (E6);

> "[T]he tech that's developing so quickly that almost by the time they [students of translation] get through our programme, things will have changed […] and it's hard for me to get a job or persuade people that my skills are relevant. So what can we do for them? We can make sure that they're really good at learning how to do stuff, maybe very good at changing, so if this is your skill set, how do you build on that to do the next thing that has added value?" (E3).

Next, by acknowledging the cross-level character of translator competence, we can further address its self-organising dynamics.

6.3.1.6. Self-organisation

It is a process whereby a system can develop a complex structure from fairly unstructured beginnings. This process changes the relationships between the distributed elements of the system under the influence of both the

external environment and the history of the system. Since the system has to cope with unpredictable changes in the environment, the development of the structure cannot be contained in a rigid programme that controls the behaviour of the system. The system must be "plastic".

(Cilliers, 1998)

Conceptualising competence as a self-organising phenomenon refers to its ability to generate itself internally without any outer control or central controller within the system, thus underlining its *plasticity* and ability to cope with unpredictable changes. Translator competence is formally defined in professional standards and policy documents, and its development is, to some extent, regulated within educational institutions. However, these documents are continually revised in response to developments in professional practice, societal change, and transformations in educational systems. From the perspective of complexity theory, such documents function less as prescriptive frameworks and more as descriptive accounts of translator competence as it is, i.e., their ongoing revision reflects the evolving nature of translator competence bottom-up rather than prescribes it top-down.

This brings us back to the aspect of reinventing translation and the translator's ability to keep redefining the notion of a translator in constantly changing environments. A substantial example emerges in the interview with E3, who highlights how translator competence is being continuously reconfigured through practice, as translators at European institutions have taken on an expanding range of activities besides translation, for example, editing, content creation, subtitling, dubbing, creating radio programmes in different languages, and the like. As a result, translators are being relabelled as *language professionals*, which reflects an institutional response to these emergent practices, illustrating how competence develops in a self-organised manner rather than through prior top-down definition.

Another good example to account for self-organisation within translator competence is by explaining how translation technologies trigger perturbations within the system. At first glance, the pessimistic narrative that technologies will make the profession irrelevant suggest that technologies may seem like a "controller" here. However, research participants indicate variation in how translators respond to technological change, highlighting the role of translators' individual agency, contextual factors, etc. E5 refers to translation technologies as the *trigger* for reorganisation of translator competence. According to some other research participants, ways that technologies change translators' everyday tasks bring various new or old elements of translator competence to the forefront, such as *quality assurance*

(E5, E10), *ethics* (E10), *clarity regarding authorship* (E10), *risk management* (E5, E6), *ability to improve translation technologies* (E8), *ability to assess one's information (sources)* (E2), *ability to protect oneself (in the times of constant surveillance)* (E2), *knowledge of how technologies work* (E2), *conceptual openness* (E1, E2, E7, E8), *critical thinking* (E1, E4), *rapid adaptability to new tools* (E4), *consulting* (E5), *creativity* (E4), *ability to keep the bigger picture* (E2, E4). Taken together, these findings illustrate how translator competence reorganises itself dynamically through practice rather than being centrally controlled, set in advance or defined once and for all.

Conceptualising competence as a self-organising phenomenon revokes the expectation that it should or can be predefined, particularly in uncertain contexts, as well as allows for emergence to take place.

6.3.1.7. Emergence

Emergence (of a self-organised order) is the result of the interaction between the organism and its environment; new structures emerge that could not have been predicted from a knowledge of initial conditions. The emerged system is, itself, complex and cannot be reduced to those parts that gave rise to the system.

(Morrison, 2008)

Complex phenomena should be examined at the level at which they emerge, meaning that we should explore them by focusing on the properties and behaviours of the system as a whole rather than in terms of its lower-level individual components. As discussed in the theoretical literature review, while conceptualising competence, there is a tendency to focus on knowledge and skills as its major underlying constituent elements; meanwhile, the notion of skills is often used interchangeably with competence. However, this study attempts to grasp the holistic aspect of competence, based on the research data analysis, which supports the already mentioned three different realities that persist: what we believe translator competence is, how we define it, and how it actually manifests itself, or in complexity terms, emerges. A good example here is that all professional translators (T1, T2, T3, T4, T5) were particularly vocal about how becoming a translator emerges gradually through long-term engagement with languages, texts, and contexts.

Theoretical and empirical studies on translator competence and its development acknowledge the complexity of translator competence; however, translator competence models tend to define it by focusing on the levels of its constituent elements. Meanwhile, the ways in which translator competence

emerges in uncertain VUCA contexts, based on the insights of research participants, are much more than the sum of these constituent elements.

In other words, at the societal level, our everyday life has been changing immensely; therefore, "knowledge in general has advanced to such a degree that it is impossible for anybody to have a bird's eye perspective in the same way it was possible, say, even 200 or 300 years ago" (E6). Respectively, with regard to translator competence, one does not simply add new skills to cope with this, but rather new patterns of practice emerge as translators take on multiple interconnected roles:

> "We as a society have become more and more specialised, [...] compartmentalised in so many ways. So I think it's not something that is particular to translators. It's just a general development, and I think it's extremely difficult for a university or for people in general. The interdisciplinary nature of translation is still very much true, and sort of represents that multiplicity that we have, but in terms of the profession, I think a lot of translators do many more things than sort of the core translating" (E6).

According to the data analysis, major patterns that emerge and cannot be reduced to or predicted from the constituent elements of the system are:

- Translators performing activities *beyond* translating (trans-creation, editing, copy-editing, post-editing, MT evaluation, dubbing, audiovisual work, quality assessment and management, localisation, consulting, coordination, content creation, technology-mediated decision making, workflow design, cultural mediation, human–machine communication, linguistic data expertise, etc) (E2, E3, E4, E5, E6, E8, E9, E10, ST2);
- Translator competence enables movement across diverse professional roles (even though these roles are not always explicitly taught as separate professions) (E3, E9, E10, ST1, ST2);
- Shift in professional identities (away from *translators* towards *language professionals/consultants*/etc) (E2, E3, E4, E8, E9, ST1, T1, T5);
- Translator competence is context-dependent and non-uniform (emerges differently depending on the language pairs, institutional settings, the industry, levels of technological development, etc) (E5, E10);
- Translator competence emerges *in action* (it is irreducible to its constituent elements and becomes visible in situated performance) (E9, E10, T1, T2).

Interestingly, based on the insights of E8 and E10 translator competence is also *historically emergent*, and has always been shaped by unpredictable socio-political fluctuations, which kept redefining translator's professional roles.

In addition, the emergent aspect of the concept of competence is closely linked to the already mentioned discussion on the purpose of good education and whether everything in good education can be reduced to efficiency and measurement. In other words, emergence is often unpredictable and in the case of translators, in their professional roles, they are positioned as adaptive knowledge workers who are able to rapidly reorient themselves in response to technological change rather than by merely relying on fixed skills (E4).

To sum up, conceptualising translator competence as a CAS and acknowledging its emergent character opens up ways to substantiate its constantly evolving, often unpredictable, and non-linear nature, which is discussed further.

6.3.1.8. Non-linearity

Non-linearity guarantees that small causes can have large results, and vice versa. It is a precondition for complexity.

(Cilliers, 1998)

The non-linearity within a complex system is closely linked to the aspect of the system's levels, addressed earlier. I have already introduced the various ways in which interactions take place within translator competence as a CAS, for example, technologies ↔ industry ↔ economic factors; socio-political factors ↔ cultural and linguistic diversity ↔ communication; etc.

Consequently, translator competence and its development, from the perspective of complexity theory, is not subject to a one-to-one causal relationship among its multiple components, but rather *a continuum* (E6) of an organised, complex whole. The notions of translation and the translator, as well as translator's activities, have been continuously reshaped throughout history, due to a multitude of various factors, including changes in socio-political landscapes, the emergence of technologies, and the like (E8, E10). At times, translators were often regarded as *mediators or communicators* (E7). In certain contexts, translation had become a generic skill which only later evolved into subject-specific competence. As already mentioned, for example, historically in crisis contexts, warriors naturally had to become translators because they had to communicate and negotiate with people from culturally

and linguistically different regions (E10). More often than not, research participants resorted to the *evolving* aspect of translator competence, underlying its constant change and contextual differences. For example, "service provision also had a way smaller role back then, you did not need to push yourself in the same way as you need to today" and "the market was different, the situation was not the same" (ST2). Thus, previously, due to their wide and deep knowledge and skills, translators, also as creators, often served as mediators, or both inter- and intra-cultural communicators. Meanwhile, today, increasing globalisation, prevalence of foreign language acquisition, and, for the most part, the advent of various technological enablers of this intercultural communication, shift the focus of translators' tasks, highlighting the applied dimension of translation in today's VUCA world.

In addition, to a limited extent, the non-linear aspect of translator competence as a CAS has also been made explicit with the four future scenarios in this study. Even though these scenarios do not attempt to predict or substantiate most likely pathways of the translator's profession in the future, they do illustrate the non-linear dynamics of translator competence as a CAS (see subchapter 6.4.2. Visualisations of narrative foresight scenarios in the conceptual model).

6.3.1.9. Feedback loops

The effect of any activity can feed back onto itself, sometimes directly, sometimes after a number of intervening stages. This feedback can be positive (enhancing, stimulating) or negative (detracting, inhibiting). Both kinds are necessary.

(Cilliers, 1998)

As already discussed, the interactions between the elements of translator competence as a CAS take place in a non-linear, self-organising, and parallel manner. According to the data analysis, translator competence also evolves based on the feedback of the interactions between its elements. Throughout the study, technologies and their use have been one of the most frequently referenced factors that play the most significant role in the evolving notion of translator competence. Technological shifts profoundly affect translators' tasks, which in turn influence the ways in which translation takes place; the changing nature of translation activity feeds back into the system, making the

system readjust the notion of translation and the translator. A good example to illustrate this claim was provided by one of the students in the focus group:

"Even if you put machine or machine translation in the loop, the role of the teacher is still to foster that environment, that place where the students can create and transform knowledge, but also being aware of how that machine, that tool, or how machine translation may impact with their relation with the world, and also in what sense that machine can be used to emancipate the student, or so the student does not feel oppressed by the systems through the machine" (ST2).

Another example provided by translator educator illustrates the technology↔education feedback loop:

"I think that with the way things are developing at the moment, with ChatGPT and other language models, there is a possibility that the world will decide that translation is no longer relevant, or that we do not need to train people to be translators anymore. […] You have the tech that is developing so quickly that almost by the time they [the students] get through our [university] programme, things will have changed. And so, then they are coming out [as graduates], going "oh, well, I got all those skills, but now the tools can do that!" or "an AI system is covering that, and it is hard for me to get a job or persuade people that my skills are relevant!". So, what can we do for them? We can make sure that they are really good at learning how to do stuff. Maybe be very good at changing, so if this is your skill set, how do you build on that to do the next thing that has added value?" (E3).

Interestingly, the narrative foresight part of this study, where research participants reflected on the uncertainty of the future of the translator's profession, to a certain extent, has also served as an example of a feedback loop. For example, as already mentioned, experts in translator education commented that the idea of preparing translators for the future, where they might not exist, puts translator education today into perspective and highlights the need to focus on *soft skills, other professional skills*, *lifelong learning and ability to adapt* (E8(SC)), *transferable skills and flexibility* (E9 (SC)).

The following section refers to the underlying property of a CAS – adaptation and evolution – which in a way embraces the rest of the system's properties.

6.3.1.10. Adaptation and evolution

Adaptation means that agents themselves change over time; that is, they learn.

(Jacobson et al., 2019)

This last property of translator competence as a CAS embraces the rest of the system's properties because it explains the underlying aspect of a CAS – its ability to adapt. The conceptualisation of translator competence as a CAS suggests that as contexts evolve and constituent elements within translator competence as a CAS keep interacting, competence itself should be able to determine which of the moves enable further emergence of translator competence, and devise principles or directions for these moves.

Conventionally, as evidenced by the data analysis, translator competence is often conceptualised in a decontextualised manner or embedded mainly in market- or industry-oriented contexts. The interview data, however, suggest that the industry and its demands function less as determinant of translator competence than as a *trigger* (E5) for change. In this sense, industry developments – most notably translation technologies – initiate shifts in translators' work, as already mentioned, they enable *more of translation* (E3, E5), *make translation work easier* (E9), and *save time* (E8), but at the same time *cheapen* translators' work (E8), make people *lazier* (E9), *anxious* (E9), and foster a different sense of *ethical responsibility* (ST2). In response to these shifts and turns, translators need to reorient themselves towards various other activities, ranging from transcreation and content creation to consulting, workflow design, cultural mediation, and linguistic data expertise (E2, E3, E4, E5, E6, E8, E9, E10, ST2). All this is indicative of translators' ability to redefine themselves and adapt, which constitutes an integral property of their competence – namely, the ability to be able to move across diverse professional contexts. Adaptability, in this case, is not something that can be learnt as an individual skill but rather is an emergent quality of translator competence. Additionally, according to research participants, the adaptive character of translator competence is also reinforced by the fact that it emerges in practice (E9, E10, T1, T2) and is contextually bound (E5, E10), i.e., it is never in a vacuum, always situated in and interrelated with the environment, and, thus, should be conceptualised and developed in university study programmes accordingly.

All in all, from the CAS's perspective, instead of being treated as an expected or predefined *endpoint*, translator competence is understood as an open-ended *process* of constantly becoming a translator – or, for that matter, even other/more/less-than-a-translator. And that is exactly how translator competence takes form and evolves, as introduced in the following subchapter.

6.3.2. Validation process and its results

In social sciences, the validation of CAS models varies as there is no common validation technique, which contrasts with more conventional simulation models of complicated systems (Niazi, 2011). In this study, CAS modelling was used as an exploratory tool to conceptualise translator competence development as a CAS and explore the feasibility for future research towards more sophisticated techniques.

The conceptual model of translator competence as a CAS was submitted to international experts in translator education (N=7) for expert validation. As already mentioned in subchapter 5.4 on research validity and validation, in this qualitative-data-based study, it was crucial to estimate the theoretical and evaluative validity (Maxwell, 1992) of the conceptual model. To this end, I followed Mishler's (1990) notion of validation as a process through which scholars – in this case, scholars in translator education – assess the trustworthiness of a study based on context-sensitive judgment and disciplinary practice rather than strict adherence to formalised rules or standardised procedures.

I have carried out seven expert validation interviews altogether. Experts' teaching experience in the field of translation studies varied between 15 and 35 years. Three of the experts took part in the earlier stages of this doctoral research, while two were familiar with it from previous encounters, and two experts were completely new to it. The geographical range of experts covered Ireland, Finland, Lithuania, Spain, and Switzerland. Three of the interviews took place face-to-face, while four were online via Microsoft Teams; the interviewing time spanned 20 to 35 minutes. Prior to the interviews, the experts were introduced to the ethical aspects of the doctoral research, informed consent forms, and the *Translator Competence Development as a Complex Adaptive System: Expert Evaluation and Validation Form* (Appendix 8) covering the evaluation and validation criteria (based on Patton, 2002; Holland, 2006; Jacobson et al., 2016): *correspondence of findings to reality*, *generalisability*, *strength*, and *contributions to theory*.

For each validation criterion, experts were asked to provide agreement-based evaluative responses (five response categories ranging from totally disagree to totally agree) in support of the interpretative assessment of the conceptual model. Complementing the validation process with these structured evaluative responses provided experts a clear framework to share their assessments, while also enabling a limited means to make them more comparable. However, the primary focus remained on the qualitative interpretation of the experts' perspectives rather than on statistical

comparison. In addition, the experts were invited to elaborate on the strengths and weaknesses of the conceptual model as well as provide further suggestions and comments as to what needed revision and clarification.

Firstly, the agreement-based evaluative responses for each criterion were analysed (see Table 5). Secondly, for further analysis, expert interviews were transcribed and coded by using MaxQDA Analytics Pro (24.3.0). In this case, the deductive analysis approach was adopted, which helped explicate the experts' views of the conceptual model with regard to the validation criteria. A comprehensive summary of this analysis is introduced in Table 6 below.

Table 5. Overview of expert evaluations of the conceptual model based on agreement-based evaluative responses.

Validation criterion	Mean	SD	CV (%)	Range
Correspondence to reality	4.71	0.49	10.35	1
Generalisibility	4.57	0.53	11.59	1
Strength	4.29	0.76	17.72	2
Contributions to theory	5.00	0.00	0.00	0

Mean, standard deviation (SD), coefficient of variation (CV), and range values were calculated using Microsoft Excel to provide a comparative overview of experts' assessments. They provided, respectively, an indication of the central tendency, dispersion, relative variability, and how consistently experts agreed upon each validation criterion.

Overall, experts viewed the conceptual model favourably with regard to all four criteria. The strongest was the aspect of *contributions to theory*, indicated by complete agreement, as indicated by the mean, SD, CV, and range of zero, and no dispersion (CV=0). Aspects of *correspondence* and *generalisability* were also evaluated very positively, although with slight variation; all in all, dispersion was low, and consensus on relative variability was strong. On the one hand, noticeable variation (SD=0.76; CV=17.72%) appeared regarding the *strength* of the model, i.e., how strong the model is in explaining the process of translator competence development. On the other hand, the level of variability bellow 20 per cent is still considered low and suggests acceptable consensus among experts.

Subsequently, a more detailed overview and analysis of the expert evaluations is provided.

Table 6. A comprehensive summary of experts' views on the conceptual model based on the validation criteria.

Criteria	Experts' comments
Correspondence (of findings to reality): the framework-model corresponds to the reality of translator competence development	"I would say, I'm between uncertain and agree. Not because I think there's any flaw with the model. It's just I haven't thought about this enough; [...] to me, it does seem the complexity theory backgrounds, the adaptive part of it seems to be a better representation for what actually happens [when developing translator competence development]" (E1(CAS)). "I suppose this does correspond with the various things that I feel that we have to balance. And I'm interested in the things that come outside of the norm that you've included, such as the socio-political factors which are never mentioned in competence models. [Also] the person's competence in culture and language – so not really this idea that they have to be inculcated with these certain skills and values, but actually the sort of natural acuities, and that means that there'll be the sort of personalisation and variability for each student" (E2(CAS)). "Absolutely!" (E3(CAS)). "It's interesting and complex. And I say right away that yes, it corresponds to all current concepts and all ranges. Who we think a translator is, what competences a translator has for both translation and interpreting, and those factors in these forms of layers and criteria. They cover the present. Well, basically, the way we educate [translators], the way we understand it. [...] If we think about the future [of this model], in fact, it can be applied in practice, because it corresponds, say, to the European Master's Translator's competencies, national descriptions, and then the descriptions applied in universities accordingly. From this, I think, a very clear definition of a translator as a professional standard could emerge, which is somewhat related to the revision of language laws and competencies" (E5(CAS)). "Absolutely, absolutely. It's a dynamic that is, above all, a very unstable system. I totally agree with you" (E6(CAS)).
Generalisability: the framework-model generalises major aspects of translator competence	"Definitely, the overall conceptualisation I think is definitely generalisable, and that's probably one of its huge strengths" (E1(CAS)). "I think the major aspects covered there, [...] I agree totally" (E3(CAS)).

Criteria	Experts' comments
development (in uncertain contexts)	"This to me looks that it's, it's certainly generalisable because it is open enough and flexible enough to be general. Yeah. So absolutely" (E4(CAS)). "One hundred percent! [...] So here I see a very big potential of your model because it is multilayered, there are these three perspectives. Briefly, that's what I see and well I like it, I like the visualisation. I like it and at the same time this is what we are actually doing [at the university study programmes]!" (E5(CAS)). "I have not seen enough to say totally agree, but I've not seen too little to say I don't totally agree. Do you follow my problem? My problem is that it is quite, quite possible that I totally agree. Certainly, the fluid, the conceptual [aspect of the model]... If we look at the way the model works, then I totally agree" (E6(CAS)).
Strength: the framework-model explains the process of translator competence development	"It certainly helps to understand the process because it helps to understand the whole context. And the context is both external and internal. It's both extrinsic and intrinsic. Yeah. So, it's both the person and within the person. But it's also everything that surrounds the person because competence is a person's competence. [...] I agree, I think it's, I think it's a really good step forward. Okay. In that it brings in all of these extraneous, external, extrinsic, intrinsic factors that that inevitably, inevitably have an impact" (E4(CAS)). "I would think it very much does. How does one explain that strength? Of course, it's hard to measure it, but I think it's very clear, it's very clearly grounded and connected" (E5(CAS)). "I totally agree. Yes, yes, yes, it really... If I look at it, it explains [...], it assumes a kind of almost a scientific method which in a sense, complexity theory undermines" (E6(CAS)). "If we go back to this reality concept at the beginning that you were talking about, I mean, that conforms to the reality of any kind of professional. In terms of competence" (E6(CAS)). "But this model is, in principle, higher than the educational process; it is more conceptual. The educational process is only part of it. But the educational process probably has, how shall I put it, certain hints here, what should be incorporated, if it has not been incorporated yet" (E7(CAS)).

Criteria	Experts' comments
Contributions to theory: the framework-model contributes to theory	"I would say definitely yes. [...] When you really test things against the world, which I think what you've done, then suddenly, you know, if things become more nuanced or there's more insight. So, yeah, that's a big contribution to theory. [...] You do get to ways of conceptualising and visualising competence that seem to be more and more true to the world, and I think this one [model of CAS] probably is" (E1(CAS)). "I usually find anything to do with complexity theory interesting, but not necessarily applicable. So, seeing this applied version of complexity theory is good, I think. Because I've never really found a place for it [...] but I'd like to use it in some way. [...] So, using it [complexity theory] to describe these interconnected concepts, is an interesting starting off point, and I think if someone was trying to create a program, it would be very nice to sort of have this as a starting point to think [...]. So, yeah, I would totally agree on that front" (E2(CAS)). "It does because it's the flexibility of the theory. You know, it's the fact that it is it's kind of fluid, it's, it's dynamic. [...] There is certainly a much greater interest in this kind of process ontology [in translation studies], so there are all these kind of theoretical moves, but I suppose it's fair to say that a lot of the work that's been done there is at the level of, either kind of general theory, or, what you might call maybe cultural politics or cultural studies. But where there isn't much work really is, in translator training, in other words, that this, all of this kind of and it is quite recent. [...] So really, I think it's in the last, you know, seven years, but it lacks a kind of pedagogical component, lacks a training component. And I think the model that you're proposing is something that could mesh, very nicely in with that. So, absolutely. I think it's if anything, it's very relevant to what's happening both what's happening in the profession, but also what's the kind of the big theoretical questions that have been asked in translation" (E3(CAS)). "I very definitely think it does [contribute to theory]. I think it's a very brave, a very holistic approach to moving forward from what initially were very static approaches. I don't think all the approaches are as static as perhaps you take them to be, but I do think it is very

Criteria	Experts' comments
	definitely moving in the right direction and a move that will help in an increasingly complex context regarding the whole activity of translation itself – societal context, economic industrial context and so on and so forth. Not to mention geopolitical context! So yeah, I mean, definitely I do agree and I'm happy to say that overall, I would validate the model as a big step forward in approaches because you pulled together a lot of different things" (E4(CAS)). "Yes, I would very strongly agree, yes, you didn't just come up with it, you're basing it [on your data]. [...] Well, at least bearing in mind the current standards of translator education, I see a very clear correlation and validity between that, so without any doubt I agree" (E5(CAS)). "I agree totally with you. But this is actually for me, this is a very interesting approach, simply because it's an approach that doesn't model competence in any way that I have been familiar with. [...] You're challenging the concept of competence modelling hitherto simply because it's too static and it's too positivist basically." (E6(CAS)).

Based on the thematic deductive analysis and the comprehensive summary, the findings of the conceptual model correspond to the reality of translator competence development, and the model can be used to generalise major elements of translator competence development in uncertain contexts. The strength of the model has been highly evaluated. Last but not least, the model significantly contributes to the theory of translator education, particularly the area of translator competence development.

Finally, at the end of their interviews, some experts shared additional insights as to which parts of the conceptual model should be taken into consideration and revised. In addition, experts also reflected on the added value of the model as well. Based on these comments, several aspects have emerged.

Firstly, some of the concepts need to be taken into consideration with great scrutiny: *quality assurance* (E2(CAS)), *human-in-the-loop* (E2(CAS), E3(CAS), E5(CAS)), *risk* (E6(CAS), *translator's reflexivity* (E3(CAS)), *translational wisdom* (E3(CAS)), *translator's ability to self-actualise* (E2(CAS)) particularly when juxtaposed with larger society's attitude towards what or who a translator is (E5(CAS), E7(CAS)), as well as *translator's*

historical awareness as an ability to situate oneself (E3(CAS)). In addition, it is particularly important to be careful with concepts that regard the future: "If you are talking about situations that have not come about yet, you do not have the vocabulary to describe them […], and if you keep using the word *translator, translating*, you are evoking certain prototypes semantically" (E6(CAS)).

Secondly, experts (E4(CAS), E5(CAS), E7(CAS)) expressed their concern about whether and how the model should account for different perspectives on defining translation and a translator, depending on the perspective of the observer, as some translator competence frameworks come from very "narrow, professional corporate views, whereas others have come from a much broader educational perspective" (E4(CAS)).

Furthermore, the developmental (E4(CAS)), or dynamic (E6(CAS)) aspect of the model of translator competence as a CAS should be addressed with scrutiny, because some conventional translator competence frameworks or models are developmental while others are not: "Some of them are static, so they've got nothing to do with development. And others are personal and dynamic […]. And I agree with you that a translator competence model, which does not take into account development and which does not take into account the external factors […] is not a standalone model. […] I can understand why you reach for this because to me it is one of the essential parts of a translator" (E4(CAS)).

This dynamism leads to the last final notion, which, according to most of the experts, needs to be made more explicit in the model – the concept of time (E1(CAS), E2(CAS), E3(CAS), E6(CAS), E7(CAS)). For the dimension of time to be present in the model, certain factor-agents and the edges connecting them should be activated, or even deactivated (E2(CAS), E6(CAS)). It is exactly for this reason that this doctoral study has been complemented with narrative foresight methods, as future scenarios allow the introduction of the dimension of time into the conceptual model. Therefore, I was encouraged to provide visualisations of translator competence development as a CAS in time (year 2022–2050), which are introduced in the next sub-section of this chapter.

As for some of the reflections on the added value of this model, I particularly appreciated the experts' insights that this CAS model makes the complexity of translator competence development very explicit, which often remains unobserved by society at large (E7(CAS)). According to experts, the model has the potential to challenge the common pessimistic narrative of the translator's profession, particularly in the context of the technological breakthrough, particularly if the model finds its way to the national descriptors and definitions of translator competence at the policy document level

(E5(CAS)). As E4(CAS)) puts it, "some of translator competence models and frameworks have come from a very narrow professional corporate view of what the professional activity is […] and universities are not good at responding to that as institutions because they need rules", and this model "is taking it one step further which is a very necessary step".

This section concludes that conceptualising translator competence as a CAS has been validated by international experts as a relevant, generalisable, and conceptually strong, which contributes to the theory of translator education and is feasible for future research towards more sophisticated complexity modelling techniques. Running simulations of the model is a conventional way to test computational complexity models. In the present study, however, computational simulation was not feasible. Therefore, narrative foresight scenarios were employed as an alternative to these simulations. On the one hand, scenarios cannot equal these kinds of simulations; on the other hand, as already mentioned, future scenarios can explicate the conceptual model by qualitatively narrating the dynamics of the system and exploring its trajectories in a timely manner.

6.4. Visualising the research outputs

This chapter closes with a visualisation of the conceptual model of translator competence as a CAS as well as its four variations depicting particular trajectories of four alternative futures of the translator's profession. Visualisation of the model explicates the multiple components of translator competence and their interactions, as well as conveys the dynamics of translator competence, which is difficult to grasp through textual description alone.

6.4.1. Visualisation of the conceptual model

As already noted, the conceptual model of translator competence and its development as a CAS is highly contextual as it is grounded in the analysis of the empirical data collected during this doctoral research: (1) interviews with translator educators, students of translation, and professional translators, and (2) future scenario interviews with experts in translator education. The framework used for the thematic analysis of this data has been established following the analysis of theoretical literature of complexity theory and its application to educational research. Therefore, the visualisation of the model is meant to reflect these findings and explicate this conceptualisation of translator competence as a CAS. It is not intended to be used as an actual

competence model by translator educators, nor to replace existing translator competence models. Instead, alongside the dimension concerned with knowledge and skills, it introduces the perspective oriented towards the lived realities of translators' practice and how these should be accounted for in translator education.

This visualisation is four-dimensional and should be viewed as an HTML file available at https://karolinalevanaite.github.io/cas-competence-model/. The code was generated using ChatGPT (version GPT-4.1) following a series of prompts that describe the properties of translator competence development as a CAS. A snapshot of the visualisation is presented in Figure 12.

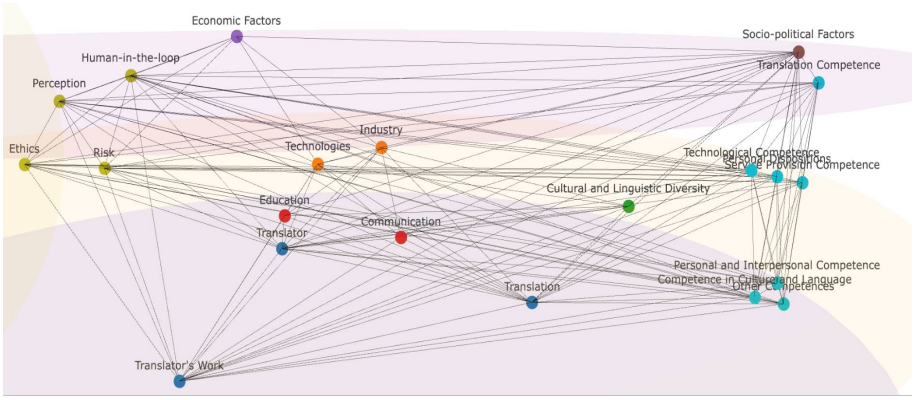

Figure 12. Snapshot of the four-dimensional visualisation of the conceptual model of translator competence development as a CAS.

This visualisation is designed to encompass ten major properties of the conceptual model of translator competence as a CAS. The model represents translator competence as a dense network of nodes and edges, where nodes correspond to the system's constituent elements (competence components, contextual factors and the like), and the edges denote their dynamic interactions and interdependencies. These interactions occur simultaneously and non-linearly, and the system operates without a single controlling centre.

The three elements – *translation*, the *translator*, and the *translator's work* – are the elements from which I have begun building this system, but this is not meant to suggest they take the central position. Instead, they function as the fundamental triad within a broader constellation of interacting elements that operate across multiple levels of the system. The nodes are clustered spatially, which reflects their functional interdependence (for example,

between competence domains, contextual factors, and professional practices); however, they do not resemble relational strength or frequency of interaction, because such parameters could not be extracted from the data and were beyond the scope of this doctoral study. In addition, layers within the visualisation are intended to indicate multiple levels of the system rather than imply any vertical or horizontal hierarchies. Therefore, the relative positioning of the nodes and the layers in the model primarily visualise their presence and interconnectedness in the system rather than represent exhaustive or quantified analytical measurements. Similarly, the colours of the nodes are used to distinguish broad categories of the system's elements and do not represent evaluative or quantitative differences among them.

In addition, education- and industry-related contexts are visualised as integral but not dominant components of the system, highlighting that neither universities nor translation service providers can prescribe the development of translator competence. Instead, competence self-organises through decentralised interactions among system elements. Consequently, changes in one part of the system – for example, technological developments – may ripple across the network, influencing other elements such as risk perception and management, which in turn reshape translators' work and the necessary skills and abilities.

Through these ongoing interactions, new patterns and properties continually emerge, underscoring that translator competence is not a fixed construct but is in constant flux, continuously adapting and reinventing itself.

6.4.2. Visualisations of narrative foresight scenarios within the conceptual model

I would like to close the empirical part of this study by providing a glimpse into the four narrative foresight scenarios introduced at the beginning of this chapter. The following figures present snapshots[‡] of the four scenarios through four-dimensional visualisations of the conceptual model of translator competence development as a CAS. It has already been made explicit that complex system models account for temporality and process in different ways than linear models do; in such models, time is intrinsic to the system's

[‡] The animated visualisations can be accessed at:
https://karolinalevanaite.github.io/cas_model_S1/;
https://karolinalevanaite.github.io/cas_model_S2/;
https://karolinalevanaite.github.io/cas_model_S3/;
https://karolinalevanaite.github.io/cas_model_S4/.

dynamics. Ideally, when developed computationally, complex systems and CAS models can generate trajectories within the system by running simulations and observing how differences in certain variables affect the dynamics of the entire system. Since this study aimed to develop a conceptual model and adopted foresight narrative methodology to at least partially address this, these visualisations are intended to make this aspect more explicit. These visualisations of the four scenarios were also very much encouraged by the experts who evaluated and validated the model (E1(CAS), E2(CAS), E3(CAS), E6(CAS), E7(CAS)).

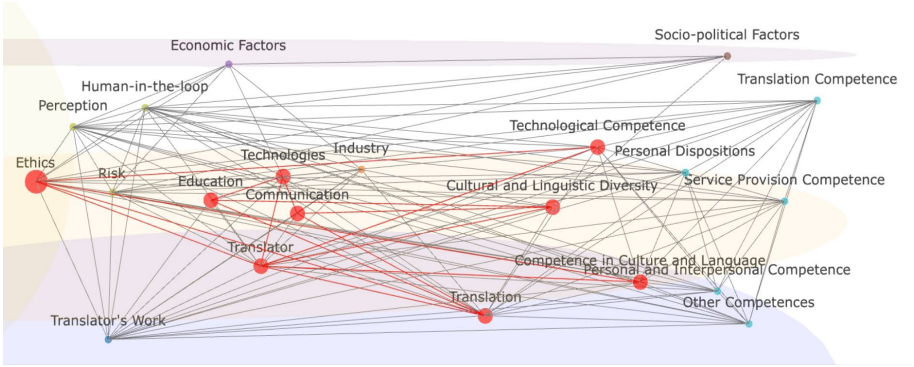

Figure 13. Snapshot of S1 in the four-dimensional visualisation of the conceptual model of translator competence development as a CAS.

In the visualisation of S1, various nodes, or the system's elements, remain foundational and are simultaneously activated over time. As *technologies* continue to evolve and *cultural and linguistic diversity* persists, the attitude towards, and the notion of, *translation* undergoes profound change. According to S1, in the future, the supply of *translators* is low and, consequently, the demand is high, placing particular emphasis on translator *education* and professional accreditation. The interplay of linguistic diversity and AI-based technological developments results in substantial shifts in *communication* and increased emphasis not only on translators' *technological competence* but also *competence in culture and language*. In the light of these contextual developments, the *human-in-the-loop* remains of paramount importance, as it constitutes the key condition for ensuring *ethical* oversight is maintained in all translation-related activities.

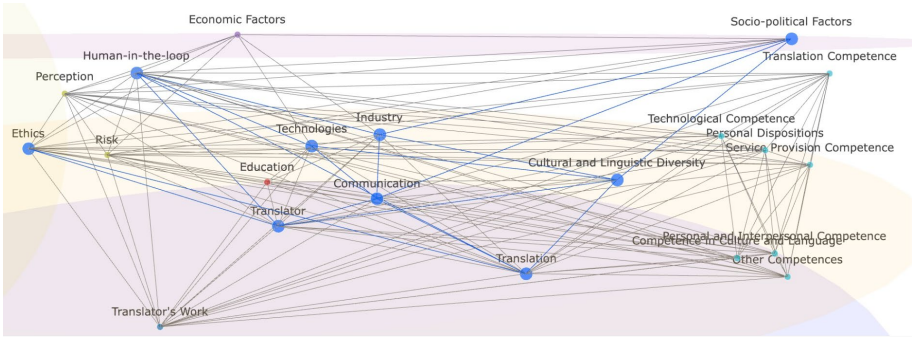

Figure 14. Snapshot of S2 in the four-dimensional visualisation of the conceptual model of translator competence development as a CAS.

S2 visualises a more explicitly politically oriented scenario, where *socio-political landscapes* are shaped by the interaction of several cultures and languages. In this setting, the role of *translation* and the *translator* is elevated, primarily due to the growing need for cross-cultural *communication* which highlights the need for mediation and negotiation. At the same time, the *industry* and the element of *technologies* get activated, underscoring the need to maintain the high value of translation and ensure *ethics* through *human-in-the-loop*. Although the nodes activated in the visualisations of S1 and S2 overlap, it is important to notice that the initial conditions and the overall dynamics of the system evolve differently in each case. This highlights the contextual, situated, and fluid nature of translator competence.

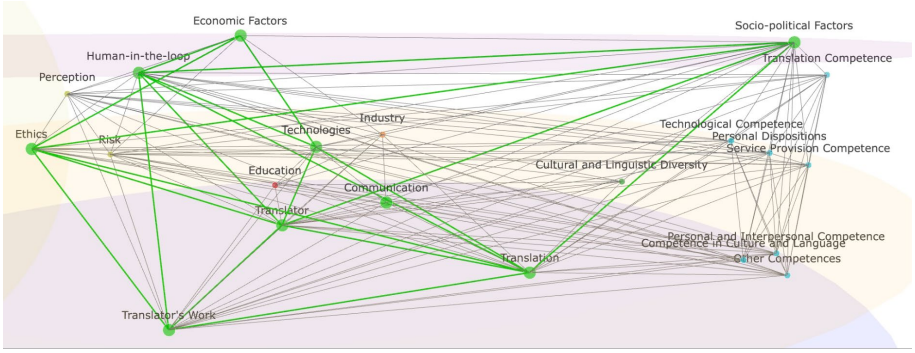

Figure 15. Snapshot of S3 in the four-dimensional visualisation of the conceptual model of translator competence development as a CAS.

In the visualisation of S3, the *socio-political landscapes* resemble those introduced in S2; however, their significance is lower than that of *economic factors* and the element of *technologies*. This shifts the dynamics of the system and highlights substantial changes in the notion of *translation*, which becomes

increasingly outdated, as well as the role of the *translator*. As technologies take over most of translation-related activities, the *human-in-the-loop* and *ethics* nodes are activated accordingly, but translators' work changes fundamentally. Some former translators assume roles as post-editors, while others reposition themselves as experts in *language* and *communication* technologies, becoming highly valued content engineers.

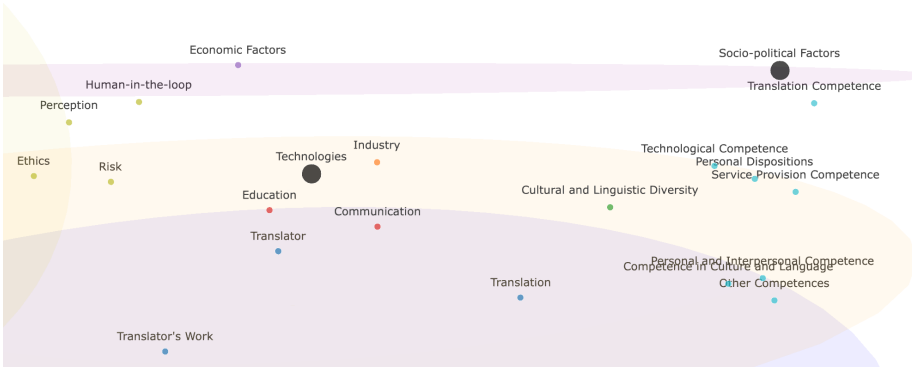

Figure 16. Snapshot of S4 in the four-dimensional visualisation of the conceptual model of translator competence development as a CAS.

The final visualisation of S4 – the utopian/dystopian scenario – foregrounds a world where translation becomes largely irrelevant. It should be noted that, based on this scenario, the failure of translator competence as a system is not fostered by a single failure but rather occurs due to many continuous failures, which are either ignored or cannot be anticipated or controlled. In S4, these include, but are not limited to, the collapse of cultural and linguistic diversity, shifts in modes of communication, natural catastrophes, and the like. One of the underlying assumptions is that *technological* developments advance to the extent that they overdominate or "deactivate" many other elements of the system of translator competence, for example, communication becoming predominantly mediated by AI-driven technologies. Another assumption is the potential extinction of linguistic diversity due to *socio-political* landscapes, resulting in the dominance of a single lingua franca. Within this scenario, even the redefinition of the notions of *translation* and the *translator* over time lose significance, because the system gradually becomes unable to adapt and evolve. The feedback loops, the multitude of system's elements, and their interactions that sustain the complex system as an adaptive one are reduced. As this adaptivity of the system diminishes, the system loses its ability to reorganise in response, emergent behaviours also diminish, and the system no longer functions as a

CAS. As a result, eventually its complexity collapses and the system evolves into a simple one. Unable to create new trajectories, the system can no longer self-organise, and translator competence as a dynamic system gradually deteriorates.

7. DISCUSSION

This chapter presents the discussion of the empirical findings of the doctoral thesis, examining five key themes that emerged from the data in relation to the theoretical framework guiding this study. The discussion is organised around the initially raised question: how can translator competence be conceptualised so that it encompasses uncertainty? Following the data analysis, the five themes are centred on the *mismatch* of the concept of competence in *theory and practice*, conceptualising the *complexity* rather than *multi-componentiality* of competence, the *developmental* aspect of competence, the urge to *reinvent translation* and the *translator*, and the overall *ontological turn* in translation studies and HE. Last but not least, the final subchapter highlights some of the aspects that remained beyond the conceptual model, providing a reflective account of what was left unresolved in this study.

7.1. Mismatch between conceptualising competence in theory and practice

Firstly, this study has analysed various conceptualisations of competence, including policy documents at the European and global levels, as well as analysed how competence is conceptualised in the field of translation studies, which provided grounds for the empirical part of this research. Several key aspects reemerged within these conceptualisations in the literature review.

First and foremost, while competence is commonly defined as a multi-componential construct, its inconsistent terminology and predominance of skills-focused interpretation obscure the role of the interactions that take place between these components. Moreover, in uncertain or future-related contexts, there appears to be a shift away from *competence* towards *skills*, *literacies, capabilities*, and other related concepts, suggesting a move from a holistic understanding of competence towards a more narrowly defined and seemingly more manageable conceptualisation.

Secondly, the empirical findings of this study support a substantial mismatch between how competence is conceptualised and defined and how it actually manifests in practice, particularly in uncertainty and future-oriented contexts, as evidenced by the research participants' perspectives. This strongly aligns with Edwards and Usher's (1994) view that "with competence [as they are conventionally defined], there is closure; all learners are tied into a centrally determined predefined set of goals, whose meaning and practice are circumscribed" (p.12). The data analysis suggests that translator

competence in practice resists such closure, as the following sections demonstrate more explicitly.

Fundamentals of translator competence. The development of translator competence to a great extent depends on the starting position of the student upon admission to the university, i.e. the level of various skills and knowledge which the student has already achieved prior to entering translation studies. For example, according to research participants (E3, E5, E7, E8, E9, E10, ST1, ST2, T1, T2, T3), *linguistic* and *cultural competences* are fundamental for the development of the overall translator competence. However, following the terms of complexity theory, these are only the initial conditions of the system of translator competence rather than the major organising component. For example, students with strong subject-specific backgrounds (for example, biology, law, etc) can develop translator competence even if their linguistic capacity is less advanced, as their domain-specific expertise can compensate for these limitations (E1, E9). Hence, in practice, *background knowledge* is also considered a fundamental component, or initial condition, for the development of translator competence. What is essential here is that these initial conditions – whether linguistic and cultural competences, subject-specific expertise, or other prior knowledge – can give rise to significant shifts in how the system behaves. In other words, there is no single trajectory for how translator competence should be developed, because it is shaped by what students bring with them upon entering the university. These prior resources, in turn, inform the pedagogical decisions and approaches adopted by educators.

On the one hand, the idea of the complex system's sensitivity to initial conditions has been controversial among complexity thinkers. Some actually disagree on its importance, for example, Holland (2006) emphasises adaptation and co-evolution, while Cilliers (1998) assumes that a complex system's ability to perform under diverse conditions is more important than its sensitivity to initial conditions. On the other hand, in their CSCFL framework, Jacobson et al. (2019) assume that "sensitivity to initial conditions or chaos, where there is an amplification of initial state differences in a system (often based on positive feedback interactions) may contribute to major behavioural changes in a system" (p. 113). All in all, in practice, translator competence as a concept is far less uniform than conventional models are able to capture.

Contextual factors within translator competence. Various contextual factors must also be considered integral to translator competence and its

development, as translation is inherently embedded in these contexts. Research participants highlighted contextual embeddedness as central to translator competence (E5, E10), with its adaptive character further reinforced by the way it emerges through practice (E9, E10, T1, T2). This contextual interdependency in the present society, on the one hand, opens up new avenues for translator education in a world where economic and technological advances bring about communicative efficiency as these advances also create conditions to extend our interactions to a growing range of people, organisations, systems, objects, etc (Heylighen et al., 2007): "[T]his network of interactions grows and spreads around the globe, the different economic, social, technological and ecological systems that we are part of become ever more interdependent. The result is an ever more complex 'system of systems' where a change in any component may affect virtually any other component" (Heylighen et al., 2007, p. 117). Similarly, E3 referred to the *ricochet effect*, which actualises the need to rethink what is central in translator education in such an interdependent world:

> "Every problem I see stems from miscommunication […], when you see conflict and people having a go at each other, or governments not working, people going to war, even the pandemic […]. Then we have misinformation and disinformation, so I think there's huge value in training […] experts in communication to try and help us communicate better with each other".

To sum up, various contextual factors can be assumed as part of translator competence and its development because translation as an activity is inextricable from these contexts.

Complex causality within translator competence. Throughout the interviews, many research participants have touched upon the prevailing narrative based on automation anxiety (Vieira, 2020), which assumes that advances in AI-based translation technologies will reduce the demand for translators in the near future. Perceived in a linear manner, or seen from the perspective of conditional action, or, according to Holland (2006), the IF/THEN logic, technological advancements could seem like a major concern regarding the future of the translator's profession. However, Holland refers to yet another property of a CAS – parallelism, which allows for a system to combine multiple rules rather than rely on a distinct rule for every possible situation. This provides a useful lens for understanding complex causality in translator competence by highlighting an array of concurrent societal changes *beyond* technological advancement that influence translation-related services,

including, but not limited to, *shift from textual to visual culture* (E10), *decreasing appreciation of literature and reading* (T4), *abundance of information* (T3), *broader shift in societal values* (E10), *repositioning ethics* (ST2), etc. In other words, causality takes place not only in linear but also complex ways; therefore, when considering even the most pessimistic scenarios for the future of the profession, there are far more implications to be taken into account than just the technological breakthrough.

Shared control in translator competence. Next to this dual understanding of causality, there is another assumption regarding the pessimistic, automation-anxiety-driven narrative about the future of the translator's profession: the belief that translation technologies are a major determining or controlling force shaping the overall direction of the profession. Most research participants, however, explicitly rejected this view. In complexity terms, the key aspect here is that control in a CAS – or, in this case, translator competence – is shared.

Davis and Sumara (2006) presume that in knowledge-producing collectives, control is always decentralised and it arises merely from localised activities – "one must give up control if complexity is going to happen" (Kelly, referenced by Davis & Sumara, 2006, p. 144). Respectively, in translator competence, these localised activities refer to, for example, the development of *linguistic* and *cultural*, *service provision*, *technological*, and other competences, shifts taking place in the *industry*, *educational* activity, *socio-political* life, etc. While these localised activities all have varied influences on how translator competence will evolve, they exist within translator competence and are not seen as external or centralising forces that determine how competence should evolve. This corresponds to Davis and Sumara's (2006) idea that at the centre of a complex system, there is no single centralising object but rather "an idea, a shared commitment, a common purpose, a collective orientation, an **emergent** possibility" (Davis & Sumara, 2006, p. 146). Such a decentring of control foregrounds emergence as a key organising principle of complex systems, and thus is further discussed in greater detail.

Translator competence as emergence. The research findings indicate various emergent patterns that cannot be reduced to, or predicted from, the individual components of translator competence. More precisely, translator competence manifests in a wide range of activities beyond translation itself (E2, E3, E4, E5, E6, E8, E9, E10, ST2), enabling practitioners to move across diverse professional roles (E3, E9, E10, ST1, ST2) and prompting shifts in

professional identity towards broader functions (E2, E3, E4, E8, E9, ST1, T1, T5). Following that, translator competence manifests differently across contexts and emerges in situated action, highlighting its context-dependent and non-uniform nature (E5, E9, E10, T1, T2).

The emergent aspect of translator competence has been extensively explored in the already mentioned seminal works by Kiraly (2013, 2016; Kiraly & Massey, 2025). Kiraly's model of translator competence as co-emergence depicts both the complex interdependencies of sub-competences as well as their emergence over time, which can also take place in a non-parallel way. In addition, Kiraly emphasises that translators (by interacting with other translators, clients, etc.) or students of translation study programmes (by interacting with each other and their teachers) remain in constant interplay with their changing social and physical contexts. It should be noted that the present doctoral study draws substantially on Kiraly's emergent approach; however, my primary focus lies on the adaptive aspect of competence, particularly under conditions of uncertainty. Therefore, this study aims to contribute with a broader conceptualisation of translator competence as a CAS, within which emergence is one of its ten properties.

Interestingly, as emergence is almost impossible to predict and any external or central control within the systems disrupts its complexity, this seems contradictory to the efficiency and measurement-oriented CBE agenda. On the other hand, conceptualising competence as inherently emergent does not constrain curriculum design in HE studies programmes, as one can occasion behavioural changes in a system through its initial conditions. Although the causal processes underlying these interactions may not be fully traceable, their emergent outcomes are not subject to any mystery as they remain consistent with the nature and trajectories of their previous interactions (Haggis, 2008). However, the fundamental shift of focus here is that by acknowledging the emergent character of competence, in Biesta's (2009) words, we are able to provide students with the opportunity to develop their own approaches to thinking, acting and being that may be of greater value than when focused on achieving predetermined learning outcomes.

Evolving nature of translator competence. Throughout the study, technologies and their use have been one of the most frequently referenced factors that play the most significant role in the evolving notion of translator competence (E2, E3, E4, E5, E6, E7, E8, E9, ST2, T2, T3, T5). Technological shifts profoundly affect translators' tasks, which in turn influence the ways in which translation takes place; the changing nature of translation activity feeds back into the system, making the system readjust the notion of translation and

the translator. In other words, translator competence evolves based on the feedback of the interactions between its constituent elements.

This aligns with the notion of feedback loops – both positive and negative feedback, which occurs between the system's elements and gives rise to repeated patterns and self-referential closures that enable the system's dynamics (Semetsky, 2008). According to Semetsky, this is analogous to Dewey's idea that the restructuring of experience originates in the "problematic situation": "Interactions are established between, as Dewey said, what is done and what is undergone, and it is by means of apprehending these connections and interrelations that 'an organism increases in complexity' (Dewey, 1934/1980, p. 23); in other words, it learns" (2008, p. 81).

An additional illustration of how feedback loops work was provided by the research participants' reflections on the future uncertainty of the translator's profession. Experts in translator education noted that the idea of anticipating possible futures where the role of the translator may be transformed – or even diminished – feeds back into present-day educational practices. In other words, uncertainty and future scenarios regarding it prompt stronger emphasis on *soft skills*, *other professional skills*, *lifelong learning and ability to adapt*, *transferable skills and flexibility*, and the like.

Adaptability within translator competence. Data analysis indicated that translator competence is often conceptualised in decontextualised or primarily market-oriented terms; however, interview data suggest that industry demands function less as determinants but rather as triggers for change. For example, translation technologies reshape translators' work by increasing efficiency and productivity (E3, E5, E8, E9) at the same time introducing new pressures, including devaluation of translators' work, anxiety, and shifting ethical responsibilities (E8, E9, ST2). In response, translators increasingly engage in a wider range of activities, such as transcreation, consulting, workflow design, cultural mediation, linguistic data work, etc (E2, E3, E4, E5, E6, E8, E9, E10, ST2). This indicates translators' capability to redefine their roles across diverse professional contexts. This adaptability emerges as an integral property of translator competence rather than as a separate skill. Participants further emphasised that competence develops through situated practice (E9, E10, T1, T2) and remains contextually bound (E5, E10), underscoring the need for university study programmes to conceptualise the notion of competence as embedded in dynamic environments.

Revisiting the literature in light of these findings, this aligns with Holland's (2006) conception of a CAS's ability to adapt, i.e. to improve its performance rather than evolve randomly. For that, the system needs to solve two problems:

(1) assign credit for the system's performance, and (2) discover the necessary rules. Holland uses the metaphor of a chess game:

> "After a long sequence of moves, the player receives notification of a 'win' or a 'loss' and, perhaps, an indication of the size of the win or loss. There is little information about which 'stage-setting' moves along the way were critical to that performance. The problem, then, is to determine which of these stage-setting moves might be useful in future games. [...] The rule discovery problem arises when it becomes obvious that some of the agent's rules are ineffective or detrimental. Replacing ineffective rules with randomly generated new rules will not do. That would be much like inserting instructions at random in a computer programme. The object is to produce new rules that are plausible in terms of the agent's experience" (p. 2).

Therefore, from the CAS's perspective, translator competence is much more about *learning to become a translator* than it is about the acquisition of executive translation skills or competences (Washbourne & Liu, 2023), or "something inhabited and enacted: a way of thinking, making and acting. Indeed, a way of being" (Dall'Alba & Barnacle, 2007, p. 682). Thus, instead of being treated as an expected or predefined *endpoint*, translator competence is understood as an open-ended *process* of constantly becoming a translator – or, for that matter, even other/more/less-than-a-translator.

7.2. Conceptualising the complexity of competence

Based on the data analysis, the conceptualisation of translator competence as a CAS expands the notion of competence in two regards: it (1) embraces *system elements* which conventionally are not treated as part of translator competence, and (2) emphasises their *interdependencies*.

Firstly, since Neubert's (1994) model, when defining translator competence in a multi-componential manner became the accepted "norm", a number of other models followed (see PACTE, 2003, 2009, 2011, 2017; Göpferich, 2009; EMT, 2009, 2017, 2022). As already addressed in this thesis earlier, in translation studies for the past 25 years, translator competence modelling was rooted in this multi-componential manner (Massey, 2019), as "this notion of multi-componential competence grew and grew and grew, and there is no reason why it cannot stop growing" (Pym, 2021). On the one hand, research participants provided numerous elements that constitute translator competence, resulting, at first glance, in a multi-componential model of translator competence as a CAS. As already mentioned before, the multitude

of elements is one of the initial conditions for a system to be regarded as a complex one. On the other hand, I organised the hundreds of codes into twenty constituent elements in the CAS model of translator competence: *economic factors*, *socio-political factors*, *cultural and linguistic diversity*, *industry*, *technologies*, *communication*, *education*, *translator*, *translation*, *translator's work*, *translation competence*, *technological competence*, *service provision competence*, *competence in culture and language*, *personal and interpersonal dispositions*, *other competences*, *perception*, *ethics*, *risk*, *human-in-the-loop.* The number of these elements might seem relatively small in comparison to the most up-to-date EMT Translator Competence Framework (2022). In the framework, the list of what constitutes translator competences consists of 36 aspects. Furthermore, these components of a CAS model include elements which typically have been regarded outside translator competence, such as contextual factors, such as the socio-political and economic landscapes, which are closely interconnected with both long- and short-term shifts in cultural and linguistic diversity as well as technological and industrial shifts. Based on the data analysis, these factors emerge as closely interconnected with translator competence, and by incorporating them into the system of translator competence, we can gain a better understanding of their role within it. This aligns with Pym's (2021) assumption that there is no end to the list in multi-componential models of translator competence, because as the profession changes, these lists of components will never be able to keep up with technologies that keep evolving. In addition, the data analysis illustrates Cilliers' (1998) view that the pace of technological development has outstripped the development of corresponding theory.

Therefore, secondly, the interdependencies or interactions between the system elements are as important as the elements themselves. To contribute to Pym's discussion on the limitations of the multi-componential model in today's technologised world, I suggest that by focusing on the interdependencies of the system elements rather than on their multitude, which is without end, we aim at the complexity of competence, and, thus, the complexity model has the potential to help us make sense of translator competence today in ways that multi-componential models cannot. The idea that the elements of translator competence depend on each other and interact is nothing unheard of among translation theorists and practitioners. However, it has only been conceptualised to a limited extent in the literature of translation studies, as well as HE, more broadly. Thus, **this shift from the multi-componentiality to the complexity of competence is one of the underlying contributions of the model of translator competence as CAS**,

as also validated by the experts (E2(CAS), E4(CAS), E5(CAS), E6(CAS), E7(CAS)).

This redirects me back to the aspect of representationalism in education, and whether the concept of competence should mainly consist of notions that lend themselves to representation, for example, linguistic skills, technology, and service provision skills, or if it could also encompass what is beyond representation. What emerged from the data are various (socio-political, economic, etc) landscapes where these representations are rooted, for example, technology is frequently foregrounded in various contemporary competence models, but the political or economic aspects are rarely taken into account as fundamental in translation study programmes, even though some translator educators who took part in this study admit they include some of these themes in their modules implicitly. In addition, by delving into these economic and political landscapes, matters of ethics or sustainability of translation gain a much broader perspective, which, on the one hand, is not always convenient for the industry itself, but on the other, is expected to be at the heart of university and overall HE that seeks to foster critically reflective citizens.

To sum up, translator competence cannot be reduced to the sum of its elements[§]. Multi-componentiality cannot be undermined, but the shift of focus from the multitude of elements that make up competence to its complexity provides avenues to move beyond its representable aspects (e.g., language proficiency, MT skills, etc) to far less representable ones (e.g., future-oriented technological literacy, economic landscapes, and the like). Respectively, *future* skills can be considered representational only to a very limited extent, because more often than not, we are uncertain about them; however, they do have traits with elements that make up competence *today*. By focusing on these interdependencies and the elements tied by these nodes, we can gain a better understanding of uncertain future skills. The complexity model provides new avenues to **think of, speak about, and act upon the notion of competence**, and that is foundational for competence research and practice, particularly in uncertain contexts.

7.3. The developmental aspect of competence

Another significant theme that emerged during the data analysis, particularly in the validation interviews, is the distinction between translator

[§] I here rephrase the famous quote attributed to Aristotle – "The whole is greater than the sum of its parts", often undertaken by proponents of complexity theory.

competence and the *development of* translator competence. Based on my research findings, this developmental dimension is key in a VUCA context, or in the era of uncertainty, as change constitutes a fundamental characteristic of nearly all phenomena, and such change is inherently temporal. Complexity theory, as a theory of change and adaptation (Morrison, 2008) as well as a non-representational theory (Osberg et al., 2007), appreciates the dimension of time, as all phenomena, including educational phenomena, are regarded as temporal.

Based on the data analysis, many research participants (E5, E7, E8, ST1, T1) speak about the *constant need to upskill* to sustain their professional competence; for example, E6 directly refers to *competence as a continuum*. However, it should be made explicit that throughout the interviews, the development of translator competence is frequently interpreted as the development of its constituent elements, in most cases, linguistic skills (of both source and target languages). Which, again, presupposes that translator competence and its development as a whole is habitually broken into separate skills or abilities. The problem here is that we expect our students to become lifelong learners and yet we undermine the need to develop their professional competence as a whole, or encourage their *adaptive expertise* (Muñoz Martín, 2014), the development of which is dependent on fostering students' metacognition, self-regulation, and reflective practice (Massey, 2019). More specifically, translator competence is a lifelong endeavour which needs to be incorporated into the mindsets of future translators already during their studies, because "you need to work on your own a lot, and put in a lot of individual work, as contact hours in a classroom are not enough, and if you do not work on your own every day, you will not be able to develop it [translator competence]" (E9). While contemporary translation studies clearly recognise the importance of preparing students for lifelong learning, I argue for a shift in emphasis: lifelong learning should be understood not merely as the continuous enhancement of specific components of competence, but as the capacity to develop in a complex, interdependent, and emergent manner:

> "I think it is fantastic that you have introduced the concept of development [in the model]! Because one of the things that is missing from a lot of the competence frameworks is that competence is an objective which you reach, and that is it, and there is no way that is the case. It is constantly evolving, it is dynamic. And that is something you really, really do pick up on. And I think your model [...] **is very important because it is central to your position […] which visualises this very dynamic, changing, moving vision – multi-perspective from**

> **the top, from the bottom, from the side, from the inside out** […], something that would make a lot of curriculum designers […] igniting a different way of thinking" (E4(CAS), emphasis added).

Yet another aspect to be taken into account by curriculum designers is the changing notion of performativity and the translators' ability to continuously reinvent themselves, discussed in the next section.

7.4. Reinventing translation and translator competence

At the centre of conventional multi-componential approaches to competence lies the idea of performativity – the ability to apply knowledge, skills and personal dispositions in action. Therefore, translator competence is, largely, oriented towards performativity. But as the research participants admit, we live in a world of constant change, and as a result, translators are expected to undertake increasingly varied tasks, which shifts the overall idea of who or what a translator is, or will be in the future. As a result, part of a translator's job is the ability to redefine oneself as a professional, and, therefore, today being a competent translator means being able to move away from conventional approaches to what translation has been for the last few decades, towards the most up-to-date and often context-bound realisations of what translation has been becoming, again and again.

This is particularly apparent in the exploration of alternative future pathways, which facilitate the conceptualisation of diverse translator profiles in the years ahead. For example, Scenario 1, largely interpreted as the amplification of current directions in translation and translator education, emphasises a comprehensive redefinition of the human aspect in translation amid the prevalence of multilingualism and AI-assisted translation. This redefinition underscores the importance of advanced competences for future translators, including risk management, ethical responsibility, and multilingual proficiency. Furthermore, Scenario 2, or the gatekeeping scenario, emphasises the empowerment of the human element in translation in contrast to increasing technological dominance. In turn, translation study programmes should be strongly oriented towards courses on activism, cultural diversity, and intercultural communication, translation criticism, and other modules addressing the societal impacts of translation (e.g., modules related to political thinking, ideologies, manipulation, with fundamental focus on ethics). In addition, Scenario 3 emphasises the technological advancement and potential transformation of translators' roles and tasks, highlighting shifts towards content engineering, language mediation, and upskilling in AI-driven

technologies. Lastly, Scenario 4 provides a particularly transformative outlook on the future "translator", if one exists at all. With this in mind, this alternative future pathway suggests a strong focus on transferable skills as well as the ability to critically reflect on the relationship between translation and technologies and a deep understanding of the nature of languages and communication in AI-driven contexts. Reimagining the world as a place where translation and translators are no longer present urges us to reposition this ontological uncertainty in translator education programmes today.

The research findings revealed that, in the present day, a rather applied notion of a translator – a specialist meant to perform certain tasks and make a living – persists. This instrumental approach is rather managerialised and representation-oriented, rooted in what the industry needs rather than what added value a person can provide for society. But can we actually predict what the industry or society, or the individual, will need in the near or distant future? In order to remain both knowledgeable and actionable (Markauskaitė & Goodyear, 2017), we should move on to a different understanding of the profession by constantly redefining it – a translator who is able, in Pym's (2026) words, to reinvent translation. Since the nature of translation – or any profession – is no longer definitive, the **ability to redefine oneself** becomes key as it ensures individuals **remain resilient** and **are able to adapt**, which requires a great deal of competence, even a different mindset. In addition, this reinvention of translation also needs great care and attention to "new definitional maxims – there is theoretical work to be done" (Pym, 2026). Therefore, this doctoral study aims to contribute to this work by suggesting a *new definitional maxim* of translator competence as a CAS.

7.5. The ontological turn in translation studies and higher education

How, then, does the conceptualisation of translator competence as a CAS contribute to the ontological turn in HE? Does it contribute to a deeper understanding of how uncertainty can be conceptualised as intrinsic to competence? This final subchapter concludes by returning to the theme that opened this doctoral thesis.

The ontological perspective offers a means of addressing some of the deficiencies in contemporary HE, such as the decontextualisation of knowledge – and competence for that matter, prioritisation of knowledge over learning, and overemphasis on the epistemological dimension at the expense of the ontological one (Dall'Alba & Barnacle, 2007). I posit that one contributing factor is that many aspects of the conceptualisation of competence remain implicit, and there is a need to make them more explicit.

Representational and epistemology-oriented approaches that dominate our current conceptualisations of competence and its development suggest that whatever is implicit in HE cannot make it to the study curricula. Exploring the reasons behind it remains beyond the scope of this study; however, the challenges of measurement and assessment, which occasionally emerged during this study, both in the literature review and the empirical part, would definitely be among them. As some research participants noted, some of these less explicit aspects, for example, *technological foresight* (E4), *self-actualisation* (E3(SC)), etc., find their way into translator education, but they mainly depend on the goodwill and motivation of the educators, not the study curricula. Therefore, attempts to make implicit elements of translator competence more explicit can facilitate curriculum design. It is particularly relevant in terms of uncertainty: **we cannot make uncertainty representational, but by modelling the complexity of competence, where uncertainty is its inherent property, we are making it more explicit, even if to a limited extent.** In Davis and Sumara's (1997) words, the enactivist conception of teaching, which stems from complexity theory, aims to *expand the space of the possible*.

And the underlying question is, what does the model of translator competence as a CAS tell us, and how can it be used in translator education? Throughout my study, I have been asked this question on numerous occasions. Can it serve translator education in practice? What impact does this conceptualisation have on the theory and/or practice of translator education or, more broadly, HE?

The following insights shared by the experts, who validated the model, provide a robust overview of the implications of the conceptual model. The conceptualisation of translator competence as a CAS corresponds to all current concepts and ranges of who we think a translator is, what competences a translator has, and covers all of the present factors of translator competence: "from this, I think, a very clear definition of a translator as a professional standard could emerge" (E5(CAS)).

Furthermore, because the model is multilayered and provides diverse perspectives, and, at the same time, captures the complexity of translator competence development, it has the potential to facilitate university study programmes.

> "It certainly helps to understand the process because it helps to understand the whole context. And the context is both external and internal. It is both extrinsic and intrinsic. So it is both the person and within the person. But it is also everything that surrounds the person because competence is a person's

> competence. [...] I think it is a really good step forward in that it brings in all of these extraneous, external, extrinsic, intrinsic factors that inevitably have an impact [for translator competence development]" (E4(CAS)).

In addition, adopting complexity theory to capture the interconnected parts of translator competence is a good starting point for curriculum design: "if someone was trying to create a programme, it would be very nice to sort of have this as a starting point to think" (E2(CAS)); "it is very relevant to what is happening both in the profession, but also [...] the big theoretical questions that have been asked in translation" (E3(CAS)). One of the experts highlights the need to have a holistic approach and move forward from what initially were very static approaches: "I do think it is very definitely a move in the right direction that will help in an increasingly complex context regarding the whole activity of translation itself – societal context, economic-industrial context and so on and so forth, not to mention geopolitical context" (E4(CAS)). However, it should be noted that "this model is, in principle, higher than the educational process; it is more conceptual. The educational process is only part of it. But the educational process probably has [...] certain hints here, what should be incorporated, if it has not been incorporated yet" (E7(CAS)).

Last but not least, we should not overlook the extent to which language shapes and constrains our possibilities for thinking, acting, and reasoning, often at the expense of alternative perspectives and approaches (Biesta, 2009). In turn, being aware of the complexity of competence calls for respective change in the ways we think and talk about and then act upon – whether we teach translation, engage in its theorisation, work in the industry as translation service providers or commission translation services for our own needs:

> "This complex model shows the complexity of the translator's profession, and there is a great need for such an explication in today's society, which is why there is an increasing polarisation between how society sees the translator's profession and how translators themselves understand how complex this profession is and how complex translator competence is. [...] Translators themselves, who work in the translation industry and who educate translators, have a completely different understanding than the rest of society about translation and the translator, the translator's profession, and everything related to it. [...] But in principle, this model shows how complicated and complex translation and the profession are in general. I do not know any other profession that could compare to it. Everyone says – well, probably not everyone, but the majority – that translation is a

> craft. In principle, dentistry is a craft. A translator is definitely not a craftsman, because in order to be a good translator, you have to know and master so much [...] – only very few members of society are able to see all this complexity. That is why now the translator's profession is grossly underestimated. [...] Society treats certain professions as professions of high prestige, and translators have never been there, although they should be there according to the level of knowledge and the competences and skills they need to possess, and your model depicts exactly that" (E7(CAS)).

7.6. Beyond the conceptual model

Essentially, all models are wrong, but some are useful.
Box (1987)

As much as I would like the conceptual CAS model to make the complexity of translator competence explicit, I remain very humble about what the model can and cannot actually tell us. Throughout the course of this study, I was repeatedly asked whether I would ultimately be able to provide recommendations for curriculum design or suggestions for shifts in pedagogical approaches and their practical implementation. At certain points, I even struggled to come up with these recommendations; however, as already mentioned, adopting complexity theory in educational research shifts emphasis from looking for the "right" answers to raising the "right" questions (Morrison, 2008).

At the same time, educational practitioners inevitably require answers, because educational practice is normative, which is, to some extent, at odds with the descriptive nature of complexity theory. As Mason (2008) argues, "while complexity offers organisational principles for describing how the world and humans function, education is oriented towards the achievement of particular purposes and goals, not least among them normative aims" (p. 10). For this reason, I remain cautious about this distinction in my thesis and acknowledge that the conceptual model proposed here is not, and could never be, a heuristic or a competence model in the conventional sense. Thus, beyond offering a particular way of conceptualising translator competence, this study does not provide a solution or a clear plan of action. Nor does it offer a tangible vision for competence development in the era of uncertainty, which, again, is consistent with the ontological and epistemological positioning adopted here.

Furthermore, although this study has sought to make the complexity of, and uncertainty within, the concept of competence more explicit, complex phenomena cannot be reduced into the very idea of complexity itself (Morin, 1990), or, in this case, to a complexity model. This means that, regardless of my efforts over the past five years, I remain cautious in my assumptions about the complexity of competence, and not only because of the limitations discussed in subchapter 5.6. Complexity will always remain, in Morin's words, "a word-problem and not a word-solution" (p. 10). Accordingly, I must acknowledge that one of the major challenges of complexity modelling is that, while it may provide a deeper understanding of complex phenomena, it also raises new questions. As a result, there can be little reassurance that the initial questions from which the study began will ever be fully resolved.

* * *

I would like to close this chapter with Dall'Alba & Barnacle's (2007) insight about the transformative key role of the embodiment of knowledge, or knowing – and its situatedness, too, that are conventionally overlooked in HE. I suggest that just as "being and knowing are inextricable" (p. 7), so is competence intricately interwoven with becoming, and exploring this interdependence provides ways to transform HE. Just as "knowing is inhabited; we cannot step outside it" (ibid), "it is always situated within a personal, social, historical and cultural setting" (p. 8), so is competence and, thus, shifting our understanding of it away from purely intellectual and performance-oriented entity towards situated and enacted phenomena – *a way of being* – constitutes a prospective direction forward in the era of uncertainty.

CONCLUSIONS

A sense of an unknown world never entered into curricula and pedagogical decision-making, even if it could and should have done so.

(Barnett, 2012)

The final chapter presents the conclusions of this doctoral thesis, which has aimed to conceptualise translator competence from the perspective of complexity theory. In this study, I explored conventional conceptualisations of translator competence and their possible limitations in addressing the educational challenges of a VUCA world. I hypothesised that conceptualising translator competence as a CAS provides a theoretically and practically coherent complementary perspective to representational competence models, with the potential to enable emergence and uncertainty as constitutive properties of competence. Based on the research findings, the following conclusions have emerged:

1. Policy documents and academic literature frequently conceive competence as a set of performative knowledge and skills aligned with employability and labour-market requirements; however, the role of HE cannot be reduced to economic imperatives alone, thus necessitating a broader and more inclusive understanding of competence. The CBE approach, which occupies a central position within the EHEA, encounters a range of challenges that largely stem from its reliance on a representational approach used in the CBE agenda. In VUCA contexts, however, uncertainties cannot always be adequately captured through representational frameworks, and as long as the CBE agenda remains closely tied to the marketisation of HE, the conceptualisation of competence is likely to continue to be grounded in knowledge, skills, and personal attributes, primarily conceived as representations of industry demands imposed on future professionals. Meanwhile, a VUCA world, as qualitatively different from former worlds, brings about societal challenges that are inherently ontological, i.e. they are primarily related to an individual's self-understanding, their sense of identity, and their way of being in the world – an order shaped by *ontological dispositions*. These challenges in the domain of translation studies, in research participants' views, include, but are not limited to, globalisation, extensive migration and their impact on language acquisition; economic changes and shifts in service provision; socio-political landscapes and their implications for communication in crisis situations; increasing emphasis on the visual culture rather than on the textual one; changes in preferred types of text as

well as shifts in reading habits; the overall change in ways people communicate (to a large extent due to the recent COVID-19 pandemic); and the overall change of our reality and shifts in values.

2. As seen from the literature review and interview data analysis, technological advancement is seen as the major VUCA phenomenon, which, in turn, results in the upsurge of translation as an activity, strongly influencing the notion of translation, the translator, and translator competence. On the one hand, throughout history, the concept of translation itself has undergone continuous evolution; on the other hand, given the technological context, a certain contradiction within the notion of a translator keeps emerging: (1) the widespread use of MT and its output makes the boundaries of who a translator is and what they do, rather blurred and ambiguous, meanwhile (2) the need for professional or human translation in areas where accuracy, comprehension, and creativity are crucial, invites for narrowing down the notion of a *human* translator. With this in mind, the need to foster the following – ontological – dispositions emerge: *ability to keep the bigger picture*, *creativity*, *quality assurance*, *conceptual openness*, *heightened sensitivity in terms of ethics and risk management*, *ability to protect oneself*, *rapid adaptability*, *clarity regarding authorship*, *ability to evaluate information and its sources*, *critical thinking*, and the like. As a result, the role of HE institutions is to help students make sense of the *human* aspect in their professional activities, thereby accommodating them in this increasingly over-technologised VUCA reality.

3. Based on the study data analysis, to a large extent, translator competence is conceptualised according to a rather instrumental and epistemological approach, i.e., what a translator knows and can do rather than what they or their competences *are* in relation to their context. Therefore, ways of conceptualising translator competence, as the central goal of translation study programmes, indicating translators' readiness for their future professional life in this technologised context, pose various practical challenges and theoretical concerns. For the most part, this instrumental approach consolidates the pessimistic narrative prevalent in today's society, which posits that technologies will eventually replace translators, and, thus, student enrolment in university study programmes is declining significantly. Other educational challenges of the unprecedented upsurge of translation technologies include a lack of conscientiousness among students as to when and to what extent to use translation technologies; the overuse of technology, which hinders the development of students' translation competence; challenges related to the accessibility and abundance of information which burden their cognitive efforts, and the like. In turn, this results in the changing role of the teacher and the increasing need to foster learning environments where students can create

and transform knowledge themselves and the need to teach students not to relinquish control to technology. Additionally, throughout the interviews, research participants mentioned a range of readjustments at the level of study curricula, including *increased focus on technology* and its *critical assessment*, *risk management*, *quality assurance*, practicalities, such as *time management and negotiation over pay*, as well as less focus on *cultural, historical, philosophical, and literary aspects of translation*. What is concerning is that these readjustments, to a large extent, reflect an instrumentalist orientation towards technology; meanwhile, challenging the pessimistic narrative among the broader society insists upon a major shift from this instrumental approach towards a more relational one, where study programmes foster future translators' ability to question uncertainties taking place in their professional contexts, including rapid technological advancement, or, according to Osberg et al. (2008), learn to continuously renegotiate their understanding of and being in the world.

4. The major contribution of conceptualising translator competence as a CAS lies in its focus on the complexity rather than the multi-componentiality of competence. Multi-componential translator competence models are very useful when one needs to define and prescribe what is expected of students upon graduation, which indicates translators' readiness for their future professional life. However, in a VUCA world, it becomes increasingly more difficult to predefine competence in this manner, because, as seen from the data analysis, competence manifests itself bottom-up, but we are used to conceptualising it top-down, mainly because we resort to representationalism. However, as this study has pinpointed, representational epistemology-based conceptualisations of competence cannot account for contexts that are left outside the concept of competence. Meanwhile, in a world of constant change and uncertainty, competence development is already rooted within these uncertain contexts, which need to be conceptualised accordingly as an ontological entity. Therefore, definitions of translator competence in policy documents and research literature attempt to define competence, but what they actually define are separate elements, thus, grasping translator competence only to a very limited extent. A more comprehensive understanding of competence requires recognising its bottom-up emergent complexity.

5. Both literature and empirical findings of this study acknowledge the complexity of translator competence; however, this recognition often remains implicit. The conceptualisation of translator competence as a CAS allows this complexity to be made explicit, which is one of the major insights of this study, notwithstanding potential criticism of excessive theorisation. Rather than serving as an end in itself, this conceptualisation of translator competence

from a complexity theory perspective derives its value in how the explicit articulation of complexity informs educational practice and HE curriculum design. In complexity terms, teaching should not be understood as an activity limited to individual cognition; rather, it entails the integration of ways of knowing, acting, and being across a wide range of practices. Consequently, translator education programmes ought to extend beyond the transmission of discrete knowledge or instrumental competences; they should also emphasise the cultivation of personal and professional dispositions that enable learners to recognise and enact (or not) situations as translational, thereby fostering student learning and the emergence of competent, reflective translators. Offering prescriptive recommendations would contradict the core insights of this doctoral research; therefore, instead, translator educators and HE curriculum designers are encouraged to engage with the following implications framed as questions:

- What is essential about **translation** in a VUCA world? Which factors and contexts are pivotal for translation-related work? How do they interact, and what effect do these interactions have on the definition of translation? What are the ways to renegotiate translation and the translator in the context of uncertainty and change? How can this renegotiation be fostered during the educational process?
- Who is a **translator** in today's over-technologised and market-oriented world? What are the underlying human dispositions in translation-related activities in these contexts? How can these dispositions be sustained? What enables translators to thrive in the context of uncertainty and constant change?
- What is translator **competence** in a world of uncertainty and constant change? In what ways does appreciating its complexity provide avenues to develop resilience and adaptivity? How can contexts, in which translator competence is embedded, be acknowledged as inextricable from competence itself? How does this redefine the educational process behind the development of translator competence?
- What is the underlying task of **HE** more generally, and **translator education** more specifically, in a VUCA world? How can HE study programmes provide space and opportunities for learners to engage with uncertainty and situations of constant change? How can HE contribute to the transformation of the learner by designing study programmes emphasising *responsive ways of being and becoming a*

professional rather than the acquisition of knowledge and skills? How can HE empower students to thrive in a VUCA world? On what grounds can certain pedagogical approaches and curricula practices be considered preferable to others when the outcomes are not predefined?

Therefore, the findings and ensuing discussion demonstrate that conceptualising translator competence as a CAS offers a theoretically robust and practically grounded complementary perspective to representational competence models. This perspective accommodates emergence and uncertainty as constitutive properties of competence rather than as peripheral variables, thereby providing a more adequate account of its development and enactment in dynamic contexts.

Finally, several further directions can be identified for advancing research in this field. As the study of complex systems typically requires a combination of theoretical, computational, and empirical approaches, conceptualising translator competence as a CAS provides a foundation for the development of computational models that could enable the observation, analysis, and simulation of translator competence as a dynamic system. Computational models of complex systems are generally grounded on quantitative data; accordingly, future research could incorporate large-scale quantitative data, including, but not limited to, longitudinal data on competence development, performance metrics across various training stages, interaction patterns within human–machine translation environments, various indicators relevant to translator practice, and the like. When built in accordance with the underlying evolving structures of CASs, such models may generate novel and practically valuable insights for policy and planning – for instance, informing curriculum design, addressing declining student enrolment, or challenging pessimistic narratives about certain professions becoming obsolete.

Another promising avenue concerns narrative foresight and, more broadly, CLA. The systematic application of CLA to research the translator's profession, while promoting *preferred* futures, could provide strategies for promoting alternative narratives about the future of translation and for shaping more resilient professional trajectories. Finally, although the present study draws on international data and engages particularly with translator education in Ireland, Germany, and Lithuania, comparative analysis lies beyond its immediate scope. Future research would benefit from comparative case studies examining the development of translator competence across diverse geographical, cultural, and institutional contexts. Taken together, these directions point towards a research agenda that integrates computational

modelling as well as an empirically grounded and forward-looking account of translator competence and its development.

* * *

I would like to conclude this thesis by referring to a paper by Osberg, Biesta, and Cilliers (2008), which I encountered at the very beginning of my doctoral journey, but whose significance only became fully apparent to me when I rediscovered it during the third year, while analysing my empirical data. The authors argue that regardless of how we attempt to arrange our world, there will always be further arranging to come; thus, the idea of a final order is irrelevant. In their words, "education (becoming educated) is no longer about understanding a finished universe, or even about participating in a finished and stable universe. It is the result, rather, of participating in the creation of an unfinished universe" (Osberg et al., 2008, pp. 214-215).

From this perspective, translator education – as well as HE in a broader sense – cannot provide any final solutions, as "there are no final solutions, only ongoing interactions leading to increasingly more complex interactions (and 'solutions')" (Osberg et al., 2008, p. 215). And if competence is to function as an enabler within such an unstable and unfinished universe, its own instability and indeterminacy must be acknowledged and appreciated.

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APPENDIX 1

Table A1. Overview of definitions of competence in systematic literature review (Levanaitė 2025, p. 177-178)

Definition of competence	Approaches adopted	Ways to develop competence	Additional comments	Ref.
A collective structure, which could be managed at different levels: that of an individual actor, collective actor, and enterprise level.	Action theory and a systemic approach	Competence respectively can be developed at the individual, collective, and enterprise levels. The study focuses on the first two levels and follows the accepted definition of competence as putting into practice the theoretical knowledge, know-how, and know-who – the attitudes and behaviour.	The overall notions of competence management and knowledge management are troublesome, because either the relation between knowledge and competency is under-discussed, or the concept of competence has been poorly modelled.	Bonjour et al. (2002)
Competence is a complex adaptive system typical features of which include owning subsystems, openness and unbalance, and nonlinear action.	School of thought promoted by Santa Fe Institute (SFI)	Two underlying sides which govern the whole evolution of the financial core competence system: (1) each subject's own evolution and stimulus, and (2) action and reaction between the entire system and environment.	The analysis of the constituent elements of financial core competence to reveal the evolution of it as a complex system development process allows more accurate insights into the future development of the system.	Chen (2009)

Definition of competence	Approaches adopted	Ways to develop competence	Additional comments	Ref.
Competence is a cross-functional processes with a large number of people and technologies; it is a continuous system rather than a stable entity which can be identified once and for all.	Organisational learning	The key to understand how competences develop is learning of individuals as a group. The formal and informal way in which human beings interact is an essential constituent of a competence.	Competence on the organisational level should be treated as a system, instead of focusing solely on its individual elements, and what should be analysed is the interplay of these elements. *The idea of the overall organisational competence being a whole which is greater than the sum of its parts can be traced to Aristotle and is often referenced by various complex systems theorists and practitioners.*	Drejer (2009)
Competence is a dynamic combination of cognitive and metacognitive abilities, knowledge and understanding, practical and interpersonal capabilities, and ethical dispositions whole multitude of which and the activities between constitute a complex system.	Systems theory	*unspecified*	The study provides a conceptual model of interpersonal competences, their causes, and their respective sub-causes, which serve as the basis for a computational systems dynamics model. This kind of a model aims to develop computer simulations of interpersonal competence as a complex system to build more effective policies and organisations.	Blažinić et al. (2020)

Definition of competence	Approaches adopted	Ways to develop competence	Additional comments	Ref.
Competence is a two-level phenomenon and can be defined based not only the individual characteristics but also a variety of organisation-level factors.	Hierarchical linear modelling	Competence can be developed by receiving support and guidance from others (ex., teachers).	The authors of this study were not specific in explaining why they regard teachers' competence to develop students' information literacy (TCDSIL) as a complex system and what complex system properties this competence possesses.	Wu et al. (2022)

APPENDIX 2

Table A2. Framework of major complexity concepts based on in-depth theoretical literature review on complex systems.

Concept	Explanation	Source
Agents or elements of the system	*Agents are components which comprise CASs. There number is usually large and within a CAS they continously interact and adapt, or learn* (Holland, 2006).	Jacobson et al., 2019; Cilliers, 1998; Lemke&Sabelli, 2008;
Dynamic interaction	*In a complex system, a large number of elements are necessary, but not sufficient. In order to constitute a complex system, the elements have to interact, and this interaction must be dynamic (a complex system changes with time). The interactions do not have to be physical; they can also be thought of as the transference of information* (Cilliers, 1998). *Complex systems are complex in the sense that very large numbers of constituent elements or agents are connected to and interacting with each other in many different ways (Mason, 2008).*	Cilliers, 1998; Mason, 2008; Lemke&Sabelli, 2008;
Self-organisation	*It is a process whereby a system can develop a complex structure from fairly unstructured beginnings. This process changes the relationships between the distributed elements of the system under influence of both the external environment and the history of the system. Since the system has to cope with unpredictable changes in the environment, the development of the structure cannot be contained in a rigid programme that controls the behaviour of the system. The system must be 'plastic'* (Cilliers, 1998). *A self-organizing system is both autocatalytic and demonstrates autopoiesis that enable the system to*	Jacobson et al., 2019; Cilliers, 1998; Morrison, 2008; Lemke&Sabelli, 2008; Davis&Sumara, 2008; White&Levin, 2016;

Concept	Explanation	Source
	perpetuate and renew itself over time— it creates the conditions for its own survival. Self-organisation emerges, it is internally generated; it is the antithesis of external control. (Morrison, 2008).	
System levels	*Interactions between agents may occur within or across system levels. The notion of levels in a system refers to a macro-level as meaning a higher, less granular level, and micro-level as meaning a lower, more granular level* (Jacobson et al., 2019). *When we look at the behaviour of a complex system as a whole, our focus shifts from the individual element in the system to the complex structure of the system. The complexity emerges as a result of the patterns of interaction between the elements* (Cilliers, 1998).	Jacobson et al., 2019; Cilliers, 1998; Lemke&Sabelli, 2008;
Sensitivity to initial conditions	*Sensitivity to initial conditions means that where there is an amplification of initial state differences in a system (often based on positive feedback interactions), that may contribute to major behavioural changes in a system* (Jacobson et al., 2019).	Jacobson et al., 2019;
Non-linearity	*Non-linearity means that the patterns at the macro-level of a complex system generally have different properties from the constituent parts at the micro-level of the system* (Jacobson et al., 2019). *Non-linearity guarantees that small causes can have large results, and vice versa. It is a precondition for complexity* (Cilliers, 1998).	Jacobson et al., 2019; Cilliers, 1998
Emergence	*Emergence means that the whole of a complex system is not merely the sum of parts, but are also often different*	Jacobson et al., 2019; Cilliers, 1998; Mason, 2008;

Concept	Explanation	Source
	from those parts in significant and not always expected ways (Jacobson et al., 2019). *Emergence merely underlines the fact that nothing 'extra', no external telos or designer, is required to 'cause' the complex behaviour of a system. Perhaps it would be better to employ the term 'relational properties' rather than 'emergent properties'.* (Cilliers, 1998). *Emergence implies that, given a significant degree of complexity in a particular environment, or critical mass , new properties and behaviours emerge that are not contained in the essence of the constituent elements, or able to be predicted from a knowledge of initial conditions. These concepts of emergent phenomena from a critical mass, associated with notions of lock-in, path dependence, and inertial momentum, contribute to an understanding of continuity and change that has not hitherto been readily available in other theories of or perspectives on change (Mason, 2008).* *Emergence (of a self-organised order) is the result of the interaction between the organism and its environment; new structures emerge that could not have been predicted from a knowledge of initial conditions. The emerged system is, itself, complex and cannot be reduced to those parts that gave rise to the system (Morrison, 2008).*	Morrison, 2008; Lemke&Sabelli, 2008; Davis&Sumara, 2008; White&Levin, 2016;
Parallelism	*CASs consist of large numbers of agents that interact by sending and receiving signals. This interaction*	Jacobson et al., 2019; Holland, 2006;

Concept	Explanation	Source
	between the agents takes place simultaneously, producing large numbers of simultaneous signals (Holland, 2006). *Parallelism is exhibited when agents in a complex system have simultaneous interactions with each other by sending and receiving signals* (Jacobson et al., 2019).	
Conditional actions	*The actions of agents in a CAS usually depend on the signals they receive. The act may itself be a signal, allowing quite complicated feedbacks, or the act may be an overt action in the agent's environment* (Holland, 2006). *Conditional actions are how an agent might respond to* *received signals, often described with rules such as IF a certain signal is received, THEN act in a certain way* (Jacobson et al., 2019).	Jacobson et al., 2019; Holland, 2006;
Adaptation and evolution	*The agents in a CAS change over time. These changes are* *usually adaptations that improve performance, rather than random variations* (Holland, 2006). *Adaptation means that agents themselves change over time; that is, they learn* (Jacobson et al., 2019).	Jacobson et al., 2019; Holland, 2006; Lemke&Sabelli, 2008;
Modularity	*In an agent, groups of rules often combine to act as "subroutines", which act as building blocks that can be combined to handle novel situations, rather than trying to anticipate each possible situation with a distinct rule* (Holland, 2006). *Since the interaction between system's elements is rich, the route from one element to any other can usually be covered in a few steps. As a result, the influence gets modulated*	Holland, 2006; Cilliers, 1998;

Concept	Explanation	Source
	along the way. It can be enhanced, suppressed or altered in a number of ways (Cilliers, 1998).	
Feedback loops	*The effect of any activity can feed back onto itself, sometimes directly, sometimes after a number of intervening stages. This feedback can be positive (enhancing, stimulating) or negative (detracting, inhibiting). Both kinds are necessary. The technical term for this aspect of a complex system is recurrency* (Cilliers, 1998). *Feedback must occur between the interacting elements of the system (Morrison, 2008).*	Cilliers, 1998; Morrison, 2008; White&Levin, 2016;
Openness	*Complex systems are usually open systems, i.e. they interact with their environment. As a matter of fact, it is often difficult to define the border of a complex system. Instead of being a characteristic of the system itself, the scope of the system is usually determined by the purpose of the description of the system, and is thus often influenced by the position of the observer* (Cilliers, 1998).	Cilliers, 1998; Davis&Sumara, 2008;
Non-equilibrium	*Complex systems operate under conditions far from equilibrium. There has to be a constant flow of energy to maintain the organisation of the system and to ensure its survival. Equilibrium is another word for death* (Cilliers, 1998). *Closed systems in equilibrium die; systems need disequilibrium in order to survive. Change, disequilibrium and unpredictability are requirements for survival (Morrison, 2008).*	Cilliers, 1998; Morrison, 2008; Davis&Sumara, 2008; White&Levin, 2016;
Distributed representation	*The elements of the system have no representational meaning by*	Cilliers, 1998;

Concept	Explanation	Source
	themselves, but only in terms of patterns of relationships with many other elements. Additionally, the structure of the system is not determined by the outside, but is the result of a dialectical process, involving elements from inside and outside. (Cilliers, 1998).	
Self-regeneration	*This means that the system is able to sustain its identity even though aspects of the system may change; the system is self-perpetuating (Morrison, 2008).*	Morrison, 2008;
Connectedness	*Connectedness is a key feature of complexity theory, and it exists everywhere. Disturb one element and the system must adapt or possibly die. In schools, children are linked to families, teachers, peers, societies and groups; teachers are linked to other teachers, support agencies (e.g. psychological and social services), policy-making bodies, funding bodies, the state legislature, and so on (Morrison, 2008).*	Morrison, 2008;
Nested structure	*Complex unities are often composed of and often comprise other unities that might be properly identified as complex, or giving rise to new patterns of activites and new rules of behaviour* (Davis&Sumara, 2008).	Davis&Sumara, 2008;
Decentralised (distributed/shared) control	*Complex unities manifet properties that do not depend on central organisers or over-arching governing structures. The system itself „decides" what is and is not acceptable. The system's coherence depends mostly on agents' immediate interdependencies, not on centralised control of top-down administration* (Davis&Sumara, 2008).	Cilliers, 1998; Davis&Sumara, 2008;

APPENDIX 3

Elektroninio dokumento nuorašas

Išrašas

VILNIAUS UNIVERSITETO
FILOSOFIJOS FAKULTETO
SSDI IR UMI ATITIKTIES MOKSLINIŲ TYRIMŲ ETIKAI KOMITETO
POSĖDŽIO PROTOKOLAS

2023 m. vasario mėn. 9 d.
Vilnius

Posėdis įvyko 2023-02-09, virtualiu būdu
Posėdžio pirmininkė – dr. Irma Budginaitė-Mačkinė
Posėdžio sekretorė – Mamerta Ralytė

Dalyvavo: dr. Lina Šumskaitė, dr. Sandra Kairė, dr. Jurga Mataitytė-Diržienė, dr. Irena Stonkuvienė.

SVARSTYTA. VU Filosofijos fakulteto Ugdymo mokslų instituto mokslininkės Karolinos Levanaitės planuojamo vykdyti mokslinio tyrimo **„Vertėjo kompetencijų ir vertėjų rengimo pokyčiai mašininio vertimo proveržio kontekste”** atitiktis mokslinių tyrimų etikai.

NUTARTA.

- Planuojamas vykdyti mokslinis tyrimas **„Vertėjo kompetencijų ir vertėjų rengimo pokyčiai mašininio vertimo proveržio kontekste”** atitinka mokslinių tyrimų etikos reikalavimus.
- Komiteto sprendimas apie atitikimą mokslinių tyrimų etikai galioja tyrimo vykdymo laikotarpiu nuo 2023 m. vasario iki 2024 m. birželio.

Pirmininkė Irma Budginaitė-Mačkinė

Sekretorė Mamerta Ralytė

FACULTY OF PHILOSOPHY, VILNIUS UNIVERSITY
THE EDUCATION, PEDAGOGY, SOCIOLOGY, SOCIAL WORK, SOCIAL POLICY, CRIMINOLOGY RESEARCH COMMITTEE FOR ETHICAL COMPLIANCE IN RESEARCH COMITEE
MINUTES OF THE MEETING

June 18, 2024, No. (1.13 E) 250000-KT-132

Meeting date: June 18, 2024, from 11 a.m. to 12 p.m.
Chairperson- dr. Jurga Mataitytė-Diržienė.
Secretary – Rosita Vasiliauskytė.
Attendees: dr. Justina Garbauskaitė-Jakimovska, dr. Irena Stonkuvienė, dr. Aušra Pocienė, dr. Rūta Žiliukaitė.
DISCUSSED. The compliance with the research ethics of the research "Shift in translator competences and translator education in the context of machine translation breakthrough" planned to be carried out by the researcher Karolina Levanaitė of the Faculty of Philosophy Institute of Educational Sciences.
DECISION:
1. The proposed research "Shift in translator competences and translator education in the context of machine translation breakthrough" meets the research ethics.
2. The Committee's decision on compliance with the research ethics is valid for the research conducting period from June 2024 to December 2025.

Chairperson dr. Jurga Mataitytė-Diržienė

Secretary Rosita Vasiliauskytė

The extract is genuine
Adminstrator
Rosita Vasiliauskytė
June 18, 2024

APPENDIX 4

VILNIUS UNIVERSITY
Faculty of Philosophy
Institute of Educational Sciences

Name and surname of the research participant:
Contact details of the research participant (e-mail, telephone number):

Researcher's name, surname and status: Karolina Levanaitė, doctoral student
Researcher's affiliation: Vilnius University, Lithuania
Researcher's telephone number: +37068821154
Researcher's e-mail: karolina.levanaite@fsf.stud.vu.lt

INFORMED CONSENT'S FORM

Minutes No (1.13 E) 250000-KT-17 of the Institutional Review Board of the ISSW and IES of the Faculty of Philosophy at Vilnius University of February 9, 2023

Shift in translator competences and translator education in the context of machine translation breakthrough

This research is aimed at collecting qualitative data for the doctoral thesis project carried out by Karolina Levanaitė, doctoral student at Vilnius University Institute of Educational Sciences. The researcher is investigating the field of translator education with regard to the onset of machine translation (MT) and its implications for translator competence acquisition. At this stage, the researcher is carrying out a series of semi-structured interviews with translator educators, students and professional translators. Analysis of the data collected will be used to provide insights as to how translator education could

		Tick if you agree	Tick if you disagree
1.	I confirm that I have read and understand the information sheet for the above project/research "Shift in translator competences and translator education in the context of machine translation breakthrough". I have had the opportunity to consider the information, ask questions and have had these answered	□	□

2.	I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without any adverse consequences or penalty.	□	□
3.	I understand that research data collected during the study may be looked at by authorised people outside the research team (e.g., the Board of the research and higher education institution and/or data protection officer, Office of the Ombudsperson for Academic Ethics and Procedures of the Republic of Lithuania, State Data Inspectorate, Office of the Inspector of Journalist Ethics, court).	□	□
4.	I understand that this project has been reviewed by the institutional review board of the ISSW and IES of the Faculty of Philosophy at Vilnius University, and received ethical approval.	□	□
5.	I understand who will access personal data provided, how the data will be stored and what will happen to the data at the end of the project.	□	□
6.	I understand that the research results will be publicly available.	□	□
7.	I understand how to raise a concern or make a complaint.	□	□
8.	I consent to being audio recorded.	□	□
9.	I understand how audio recordings will be used in summarising research results.	□	□
10.	I agree to the use of anonymised quotes in summarising research results.	□	□
11.	I agree to take part in the study. I hereby assign to the researcher all copyright in my contribution for use in all work stemming from this project.	□	□

Name and surname of the research participant	*Date*	*Signature*
Karolina Levanaitė *Name and surname of the person taking consent*	*Date*	*Signature*

APPENDIX 5

VILNIUS UNIVERSITY
Faculty of Philosophy
Institute of Educational Sciences

Name and surname of the research participant:
Contact details of the research participant (e-mail and/or telephone number):

Shift in translator competences and translator education in the context of machine translation breakthrough

PARTICIPANT INFORMATION SHEET

Minutes No (1.13 E) 250000-KT-17 of the Institutional Review Board of the ISSW and IES of the Faculty of Philosophy at Vilnius University of February 9, 2023

1. Why is this research being conducted?

This research is aimed at collecting qualitative data for the doctoral thesis project carried out by Karolina Levanaitė, doctoral student at Vilnius University Institute of Educational Sciences. The researcher is investigating the field of translator education with regard to the onset of machine translation (MT) and its implications for translator competence acquisition. At this stage, the researcher is carrying out a series of semi-structured interviews with translator educators, students and professional translators and is collecting data regarding their attitudes towards the impact of MT on translator competence acquisition and translator education. Analysis of the data collected will be used to provide insights as to how translator education could be improved which is the major purpose of the researcher's doctoral thesis.

2. Why have I been invited to take part?

You have been invited to take part in this research because you have:

- vast experience in the field of translator education;
- substantial contribution in the field of MT research (based on your

publications and other authors' references to your work);
- been recommended by your colleague(s) as a person meeting the criteria mentioned above (optional).

3. Do I have to take part?

No. You can ask questions about the research before deciding whether or not to take part. If you do agree to take part, you may withdraw yourself from the study at any time, without giving a reason, and without negative consequences, by informing me of this decision. In this case, you should contact me at the given contacts and inform about your withdrawal. The researcher undertakes not to use any personal data you have provided from the moment of your notification. Once the research data provided prior to your withdrawal has been processed and anonymised, the condition arises that your insights and opinions used in the research data analysis and summary (on the basis of which the doctoral thesis and/or other publications are to be published) may not be withdrawn.

4. What will happen to me if I take part in the research?

You will be invited to attend one semi-structured interview session at your department. When you arrive, I will talk you through the study procedures and give you the chance to ask any questions related to this research. If you agree to take part, I will ask you to sign an informed consent form. With your consent, you will be interviewed.
The interview should take approximately 90 minutes. You can also ask to pause or stop the interview at any time.

With your consent, I would like to audio record you so I can have an accurate record of your thoughts. The audio record with the interview data will be stored in password-protected devices that are not connected to the network (the researcher's computer and an external drive which will be stored in a locked cabinet at researcher's home) in an encrypted file, then it will be processed (transcribed and a copy of the transcription from the external drive will be transferred to the researcher's password-protected personal computer not connected to the network). All the research data stored both on the personal computer and on the external drive will be stored for the entire duration of the research and for at least three years after the doctoral thesis defence (i.e. until September 2028).

5. Are there any potential risks in taking part?

Participation in the study is associated with low risk, as the data collected in the study does not fall into the categories of special personal data. Your personal data collected is not about your personal life but is related to aspects of your profession and work. The subject may face certain inconveniences (for example, time wasted in gathering information, irritation, dissatisfaction, etc.).

There are also risks associated with confidentiality breaches even after having anonymised your data. Violations of the confidentiality of research data, such as the possibility of linking research data with personal data, may cause psychological tension (e.g., irritation, dissatisfaction or stress). The researcher will make every possible effort to avoid this risk: the data will be immediately transcribed and pseudonymised or anonymised (depending on the subject's choice expressed in the Informed Consent form).

6. Are there any benefits in taking part?

The benefits of taking part include:

- taking advantage of the opportunity to reflect on the topic that is of major relevance and interest in the field of translation studies and their future;
- accelerating deeper understanding of the subject researched by providing insights based on your expertise;
- increasing your own knowledge that will come about as a result of this research.

There will be no financial benefit to you from taking part in this research.

7. What happens to the data provided?

The information you provide during the study is the research data. Any research data from which you can be identified – name, surname, e-mail address, telephone number, audio recording – is known as personal data. The data collected in this study does not fall under the categories of special personal data.

Personal data will be stored on password-protected devices not connected to the network (on the researcher's personal computer and on the external drive

to which the audio recording will be transferred immediately after the interview) and other research data received in physical format (including the Informed Consent form and this Information sheet) will be stored for the duration of the study and no less than three years after it's the doctoral thesis defence (i.e. until September 2028).

Anonymised research data will be opened in the National Open Access Research Data Archive MIDAS, and their availability will be limited to the researcher's contact details when requesting access to the data.
You have the right to withdraw consent to the processing of personal data at any time informing the researcher using the contacts indicated on this sheet. Once the research data provided prior to your withdrawal has been processed and anonymised, the condition arises that your insights and opinions used in the research data analysis and summary (on the basis of which the doctoral thesis and/or other publications are to be published) may not be withdrawn.

I and my supervisor will have access to the research data. Responsible members of Vilnius University may be given access to data for monitoring and/or audit of the research or if the Office of the Ombudsperson for Academic Ethics and Procedures is investigating an allegation of academic ethics and/or procedures.

8. Will the research be published?

The research and its results will be published as part of my doctoral thesis (the doctoral thesis should be handed in by 30 September 2025), also in publications in Lithuania and/or abroad, presentations at conferences, etc. You will have the opportunity to take a look at the summary of the research data, which will be sent to the e-mail address you have provided no later than December 2023.

Vilnius University is committed to disseminating its research to the public, therefore, the research results and collected data may be published in the form of a dissertation in the Lithuanian Academic Electronic Library (eLABa) (*www.elaba.lt*). Information online is needed to provide researchers with easy access to the full text of available dissertations, thereby, increasing the potential research impact and reducing the waste of research resources.

9. Who do I contact if I have a concern about the study or I wish to complain?

If you are concerned about aspects of this research or if you would like to make a formal complaint, please contact the Chair of Research Ethics Compliance Committee at Vilnius University, who will try to resolve the issue as soon as possible:

Chair of Research Ethics Compliance Committee (for Research in Education, Pedagogy, Sociology, Social work, Social Policy and Criminology) at Vilnius University
doc. dr. Irma Budginaitė-Mačkinė;
e-mail: *irma.budginaite@fsf.vu.lt*,
address: Universiteto st. 9, 01513 Vilnius, Room 413.

10. Data Protection

Vilnius University is the data controller (*dap@vu.lt*) and your personal data provided for this research will be managed by the institution. Vilnius University will process your personal data for the purposes of the research introduced at the beginning of this sheet. The purpose of processing your personal data (name, surname, telephone number, e-mail address) is to ensure you have expressed your free will to voluntarily participate in the study by signing the Informed Consent Form and the Participant Information Sheet. All other data, such as your insights and opinions shared during the interview, will be anonymised as soon as possible and the possibility of identifying you personally will be eliminated. The analysis and summary of anonymised research data will be used in the researcher's doctoral thesis and publications.

Your rights in relation to your data: under data protection laws, you have the right to request access to your data, correct any errors in that data, request that the data is deleted (in certain circumstances), restrict or object to the use of the data, and request that the data is transferred to another organisation (under certain circumstances).

If you have any complaints about the way Vilnius University has handled your personal data, you have the right to contact the University's Data Protection Officer:

Personal Data Officer

dap@vu.lt;
tel.: +37052366200;
address: Universiteto g. 3, LT-01513 Vilnius.

The complaint about personal data processing may be filed to the Office of the Controller of Academic Ethics and Procedures of the Republic of Lithuania (*loreta.tauginiene@etikostarnyba.lt*) and the State Data Protection Inspectorate (*raimondas.andrijauskas@ada.lt*).

11. Further Information and/or Contact Details

If you would like to discuss the research beforehand (or if you have questions afterwards), please contact:

Karolina Levanaitė
Vilnius University Faculty of Philosophy
Institute of Educational Sciences
Universiteto st. 9-407, LT-01513, Vilnius.
Researcher's telephone number: +37068821154
Researcher's e-mail: *karolina.levanaite@fsf.stud.vu.lt*

Received by
Signature
Date

APPENDIX 6

The Impact of MT on Translator Competences and Their Acquisition
Semi-structured Interview Guide

Topic	Sub-topic	Open ended-question
Introduction	Academic information	Please introduce yourself in terms of your professional-academic life. Which translation study programme courses are you teaching at your department?
	Experience	How long have you been lecturing in the field of translation studies?
Epistemological attitudes	Knowledge acquisition	What is knowledge? How is knowledge gained?
	Teacher-student relation	How would you define the relation and between a teacher and a student? What are their roles in the study process?
	Technological impact	How does the onset of technological progress influence the ways knowledge is gained? How does this affect your ways/methods of teaching?
Attitudes towards translator competences	EMT Competence Framework	Are you familiar with the European Masters of Translation (EMT) Competence Framework 2022? Do you follow it? (short introduction into the framework if needed; EMT Competence Framework 2022 added in print).
	Present	Competence Framework 2022 added in print).
	Past	Which of the translator competences would you consider to be crucial for translators today?
	Future	Were these competences different in the past and has technologies fostered their change until today?

Topic	Sub-topic	Open ended-question
		Will MT have implications for different translator competences in the future?
Attitudes towards machine translation (MT)	Spread of MT	How is the breakthrough of MT changing translators' everyday work?
	MT in the future	Would you consider MT a threat or an opportunity for translators in the future?
	Impact on translation studies	In what ways has MT affected the study process in translation study programmes? How is MT incorporated into translator study programmes at your department?
Glimpse into the future		What is your opinion on AI-based technologies in the future – could they possibly replace human translators? What kind of translators, if any, will be necessary in the nearest future? How will translator education change?

APPENDIX 7

Shift in translator competence development and translator education in the context of future uncertainty

Expert Validation Form

Introduction

This research is aimed at collecting qualitative data for the doctoral thesis project carried out by Karolina Levanaitė, doctoral student at Vilnius University Institute of Educational Sciences. The researcher is investigating the field of translator competence development with regard to future uncertainty and its implications for translator education. At this stage, the researcher seeks to validate the analysis of the data collected during a series of semi-structured interviews with translator educators, students and professional translators, providing insights into various translational futures to better understand how translator competence development could be reconceptualised, which is the major purpose of the entire researcher's doctoral thesis.

Major aim: to validate draft scenarios based on the analysis of collected qualitative data.

Instructions

The major purpose of drafting these scenarios is to identify key drivers and uncertainties which are considered to have a profound influence on the dynamics of translator competence development in the future. Scenarios have been drafted based on the thematic analysis of the qualitative data collected in March 2023-May 2024 during:

- semi-structured interviews with university translator educators from Ireland, Germany and Lithuania (N=10);
- two focus groups of students (Lithuanian and international) of translation studies (N=11);
- semi-structured interviews with professional translators from Lithuania (N=5).

Firstly, it must be clarified that the number of the translational futures is limitless as there are countless factors affecting these futures as well as various aspects which determine ways of distinguishing between these futures (for ex., between technologically advanced and less advanced countries; anglophone and non-anglophone countries; translation and interpreting, etc). Therefore, the following scenarios are drafted within the multilingual non-anglophone European context with no intentional distinction between translation and interpreting because the data analysis was aimed at the identification of major factors relevant to the futures of both – translation and interpreting.

Secondly, this research has no intention of forecasting the future of the translator's profession. Instead, it seeks to question the conventional understanding of translator competence and to challenge the currently prevalent narrative (that AI and other technologies will mean the end of translator's profession) by adopting the methods of narrative foresight (Milojevic&Inayattulah, 2012). This approach guides the entire research towards the extrapolation of the myths or stories which, according to the collected interview and focus group data, individuals tell about the future in order to identify drivers and uncertainties that are key to the dynamics of translator competence development in the future. After validation, these draft scenarios will further serve to develop a translator competence model based on the approaches of conceptual complexity modelling.

Further on, the general context is introduced and four future translators' draft scenarios are presented. You are kindly asked to evaluate these scenarios on the criteria listed below.

Validation Criteria

(adopted from Van Der Heijden, K. (2004). *Scenarios, the Art of Strategic Conversation*. Chichester: Wiley)

Relevance: How relevant is the scenario to the current context or field of study?

Plausibility: How plausible is the scenario based on current knowledge and trends?

Coherence: Is the scenario logically consistent and well-structured?

Completeness: Does the scenario cover all necessary aspects and details?

Impact: What is the potential impact of this scenario on the field or practice?

Open-Ended Questions

Strengths: What are the strengths of the provided scenario?
Weaknesses: What are the weaknesses or gaps?
Suggestions: What improvements or changes would you suggest for this scenario?
Additional comments: Are there any other comments or insights?

Demographic Information

Please provide the following information for the researcher to be able to provide an overview of the experts validating the research data analysis. All of the information provided during validation will be completely anonymized, and it will not be possible to link the opinions expressed with those of a particular person or his/her affiliation.

Name (optional):
Affiliation:
Position/Title:
Years of Experience:
Area of Expertise:

(S1) Translator – a member of the sacred cast

In this scenario, the underlying aspects which will define translation in the future are ethics and quality. Any other than human-originated translational activity is considered to be transcreation; thus, in 2050, translators will become rare professionals in the constantly changing world, where AI and other technologies are highly advanced but also strictly controlled.

Key factors/uncertainties:
Technological advancement: technologies are highly advanced but also well-controlled by humans
Value of human input/output: high value of human input/output
Ethical standards: human translators maintain high ethical standards
Linguistic diversity: strong multilingualism
Need for communication: active face-to-face communication among humans
Need for literature and textual culture: interest in human-originated literature and textual culture is decreasing significantly.

Draft narrative

In the future, ethics will be the key factor marking the distinction between human-based and AI-based translation, because only humans are able to ensure high ethical standards in translation are being kept up with.

In 2050, translators' work is aided by AI and other technologies, but the attitude towards translation itself has changed – translation now is highly sustainable as opposed to the digital landfills of AI and other technologies-based transcreational overproduce. In addition, the supply of translators is low (thus, the demand for them is high) because besides obligatory university education in translation, an exam is needed to be acknowledged as a professional translator.

Strong multilingualism persists, with a continued emphasis on maintaining and celebrating linguistic diversity. Human translators play a crucial role in this context, preserving the nuances and richness of different languages. Active face-to-face communication among humans remains important, with human translators facilitating meaningful interactions across different languages and cultures.

AI and other new technologies have evolved so profoundly (and are now available to all languages, including low-resourced ones) that converting subject-specific information from one language into another has become fully automated, speedy, and cheap. What has remained human-centred, time-consuming and expensive is the accurate, tailored and "handicraft" effort of (1) certain kinds of literary translation, (2) cross-culture sensitive (and sensitive in a broader sense) translation, (3) conference interpreting in international contexts, (4) certain types of content that do not exist yet as of 2024.

Validation criteria	**Totally disagree**	**Disagree**	**Uncertain**	**Agree**	**Totally agree**
Relevance How relevant is the scenario to the current context of translation and translator education?					

Validation criteria	Totally disagree	Disagree	Uncertain	Agree	Totally agree
Plausibility How plausible is the scenario based on current knowledge and trends?					
Coherence Is the scenario logically consistent and well-structured?					
Completeness Does the scenario cover all necessary aspects and details?					
Impact What is the potential impact of this scenario on translation and/or translator education?					

(S2) Translator – the gatekeeper

20-30 years from now, the underlying notions defining translators' work are dominance and preservation. Translators' role in preserving language diversity and, at the same time, fostering inter-cultural communication becomes immense; therefore, translators' work expands, and they are seen as negotiators and mediators.

Key factors/uncertainties:

Technological advancement: technologies are highly advanced and support all areas of everyday life
Value of human input/output: high value of human input/output
Ethical standards: human translators maintain high ethical standards
Linguistic diversity: several politically and/or culturally dominant languages
Need for communication: communication is mainly enhanced by technology

Need for literature and textual culture: interest in human-originated literature and textual culture is decreasing significantly.

Draft narrative
In this scenario, translators find themselves in the word which is politically dominated by several cultures and several languages, hence, there is a threat for translation to become a means to ensure dominance. At the same time, translators' role becomes increasingly more important as a way to resist this dominance and ensure the increasing need for cross-cultural communication and negotiation.

Technological advancement has reached a point where highly advanced technologies support all areas of everyday life. Almost all communication is enhanced by AI and other new technologies. Therefore, translators extensively exploit these technologies to fulfill their roles as mediators and communicators. Despite the technological advancements, human input/output retains a high value, also ensuring that translation upholds ethical considerations and cultural sensitivity.

In addition, AI and other new technologies have progressed to the extent that almost all communication is enhanced by AI and other new technologies. Therefore, translators exploit these technologies to a vast extent to fulfil their role as mediators and communicators.

Human-originated literature has become rare due to the immensely changed attitude towards textual culture, which is now taken over by the visual one. Reading as an activity becomes rare and outdated, resulting in extremely low demand for literary translation.

Validation criteria	**Totally disagree**	**Disagree**	**Uncertain**	**Agree**	**Totally agree**
Relevance How relevant is the scenario to the current context of translation and translator education?					

Validation criteria	Totally disagree	Disagree	Uncertain	Agree	Totally agree
Plausibility How plausible is the scenario based on current knowledge and trends?					
Coherence Is the scenario logically consistent and well-structured?					
Completeness Does the scenario cover all necessary aspects and details?					
Impact What is the potential impact of this scenario on translation and/or translator education?					

Strengths: What are the strengths of the provided scenario?
Weaknesses: What are the weaknesses or gaps?
Suggestions: What improvements or changes would you suggest for this scenario?
Additional comments: Are there any other comments or insights?

(S3) Translator – the language/content engineer

In this scenario, the underlying notion ruling the world of what formerly was known as translation is conversion. All activity formerly known as translation is done by AI and other new technologies, meanwhile, humans have become language/content engineers.

Key factors/uncertainties:
Technological advancement: all areas of life are strongly influenced/supported by technologies

Value of human input/output: human input/output is of moderate value
Ethical standards: ethical standards are constantly challenged as AI output is difficult to control
Linguistic diversity: several politically and/or culturally dominant languages
Need for communication: communication is mainly enhanced by technology
Need for literature and textual culture: decreasing interest in literature and texts and increasing interest in visual culture and communication.

Draft narrative
In 2050, AI and other new technologies have become so advanced in terms of quality, speed and resources that there is no need for human-originated translation from scratch. The concept of translation per se has become outdated, and it is now referred to as conversion. The volume of converted texts is beyond compare to those 20-30 years ago, and the major tasks of people formerly known as translators include participation in the development of these language technologies as well as ensuring quality input and output of converted texts.

Ethical standards are constantly challenged as AI output is difficult to control. Human oversight is necessary to manage ethical considerations and maintain standards in the face of automated processes. The world is characterised by several politically and culturally dominant languages. Despite technological advances, the role of human experts in navigating and bridging linguistic divides remains crucial.

On the one hand, over time, human ability to translate has been overcome by AI and other new technologies resulting in the disappearance of all human-originated translation. On the other hand, the success of AI and other technologies-based conversion was highly dependent on the inclusion of former translators into these technological developments, making former translators rise like phoenixes in their new roles both as co-operators in language and communication technologies and as highly appreciated content engineers.

Validation criteria	Totally disagree	Disagree	Uncertain	Agree	Totally agree
Relevance How relevant is the scenario to the current					

Validation criteria	Totally disagree	Disagree	Uncertain	Agree	Totally agree
context of translation and translator education?					
Plausibility How plausible is the scenario based on current knowledge and trends?					
Coherence Is the scenario logically consistent and well-structured?					
Completeness Does the scenario cover all necessary aspects and details?					
Impact What is the potential impact of this scenario on translation and/or translator education?					

Strengths: What are the strengths of the provided scenario?
Weaknesses: What are the weaknesses or gaps?
Suggestions: What improvements or changes would you suggest for this scenario?
Additional comments: Are there any other comments or insights?

(S4) Translator – the extinct species

For this scenario, several different aspects might be fundamental, including the extinction of linguistic diversity or global isolation and/or technological singularity. The underlying approach here is – there is no need for translation whatsoever.

Key factors/uncertainties:
Technological advancement: technological singularity, society loses control over technologies
Ethical standards: ethical standards are not kept up because the flow of input/output has become unmanageable
Value of human input/output: no value of human input/output
Linguistic diversity: extinct (due to lingua franca/the Babel tower)
Need for communication: severe isolation, individuals/cultures stop communicating
Need for literature and textual culture: AI-originated literature/no need for human-origin literature.

Draft narrative
On the one hand, in 2050, the world lives in times of technological singularity, which could be both dystopian and utopian. In the latter case, people have translation chips installed in their bodies so that everybody can understand each other without any need for outer intervention, or people are able to communicate mind to mind, and no medium of a language is needed.

On the other hand, linguistic diversity may become extinct, with a single lingua franca prevailing globally, making translational activities obsolete. Literature and textual culture are dominated by AI-originated content, eliminating the need for human-origin literature.

The dystopian version of this scenario suggests that individuals stop communicating and get severely isolated, and if there is no need for communication, translation becomes outdated as well. In such a case, the most important aspect is not to define the reasons for this isolation but rather acknowledge that there are uncertainties which will always remain beyond prediction to the extent that they can never be prepared for, such as global catastrophes due to climate change, etc.

Validation criteria	**Totally disagree**	**Disagree**	**Uncertain**	**Agree**	**Totally agree**
Relevance How relevant is the scenario to the current context of translation and					

translator education?					
Plausibility How plausible is the scenario based on current knowledge and trends?					
Coherence Is the scenario logically consistent and well-structured?					
Completeness Does the scenario cover all necessary aspects and details?					
Impact What is the potential impact of this scenario on translation and/or translator education?					

Strengths: What are the strengths of the provided scenario?
Weaknesses: What are the weaknesses or gaps?
Suggestions: What improvements or changes would you suggest for this scenario?
Additional comments: Are there any other comments or insights?

APPENDIX 8

Translator Competence Development as a Complex Adaptive System

Expert Evaluation and Validation Form

Introduction

This research aims to collect qualitative data for the doctoral thesis project by Karolina Levanaitė, a doctoral student at Vilnius University Institute of Educational Sciences. The researcher is investigating the field of translator competence development with regard to future uncertainty and its impact on translator education. At this stage, the researcher seeks to evaluate and validate the framework-model of translator competence development as a complex adaptive system (CAS) based on the data collected during a series of semi-structured interviews with translator educators, students and professional translators. Data collection and analysis focused on how translator competence is understood today and how it may change in the future due to various certain and uncertain factors to understand better how translator competence development could be reconceptualised, which is the primary purpose of the researcher's doctoral thesis.

Major aim: to evaluate and validate translator competence development as a CAS based on the analysis of collected qualitative data.

Instructions

The major purpose of modelling translator competence development as a CAS is to understand (explain?) what adaptation is in translators' work and how it can be developed in uncertain contexts. For this, the key drivers and uncertainties that are considered to have a profound influence on the dynamics of translator competence development in the future, have been identified based on the thematic analysis of the qualitative data collected in March 2023-July 2024 during:

- semi-structured interviews with university translator educators from Ireland, Germany and Lithuania (N=10);
- two focus groups of students (Lithuanian and international) of translation studies (N=11);

- semi-structured interviews with professional translators from Lithuania (N=5);
- validation interviews with international translator educators (N=9).

In the following framework-model of translator competence development as a CAS, competence is assumed as a system that continuously adjusts itself in response to different, often uncertain contexts, which can be as broad as the global socio-political and economic landscapes, technological advancement, cultural and linguistic diversity, etc., as well as narrower aspects, such as the individual's reading skills, receptivity towards sustainability of translation, ethical judgement, etc. Understanding this complex adaptive behaviour of a system becomes limited if only the multitude of the constituents of translator competence is taken into account, which often is the case within conventional translator competence frameworks (Neubert 2000; PACTE, 2003, 2009, 2011, 2017; Kelly 2005; Göpferich, 2009; the EMT Competence Framework 2009, 2016, 2022). The lens of CAS provides clarity and appreciation of the *interdependencies* among these constituents and their dependence on various uncertain contexts. This study assumes that these interdependencies keep shaping translator competence and determine its overall function and structure; thus, understanding them can contribute to new pathways in fostering translator competence.

CAS comprises multiple, interacting, adaptive components, or agents, whose collective behaviour leads to emergent, often unpredictable outcomes. Examples of a CAS: human brain, economic markets, ecosystems, social networks, the Internet, language systems, education systems, classrooms, etc.

In social sciences, the validation of CAS models varies as there is no common validation technique, which contrasts with more conventional simulation models of complicated systems (Niazi, 2011). In this study, (agent-based) modelling is used as an exploratory tool to develop a proof-of-concept of translator competence development as a CAS to explore the feasibility for future research towards more sophisticated techniques.

Further, the framework-model of translator competence development as a CAS is introduced. You are kindly asked to evaluate and validate this framework model based on the following criteria.

Evaluation and Validation Criteria

(adopted from Patton (2002), Holland (2006), Jacobson, Manu Kapur&Peter Reimann (2016))

Correspondence (of findings to reality): how well does the framework-model correspond to the reality of translator competence development?

Generalisibility: would you agree (disagree) that the framework-model generalises major aspects of translator competence development in uncertain contexts?

Strength (of evidence supporting causal hypothesis): does the framework-model explain/account for the process of adaptation within translator competence development?

Contributions to theory: does the framework-model contribute to theory?

Open-Ended Questions

Strengths: What are the strengths of the provided framework-model?

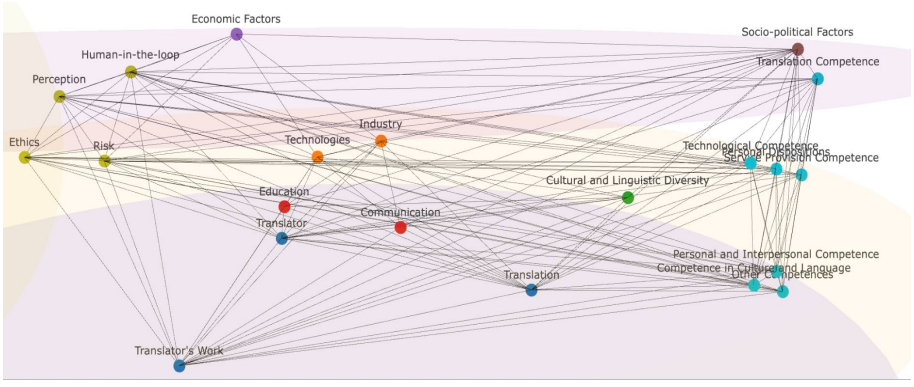
Weaknesses: What are the weaknesses or gaps?

Suggestions: What improvements or changes would you suggest for this framework-model?

Additional comments: Are there any other comments or insights?

Framework-model of translator competence development as a CAS

file:///Users/karolinalevanaite/Documents/CAS_10.html



Characteristics of the CAS framework-model:

1. Initial conditions determine the development of translator competence.
2. Translator competence is determined by its constituents and their interactions and interdependencies.
3. These interactions between the constituents of translator competence co-occur (parallelism).
4. Translator competence has no central constituent (de-centralised control).
5. Translator competence development is nested, i.e. it evolves on different levels, and should be accounted for respectively.
6. Translator competence development can be self-organising.
7. Within the system, new patterns and properties keep emerging that continuously redefine translator competence development.
8. Translator competence development is non-linear: changes in one part of the system can lead to disproportionate outcomes in the other part of the system.
9. The output, or effect, of agents or their interactions feed back into the system as input and future behaviour of the system is affected (feedback loops).
10. Translator competence is a continuum (adaptation and evolution): the constituents of translator competence keep adapting and evolving over time; thus, the system evolves continuously.

Criteria	**Totally disagree**	**Disagree**	**Uncertain**	**Agree**	**Totally agree**
Correspondance (of findings to reality): the framework-model corresponds to the reality of translator competence development					
Generalisibility: the framework-model generalises major aspects of translator competence development (in uncertain contexts)					

Criteria	Totally disagree	Disagree	Uncertain	Agree	Totally agree
Strength: the framework-model explains the process of translator competence development					
Contributions to theory: the framework-model contributes to theory					

Strengths: What are the strengths of the provided framework-model?
Weaknesses: What are the weaknesses or gaps?
Suggestions: What improvements or changes would you suggest for this framework-model?
Additional comments: Are there any other comments or insights?

Table A3. Overview of expert evaluations of the draft scenarios based on agreement-based evaluative responses.

Validation criterion	Mean	SD	CV (%)	Range
Scenario 1				
Relevance	4.22	1.20	28.46	3
Plausibility	3.56	1.01	28.51	3
Coherence	3.89	0.93	23.86	3
Completeness	3.44	1.01	29.43	3
Impact	4.22	1.09	25.88	3
Scenario 2				
Relevance	4.22	0.67	15.79	2
Plausibility	3.44	1.13	32.82	4
Coherence	4.22	0.44	10.44	1
Completeness	3.89	0.93	23.86	3
Impact	4.22	0.67	15.79	2
Scenario 3				
Relevance	3.44	1.33	38.71	4
Plausibility	3.67	1.41	38.57	4
Coherence	4.00	1.22	30.62	4
Completeness	4.22	0.67	15.79	2
Impact	4.44	0.73	16.35	2
Scenario 4				
Relevance	3.11	1.27	40.80	4
Plausibility	2.56	1.24	48.37	4
Coherence	3.78	1.20	31.81	4
Completeness	3.67	0.87	23.62	3
Impact	3.22	1.39	43.28	4

Table A4. A comprehensive summary of experts' views on the alternative futures of the translator's profession based on the validation criteria.

Scenario	Experts' comments
S1	So how **relevant** is this to the context. Yeah. So yes, I would agree that this is relevant. I do think it's **plausible**. Plausible meaning based on where we are. Yeah, yeah. Oh, and I do think it's, **coherent**. [...] **Completeness** is hard because there's so many things that could happen. But I like the idea [...]. I mean, basically all of these are probably going to have an **impact** on on translator education because this is the direction that I am seeing (E1(SC)). If we have something that translators within certain constraints play an important part in those when they provide high quality input. So this would be very important. Well, I totally agree. So the **impact** would be very big, but I don't think that it's **plausible**. I don't think that this will really happen. This is more like wishful thinking (E5(SC)). So how relevant is the scenario? Very **relevant**. I think we need to think about that. How **plausible** with this caveat with those, thoughts about conference interpreting and this community interpreting. Also, plausible. [0:07:16.1] […] How plausible. Quite plausible. Okay. Quite plausible. Because there are certain things I don't think will happen. Sure. **Coherent**. Also quite coherent because of the same thing. Does all necessary aspects. Again, to a certain degree we are here or because this is missing, I think the this will be because of the globalization, because of the migration flows. This will become the major problem of all our nation states. This how to deal with the, the constant influx of different languages, of a variety of languages and how to deal with that. […] It's very important okay. **Impact** is very important (E3(SC)). The first scenario is fairly easy to handle from the perspective of translator training because I felt like the **impact**, the question of impact, I felt that this is like, not too far away from where we are (E4(SC)). Yes, but this is happening already now. So I see this as a, very good I mean, very **plausible** direction that only translators who are highly skilled will survive because the rest will be done by AI is already being done by AI. So,

Scenario	Experts' comments
	yeah, this this AI could actually see, of course, this is, 100 [percent] (E6(SC)). I think it's already very **relevant** to this is what we tell our students, if you are not better than the machine, then there is no job for you. There is no work for you. So this is a very, very relevant, **plausible**. I would not say totally, but I kind of agree with it here. **Coherence**. I think this is, coherent. [...] And it has a great **impact** on translation and translator education. It should have (E6(SC)). I doubt that the human input-output will have such a high value and that two different sectors will be completely separated, so that, on one hand, you will have this technologically produced textual substance. And on the other hand, you have, those things, produced only by human translators. So I think that's a bit exaggerated (E8(SC)). Definitely [plausible]. Yeah. I mean. (..) Maybe, maybe this is maybe this is what I would wish for. I mean, maybe, maybe the others are even more **plausible**, but I don't want to see them. But I think this, you know, this could work in 2050. [...] Then **completeness**... Now, as I said, community interpreting I think is a big lack, things like dubbing, subtitling and audiovisual translation. Maybe that would still remain kind of human, mostly human. And **impact** obviously have a very big impact (E9(SC)).
S2	I think it's, **coherent** […]. And I think it does certainly talk about, the, the various aspects and in terms of **impact**. I think it will (E1(SC)). And gatekeeping, otherwise, is it more **plausible**? That's why I agree. Okay. […] So this would have greater **impact** […, and] would make more sense (E5(SC)). I think the gatekeeping debate is, is important. And I think the reason I think it's important is because I think it means we do have to kind of shift the way we, we train and teach translators (E2(SC)). This is a more a bleaker future, let's say, if you are a believer at the moment, also a lot of nation states link their identity to their language use. So I think there will be a lot of resistance So I do not believe this will happen, partly due to the fact that there are parts of Europe that are extremely monolingual and those that are not linked their identity to the specific language use. […] it is **relevant**, I think it's

Scenario	Experts' comments
	relevant to think about that. Because if we are not thinking about that, Europe is thinking about that. [...] Is it **plausible**? No. You see, this is. Yeah, I think not at all. Yes. I think not at all. Is it, **coherent**? I have one comment here. You relegate the role of translators to that of mediators and communicators. And I think in, in that scenario, they would just be post-editors [...] So is it coherent? To a certain degree. Okay. **Complete**. Is anything missing? Well, as I said, since I don't find it plausible, you know, this would mean that the entire globe... This is like the end of times, like the the miracle of the Pentecost, so that everyone speaks the same language. I don't think this will ever happen (E3(SC)). The notion of the gatekeeper, and then the description that the translators are important as a way to resist this dominance. So this seems like a very politicised view of translation, which is, I feel a little bit problematic for training. So what to do in training? So that's why I have crossings like uncertain because it's like, it seems to also depend on what university is like as an institution and sort of who will have the power and which gates are the translators keeping [...] but I think this is **coherent** [...] Yeah I don't know I agree or totally agree. It's like it's very extreme. But what I was also wondering in terms of training, that this one seems to introduce a question of training in which languages? [...] So definitely maybe then the **impact** will be focus on political thinking, ideologies, manipulation e.t.c. basically focus on ethics (E4(SC)). I think this is probably very true. And I expect this to happen. I still don't believe that languages will disappear, but, you know, but, (...) Here, I was thinking that if technology supports everything. So technology is very important. And this. We can agree. Yeah. Why are translators so very important? It's not very clear here [...] I think happens already today. So again, very Very probable. And I was wondering what the difference between this scenario and the first one is actually like [...] I'm a traditional translator. And I don't work without technology nowadays. And I don't believe that people in the future will [...]. If you can make your your job easier, then you are probably not going to translate from scratch or almost never. I'm not saying never [...] The **relevance** of this

Scenario	Experts' comments
	scenario, I think it's. Yeah, it's relevant. I think it's relevant. Yeah. I agree that it's relevant and it is **plausible** also [...] **Coherence**. I think it's totally coherent. It's not a problem. But just. Yeah, yeah. With the things that I said before, and I think it covers all the aspects, the, the **impact** is again, great because the translators have to be good translators. And if you don't train them well then you don't know what you're doing (E6(SC)). So **coherence**, it seemed, seemed fine [..., but] problem with coherence is, so if kind of technology is so dominant who's going to ensure high value? Is it going to be these, you know, revolting translators or the resisting translators? I mean, why should it retain a high value? [...] It seems like kind of contradicts what you said […]. Because because it's like putting a high value in itself or from the perspective of who? So that's a bit of a problem [...] I mean, it would obviously have a big **impact**. And I'm wondering, you know, how do or how can translators resist it? I mean, what could they do to stop it? And would they really do anything to stop it? (E9(SC)).
S3	So this one technology is everywhere. Human input is of moderate value. So there is some input that we like that ethics are challenged by AI. Yes I think that that is a reality [...]. I think the world is already characterised by several politically and culturally dominant languages [...] I think that this is quite plausible in the sense of, I think translators being content engineers, multilingual content creators. I think that that's a reality where their role is they still have the fundamental skill of moving between the two languages, but they're using it. The task of translation is not the end unto itself, but rather it is the it's the prerequisite to then be able to do things in multiple languages. So in that, in that sense, I do think that it is quite **plausible**. And I think it also leads to something that we need to be thinking about from teaching. We have to train students to have multiple outputs. We cannot train them just to be translators. Like, I just don't think that that's doable. And I even see that with my students, like some of them become translators, but many of them go on to do all sorts of other things. So I think that that has a huge **impact**. And I think it, I think it's related to nowadays, too. I mean, I don't I don't think that this is just a future for, for future focused (E1(SC)).

Scenario	Experts' comments
	I think I think this is what is happening now. It's one of the strands. It's one of the strands, right. Because the other will be this technological strand [...] I think that it's possible [...], I don't know to what extent it's **plausible**. And yeah. And this also has a great **impact** on it (E5(SC)). I don't think this is **relevant** for the education. Okay. I don't think because I think it is not **plausible**. Okay, okay. Why? First of all, it's also it's not **coherent**. Okay. We'll tell you where I will start with that. Here. You say that human. Here it is said on the page that human input output is of moderate value. So in the second bullet of key factors and in the second paragraph the last sentence says, despite technological advances, the role of human experts in navigating and bridging linguistic divides remains crucial. So here it says it's so crucial. There it says moderate. Okay. You see [...] I think it's not **plausible**. Because human mind and we are always in inventing and making up new things and new realities and new worlds for that. [...] I don't see the future as bleak as that. And that's why I would also not present that to, translator trainers or interpreter trainers, because it will just create some fear that is baseless in my mind (E3(SC)). I find this, perhaps, one of the likely scenarios if if that maybe that is not the discussion here, but and then not a negative one necessarily. And I as for **impact**, I wrote here, I was also across the ecri, but I wrote that in this kind of scenario, technological understanding needs to be balanced with communicative skills, because if this is where they're going to be working, the translators, the former translators need to understand the tech side, but they are not there to do that. They are there to bring in these additional this additional value and relevance. […] I'm thinking is that similar to scenario one, this is an element that we are already incorporating. So to an extent not sort of we would move further in this direction, but it is this is not a complete disruption but rather a change of focus or yes, or strengthening of a particular focus [...]. It is **relevant** from the current perspective. I don't need to change my mindset radically to to see that this is this is the future and how and I can imagine what to do to get there. So so in that sense, not not like dramatically changing everything (E4(SC)).

Scenario	Experts' comments
	We have a problem with this in the sense that if no, if they are not practicing translation anymore, how do you convince people to go and study for something that's that you are not actually, you know, you're not going to be doing it. So why would you go study that? And I think this is a fear that we have today [...] Large language models don't need translators. They just need data. They actually don't need us. They don't need humans anymore, except for programmers [...], and you cannot influence the way the AI output will be, except with better or more data. Not in any other way […]. So they don't know what will come out of it because it does its own thing and it's not controlled by, humans in that sense. So even now this is true. So that's why I don't think that this scenario is very, very probable [...]. I think not not very **relevant** in the sense that I told you before. I think, they don't need us as experts like the AI, the machine translation, and so on. They don't need us [translators] for that. So in this sense, I think this is not very relevant. And not very **plausible**. It is **coherent** in itself. So I would say I agree. Yes. And it is **complete** as a scenario. Although I don't think it's very yeah, very plausible, but it would have enormous **impact** because it would mean that you don't actually train translators anymore. In the negative sense. It'll still be a big impact. (E6(SC)).
	I know that that I mean, at least from from the experience of my department, I know a lot of students, you know, they're starting to take computer engineering classes as part of their degree. They're going on to work in in localisation, natural language processing, these kind of areas […]. We have a lot of elective courses in our department. So they have to take I mean, we have this kind of liberal arts philosophy, so they have to get these very broad education and they have to take two science classes. And we include computer engineering as a science class […]. I mean that's that is a trajectory I think students without fairly advanced kind of computer skills are going to be pretty lost (E9(SC)).
	Plausibility I agree I think it's, it's very and then **coherence** I think it's very coherent. Scenario, I think it's very **complete**. And obviously we'll have a huge, huge **impact**. (...) Because really I mean. (..) There has to be a, you know, a much bigger, technical kind of component to translator education programs. Yeah. I mean, I know one one

Scenario	Experts' comments
	university in […], which is a private university, and they, they use AI in all their classes now, every single translation class, they somehow incorporate it, and a lot of what they do is prompt engineering [...]. And then obviously this has a huge **impact** (E9(SC)).
S4	I don't know, it doesn't feel **plausible** to me. I there's too much variation in the world and there's too much the you know, yes, the technology has evolved, but language evolves and people evolve and culture evolves. And so it's still going to be governed in my mind based on the assumptions and the biases and the underlying, the underlying data and the underlying input that we have [...] It's apocalyptic in many ways. Yeah. So, It's hard. We have. You know, I find myself going, you know, when I when I'm faced with this scenario, I think. I don't I don't want to as an educator. I don't want to have this as the world that my students are going into, I suppose. And so I would rather prepare them for the super linguistic diversity, the linguistic diversity. Language is a vector to talk about difference in culture and and the wonders and of human interaction and communication. I know folks that that have this sort of translation is dead. Language is dead [...]. I just I'm not convinced in my mind that that's how I want to try to prepare students for. So I find myself disagreeing with, like, this scenario having an **impact** on my teaching. Yeah, I know it exists. Maybe I choose to ignore it, I don't know. But by the same token, I do agree that it is **relevant** to know that it exists, but I don't know if it's the reality that we're we need to be preparing our students for, at least not yet. Is it **plausible**? I don't know, I go back and forth about it. It depends on who I talk to that day (E1(SC)). I'll be an optimist. I would disagree [...]. If we're no longer needed and if we're gone and what would be the chance for education [...] It's like this utopian visions. And then what do you achieve with this? Like you, you don't motivate your students. You don't motivate yourself [...]. The **impact** would be [demotivating], yeah. Because we don't we don't really know. [...] Because I think, like, there's the end of something, then I just I just don't have to teach. I'll just lie back on the beach and I can't do anything to influence [it] (E5(SC)).

Scenario	Experts' comments
	So how relevant is this scenario? (..) Really maybe **relevant** in a way that provokes, some critical reflection on that. But if you talk about relevant as a possible future, I would be totally against it. Right? I would present that mainly as a fear or something that they may encounter in some, you know, in, in the society that is not from the field [of translation] [...] I don't believe that's **plausible**. You know, that's that's the problem. That's somehow hard to say if it is **complete** or not. I would say uncertain. Okay. **Impact** for translator education. I think again, it depends how you present it. If you present it as a thought provoking tool, I think it's it's interesting. It's useful if you present it as one of the possible futures (E3(SC)). This is so definitely the most extreme of the cases. And, quite **coherent** in its... for me, personally, I struggle with the idea of linguistic diversity being extinct. [...] I don't yet believe that technology is going to change our genetic predispositions and our, our social structures that remarkably. But in any case, what can happen is that translators end up being needed because so, so so while I don't believe that linguistic diversity can disappear, the need for community, that the need for communication, that would mean that there's only a handful of people that are not there's no way of contacting one another [...] Then the **relevance** for translator training – I have uncertain, because what is missing from these scenarios is [...] the wider perspective of translator activities and and how the technology may or may not be able to deal with these [...], but I'm perhaps unwilling to believe (E4(SC)). Some of these [S4 pathways] are more **plausible** than others. For example, the the point that, like, we would understand each other's minds. I don't think it's very plausible. Not not because I think it's not like, okay, it's not easily done, but still I think that, our thoughts, are influenced, influenced by our language. So if we speak, like different languages, we don't understand each other. Even if we could hear our thoughts in a way that, you know, because we think in different ways [...] So here I see a problem with this [...]. Languages are just interfaces that we have with a common meaning or something common in the background. And I don't think it's so common. I don't think we actually have this common core. To a certain extent, yes.

Scenario	Experts' comments
	Of course. But not as much as computer people would like to think, even like if disaster strikes and just a few people are [left], the language will evolve [...]. Maybe I can imagine that something would happen. But I think that humans have this inherent need for communication (E6(SC)). I don't believe it [...] I'm not saying it's not possible, but right now, I don't think I can imagine a scenario where everybody could understand everybody without any need of translation. I don't think I can prepare for it. So, I don't know how to prepare my students for something that I cannot envision, like an idea. I think we have to prepare students for a world that is constantly changing and evolving. But if this change is something that I cannot like, imagine, there is no way I can prepare them for that. So I would say that in this sense the impact is low. Very low. The scenario is inherently uncertain, I would say, because, because, it cannot be **complete**, because we cannot actually know what would happen and so on. So this like this, probably this is it's characteristic. It has to be that way. It's not totally **coherent**. It cannot be again for the same reason [...]. **Plausibility**? Again I would say uncertain. It could happen. I'm not saying it cannot happen, but I don't know in which way it will go. And is it **relevant**? It is, it is, but not much we can do with it (E6(SC)). If the translator is really an extinct profession in the future, then if you're teaching, even though it sounds quite, you know, absurd. If you teach the translator who won't exist in 50 years, what do you do? You teach more soft skills [...], other professional skills, life learning skills, how to adapt to the evolving world very, big changes, crucial changes which change the professional landscape [...]. Because if translators become extinct, I think there are also other professions missing, to adapt, to adapt to a different new, reality, how to change your profession, how to, get other kind of knowledge and so on (E8(SC)). Coherence? This is very totally **coherent** I think [...]. I think it really depends that this question of if people have memories of another time or another possibilities, then you know, this, this wouldn't happen. There would be resistance. But if somehow, for some reason, these memories and these prospects are wiped out, then you know

Scenario	Experts' comments
	it could happen. [...] Then people wouldn't resist it because they just say, well, that's the way of the world. This is what we do. So this becomes a new nature [...]. So yeah, I think it's **plausible**. But, you know, on the condition that, you know, maybe a post, post Babel, post Babel, the memories of a post Babel situation. But it's **consistent**. I think that scenario is consistent [...]. What is the potential impact? I agreed that [there] is the potential **impact** of this scenario on translation and or translator education, like, what can we do? Or what should translator education do to guard against this happening? [...]. If you're saying, that this is inevitable, this is going to happen, and then you're supposed to be training students to translate, but you know that within a certain time, that sector that career is going to be is going to vanish. I think it will probably seem fairly pointless to teach it [...]. Then you could say it's important not just helping students develop these translation skills but also transferable skills and becoming flexible and looking out for new possibilities and thinking how they can transfer the skills of translation to other fields that, you know, have a longer shelf life. Maybe. Or I was thinking, if this is allowed, like to really make student trainees, like, aware of the value of human translation so that they can resist this, prevent this from happening (E9(SC)).

APPENDIX 11

DECLARATION ON THE USE OF ARTIFICIAL INTELLIGENCE TOOLS

Student's name, surname: **Karolina Levanaitė**
Study programme, year of study: Educational Sciences, 2021-2025
Title of the written work: "Conceptualising competence in the era of uncertainty: translator education from the perspective of complexity theory"
Type of written work: Doctoral dissertation
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[††] Methodological Guidelines for Written Works of the Faculty of Communication of Vilnius University: https://www.kf.vu.lt/dokumentai/VUKF_metodiniai_EN_Epdf.pdf
[‡‡] Guidelines on Artificial Intelligence Usage at Vilnius University: https://www.vu.lt/site_files/Vertimai/EN_Translation_Dirbtinio_intelekto_naudojimo_Vilniaus_universitete_gair%C4%97s.pdf
[§§] Recommendations on the Use of Artificial Intelligence in Study Assignments at the Faculty of Communication, Vilnius University: https://www.kf.vu.lt/dokumentai/documents/2024/Recommendations_on_the_use_of_AI_in_assignments.pdf

support in refining descriptions of methodological procedures and validation processes; creating codes for 4D visualisations of the conceptual model, as well as models for narrative foresight scenarios; regenerating Figures 2, 4, 11 for print quality; generating Figure 12 into a Lithuanian version (Paveikslas 1).

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SUMMARY IN LITHUANIAN

Daktaro disertacijoje analizuojama kompetencijos samprata aukštajame moksle bei kompetencijos ugdymo prielaidos nuolatinės kaitos ir neapibrėžtumo kontekste. Kompetencijos konceptas ir kompetencijomis grįstas mokymas(is) (KGM) dažnai vertinami nevienareikšmiškai: viena vertus, aukštajame moksle ir švietime apskritai KGM laikomasi kaip orientyro, kuriuo siekiama išpildyti „kilnią viziją“ visapusiškai ugdyti individą ir kartu kurti pridėtinę ekonominę vertę plačiajai visuomenei (Vitello ir kt., 2021); kita vertus, kompetencijos konceptas labai dažnai kritikuojamas ugdymo mokslų teorinėje literatūroje, o nemaža dalis švietimo praktikų jo tiesiog nemėgsta. KGM kritikai dažniausiai savo poziciją grindžia konceptualiu dviprasmiškumu bei nenuoseklia sampratos vartosena (Ashworth ir Saxton, 1990; Hyland, 1994) ir neoliberalizmo įtaka, dėl kurios santykis tarp universiteto ir rinkos poreikių darosi vis glaudesnis, o aukštojo mokslo institucijų savarankiškos veikmės ribos nyksta. KGM galima laikyti savotišku švietimo paradoksu: „Žvelgdami iš istorinės ugdymo mokslų perspektyvos, KGM neaptiksime iki pat šių laikų, tačiau ekonomikos mokslų kontekste kompetencijos samprata pasirodo 1736-aisiais – prasidėjus pirmajai industrinei revoliucijai“ (Naranjo, 2022, p. 23). Tad kaipgi taip nutiko, kad kompetencijomis grįstas modelis, neturintis jokių su ugdymo mokslais sietinų ištakų, šiandien yra tapęs pagrindiniu švietimo modeliu (ten pat)?

KGM įgyvendinimas pasaulyje, kuris apibūdinamas kaip *nepastovus, neapibrėžtas, kompleksiškas* ir *įvairiaprasmis* (angl. *volatile, uncertain, complex, ambigious* – VUCA, Bennis ir Nanus, 2012), persmelktas „superkompleksiškumo“ (angl. *supercomplexity*, Barnett, 2001) bei ketvirtosios pramonės revoliucijos pokyčių, turi savų epistemologinių bei ontologinių prielaidų. Žvelgiant iš ugdymo mokslų perspektyvos, tokiame pasaulyje didžiausias dėmesys tenka nebe žinių ir gebėjimų įgijimui, bet ontologinėms nuostatoms – tam, kas formuoja mūsų tapatybę ir savęs supratimą (Barnett, 2012; Zembylas, 2017). Šioje disertacijoje laikomasi kritiško požiūrio į KGM, tačiau tuo pat metu pripažįstama, kad dabar ir artimiausiu metu jis, tikėtina, išliks pagrindine Europos aukštojo mokslo erdvės trajektorija. Todėl tyrimo tikslas nėra ieškoti alternatyvų KGM ar konceptų, kurie galėtų iš esmės pakeisti kompetencijos sampratą, kaip šio modelio ašį, veikiau ieškoma prieigų, kurios įgalintų į kompetenciją pažvelgti labiau VUCA pasaulio kontekstą atliepiančiais būdais.

Disertacijos tyrimui pasirinkta aukštojo mokslo sritis – vertėjų rengimas, o vertėjo kompetencija yra pagrindinis tyrimo objektas. Vertėjo veikla ir

apskritai pati profesija glaudžiai susijusi su hermeneutiniu, ekonominiu ir technologiniu neapibrėžtumu, todėl iš esmės atskleidžia teorinėje disertacijos dalyje pristatomą problematiką. Pastarąjį dešimtmetį neapibrėžtumo kontekstas vertimo studijų lauke tampa ypač aktualus dėl neuroniniais tinklais ir dirbtiniu intelektu (DI) grįstų vertimo technologijų, kurios verčia rimtai susirūpinti vertėjo profesijos ateitimi – tai, be kita ko, atspindi ir sparčiai mažėjantys stojančiųjų į vertimo studijų programas skaičiai (Fantinuoli, 2025; Bowler, 2025). Vertėjo kompetenciją, kaip esminį vertimo studijų programų tikslą (Schäffner, 2020), apibrėžia įvairūs modeliai, kurių epicentre – žinios ir gebėjimai. Tačiau tokių reprezentatyvumu grįstų modelių galimybės aprėpti neapibrėžtumo aspektą yra ribotos. Todėl disertacijos tyrimu ieškoma būdų, kaip mažinti šį atotrūkį remiantis kompleksinių sistemų modeliavimo prieiga.

Pagrindinis darbe keliamas mokslinis probleminis klausimas – kaip būtų galima konceptualizuoti vertėjo kompetenciją, kad ji apimtų neapibrėžtumo aspektą? Šis klausimas tampa ypač aktualus nuolatinės kaitos kontekste bei kalbant apie kompetencijų ugdymą neapibrėžtai ateičiai. Konceptualizavimas šioje disertacijoje suprantamas kaip konceptualaus modelio kūrimas, kuris galiausiai pateikiamas aprašant sistemos elementus ir dešimt jos savybių bei vizualizuojamas kaip tam tikras mentalinis konstruktas.

Disertacijos teorine ir metodologine ašimi pasirinkta kompleksiškumo teorija, sujungianti tiek epistemologinį, tiek ontologinį požiūrius: kompleksiškumas laikomas tam tikru ontologiniu faktu, kuris taip pat turi tam tikrų epistemologinių, arba pažintinių, prielaidų tam, kaip mes su juo susiduriame ir jį nagrinėjame (Woermann et al., 2018). Be to, Morrison (2008) teigimu, kompleksiškumo teorija „kaip kaitos, vystymosi ir santykinės evoliucijos teorija, ugdymo filosofijai kelia labai įdomių tikslų“ (p. 19). Vienas svarbiausių iš jų – didžiausią dėmesį skirti ne atskiriems ugdymo reiškinius sudarantiems elementams, o jų tarpusavio ryšiams, bei kvestionuoti besimokančiojo, kaip „tuščio indo“, mokymosi modelį (Morrison, 2008). Be kita ko, ši disertacija taip pat glaudžiai susijusi su ontologinio posūkio aukštajame moksle problematika (Barnett, 2000, 2003, 2012; Biesta, 2009; Zembylas, 2017), kurioje, Zembylaso (2017, p. 1410) žodžiais, ypač svarbios tyrėjų ir praktikų pastangos „perkalibruoti“ ugdymo mokslų konceptus. To šia disertacija, kurios tikslas – konceptualizuoti vertėjo kompetenciją kaip kompleksinę adaptyvią sistemą (KAS), ir siekiama.

Siekiant atsakyti į probleminį tyrimo klausimą, suformuluoti šie uždaviniai:

1. Atlikti išsamią literatūros analizę siekiant išsiaiškinti, kaip kompetencija konceptualizuojama moksliniuose tyrimuose ir švietimo

politikos dokumentuose, taip pat išanalizuoti vertėjo ir vertimo kompetencijos modelius bei sistemas.
2. Apžvelgti pagrindines kompleksiškumo teorijos sąvokas ir jų taikymą ugdymo mokslų tyrimuose siekiant sukurti kompleksiškumo teorijos konceptų sistemą, kurios pagrindu būtų galima konceptualizuoti kompetencijos sampratą. Papildomai atlikti sisteminę literatūros apžvalgą apie kompleksiškumo teorija grįstus tyrimus, kuriuose tiriama kompetencijos samprata ir (ar) jos ugdymas.
3. Ištirti, kas šiandien sudaro vertėjo kompetenciją ir kaip ji gali kisti ateityje, remiantis vertimo studijų programų dėstytojų, studentų ir profesionalių vertėjų požiūriais, atliekant pusiau struktūruotus ir fokusuotų grupių interviu.
4. Naudojantis naratyvinių ateities įžvalgų metodologija parengti vertėjo profesijos ateičių scenarijus ir juos įvertinti bei validuoti su ekspertų grupe.
5. Remiantis scenarijų ir interviu duomenų analize identifikuoti vertėjo kompetenciją sudarančius elementus. Naudojantis kompleksinių sistemų modeliavimo prieiga sukurti konceptualų vertėjo kompetencijos kaip KAS modelį ir jį įvertinti bei validuoti su ekspertų grupe.

Metodologiškai disertacija apima politikos dokumentų ir akademinės literatūros konceptualią analizę bei kokybinį empirinį tyrimą. Pastarojo pagrindą sudaro duomenys, surinkti 2023–2024 m. vykdytuose pusiau struktūruotuose bei fokusuotų grupių interviu su vertimo studijų programų dėstytojais (N = 10, Airija, Lietuva, Vokietija), studentais (N = 11, Lietuva, Suomija) ir profesionaliais vertėjais (N = 5, Lietuva). Tyrimas struktūruotas remiantis kompleksiškumo teorijos prieiga, o siekiant geriau suprasti alternatyvias vertėjo profesijos ateitis papildytas naratyvinių ateities įžvalgų scenarijais (Milojević ir Inayatullah, 2015). Dedukcinė teminė šių duomenų analizė (Braun ir Clarke, 2006) buvo derinama su induktyviai analizuotomis įžvalgomis, kuriomis dalinosi scenarijus bei konceptualų modelį vertinusios ir dalinį validavimą atlikusios dvi tarptautinių ekspertų grupės (atitinkamai N = 9 ir N = 7).

Kompetencijos samprata ir KGM ugdymo mokslų tyrimuose dažnai kritikuojami dėl redukcionistinio, biheivioristinio ir į išmatuojamus mokymosi rezultatus orientuoto požiūrio (Ashworth ir Saxton, 1990; Hyland, 1994; Edwards ir Usher, 1994; Biesta, 2009). Kalbant apie vertėjo kompetenciją, vertimo studijose ilgą laiką dominavo daugiakomponenčiai vertėjo kompetencijos modeliai (PACTE, 2003; Göpferich, 2009; Kelly, 2005), tačiau naujesni tyrimai vis labiau pabrėžia santykinį požiūrį ir vertėjo

kompetencijos kompleksiškumą bei kontekstualumą (Kiraly, 2013, 2016; Risku, 2014; Marais, 2019). Naujausiuose Lietuvos vertėjų rengimo aukštąjame moksle tyrimuose vertėjų veiklos pokyčiai ir vertėjų rengimas analizuojami įvairiais aspektais, nuo COVID-19 pandemijos poveikio vertėjų veiklai (Kasperė ir Motiejūnienė, 2021), mašininio vertimo (MV) ir DI įtakos vertėjų rengimui (Kasperė ir Horbačiauskienė, 2020; Horbačiauskienė ir Ratkevičienė, 2025) iki pastarąjį dešimtmetį sparčiai augančios vertimo projektų valdymo ir susijusių kompetencijų svarbos (Motiejūnienė ir Kasperavičienė, 2019; Mankauskienė, 2024; Masiliūnienė, 2025). Tačiau klausimas, kaip vertėjo kompetencijos ugdymas turėtų keistis neapibrėžtumo ir sparčių pokyčių sąlygomis, išlieka neatsakytas, todėl šis disertacijos tyrimu siekiama bent iš dalies šią spragą užpildyti.

Viena vertus, kompleksiškumo teorijos prieigą vertėjo kompetencijos konceptui paaiškinti pirmasis pritaikė Donas Kiraly (1995, 2013, 2016), sukurdamas vertėjo kompetencijos kaip emergentiško reiškinio modelį. Kita vertus šios disertacijos tyrimo naujumas sietinas su vertėjo kompetencijos kaip KAS modeliavimu, grįstu empiriniais duomenimis. Taigi, nors kompleksiškumo teorija pastaruosius tris dešimtmečius vis plačiau taikoma ugdymo mokslų tyrimuose, disertacijos autorės žiniomis, empiriniais duomenimis grįstas KAS modelis kompetencijai – tiek vertėjo, tiek kompetencijai apskritai – konceptualizuoti dar nebuvo kurtas. Nors tyrimas pirmiausia orientuotas į vertėjo kompetencijos sampratą ir vertėjų rengimą aukštajame moksle, jo išvados gali būti aktualios ir platesniems KGM kontekstams, nes modelyje konceptualizuojamas neapibrėžtumas kelia ir kels iššūkių daugeliui profesijų tiek dabar, tiek artimiausioje ateityje.

Apibrėžtumo aukštajame moksle pabaiga

Šiandieniniame pasaulyje, persmelktame ypač sparčių technologinių pokyčių, globalaus mobilumo bei nestabilios darbo rinkos keliamų iššūkių, apie neapibrėžtumą dažnai kalbama iš ekonominės ir socialinės perspektyvos (Hargreaves, 2021). Ši perspektyva lemia tai, kad kompetencijos – ir ugdymas apskritai – dažnai konceptualizuojami nuolat kintančiuose įsidarbinimo ir vis didėjančios socialinės nelygybės kontekstuose (Vignoli ir kt., 2020). Tačiau neapibrėžtumas ugdyme neapsiriboja šia siaura perspektyva, nes VUCA pasaulio pokyčiai yra ne tik struktūriniai, bet ir ontologiniai, veikiantys individų tapatybę ir buvimo pasaulyje būdus (Barnett, 2012). Todėl disertacijoje remiamasi Barnetto (2012) ontologine neapibrėžtumo ugdyme samprata, kuri kyla iš manymo, kad šiuolaikinė visuomenė pasižymi precedento neturinčia kaita ir superkompleksiškumu. Paradoksalu, bet,

plečiantis žinių apimtims, vis sparčiau auga pati nežinomybė, individams vis sunkiau palaikyti stabilų santykį su pasauliu, todėl ir ugdymas turi pripažinti neapibrėžtumą kaip esminę mokymosi ateičiai sąlygą.

Filosofiniu požiūriu, apibrėžtumo siekis – nuo Descartes'o absoliutaus tikrumo, arba apibrėžtumo, kaip neatsiejamo nuo absoliutaus pažinimo, iki pat Moore pažinimo apibrėžtumo, kuris pasiekiamas vien per sveiką protą – ilgą laiką buvo aiškinamas remiantis epistemologine perspektyva. Tuo tarpu bene didžiausias Moore kritikų – Wittgensteinas (1969) – vienas pirmųjų manymą, kad visos tikrumo, arba apibrėžtumo, formos priklauso vien nuo pažinimo, įvardijo viena esminių filosofijos klaidų. Atskirdamas apibrėžtumą nuo pažinimo, Wittgensteinas teigia, kad apibrėžtumas yra labiau sietinas su pagrindu veikti, o ne su tam tikromis žiniomis ar pažinimu. Šis atsitraukimas nuo epistemologinio požiūrio į apibrėžtumą ir kitos galimos perspektyvos aptariamos teorinėje darbo dalyje, taip siekiant pagrįsti disertacijoje pristatomą ontologinę perspektyvą. Iš vienos pusės, ji svarbi konceptualizuojant kompetenciją neapibrėžtumo kontekste bei ontologinį posūkį aukštajame moksle, iš kitos pusės – tai paaiškina, kaip ir kodėl disertacijos ontologinį pagrindą sudaro kompleksiškumo teorijos prieiga.

Be minėtos filosofinės perspektyvos, disertacijoje trumpai aptariama ir mokslinė – vieno žymiausių fizikinės chemijos ir kompleksinių sistemų teorijos atstovų Prigogine (1997) akcentuojama *apibrėžtumo empiriniame moksle pabaiga*. Prigogine teigimu, šiandieniniame pasaulyje apibrėžtumo nebeįmanoma nusakyti remiantis vien deterministiniu požiūriu ir empiriniais matavimais, kaip ir ateities nebeįmanoma apibrėžti vien iš dabarties perspektyvos, t. y. remiantis tuo, ką galime šiandien empiriškai patikrinti. Žmogaus prigimtį ir pasaulio kompleksiškumą įvardydamas naujomis esminėmis mokslo temomis, Prigogine taip pat atliepia ontologinę apibrėžtumo – ir atitinkamai neapibrėžtumo – perspektyvą.

Galiausiai, čia ypač svarbus poststruktūralistinis požiūris, ypač apibrėžtumas ir neapibrėžtumas per Derrida (1967/1997) dekonstrukcijos sampratą. Ja remiantis galima daryti prielaidą, kad neapibrėžtumas nereiškia vien apibrėžtumo nebuvimo, o veikiau savaime reiškiasi kaip tam tikra ontologinė duotybė, kuri atitinkamai turėtų būti konceptualizuojama ir ugdymo kontekste. Poststruktūralistine perspektyva bei Derrida filosofija remiasi ir šiai disertacijai vienas svarbiausių kompleksiškumo teorijos atstovų – Cilliersas (1998). Jo teigimu, tai, kaip Derrida apibūdina dinamiką generuojant prasmę kalboje, gali būti naudojama ir kompleksinių sistemų dinamikai apibūdinti (p. 37). Derrida požiūris artimas ir kitam disertacijoje pristatomam kompleksiškumo teoretikui – Morinui (1999, 2007), kuris

analizuoja pažinimo ir ateities nenuspėjamumą, o mokymą(si) tapatina su gebėjimu „orientuotis neapibrėžtumo vandenyne“ (p. 11).

Minėtos filosofinės ir mokslinės perspektyvos svarbios siekiant geriau suprasti disertacijoje nagrinėjamą posūkio – nuo epistemologijos link ontologijos – aukštajame moksle problematiką. Superkompleksiškame šiandienos pasaulyje aukštojo mokslo užduotis yra ne tik parengti studentus neapibrėžtumui, bet ir įgalinti tokiomis neapibrėžtumo sąlygomis veikti ir tiesiog būti, t. y. į aukštojo mokslo tikslus tenka pažvelgti daug plačiau nei remiantis įprasta epistemologine perspektyva (Barnett, 2012). Tačiau šiuolaikinis aukštasis mokslas dažnai teikia pirmenybę išmatuojamiems rezultatams ir įgūdžiams, atspindėdamas tai, ką Biesta (2009) vadina *švietimo suredukavimu vien tik į mokymąsi* (angl. *learnification*). Todėl tokiam iš esmės į pamatuojamus rezultatus ir įgūdžius orientuotam švietimui atsvara galėtų būti ontologinis požiūris, apimantis ne vien žinojimą ar gebėjimą veikti, bet patį gebėjimą (iš)būti tokiame neapibrėžtume (Dall’Alba ir Barnacle, 2007).

Be to, neapibrėžtumo iššūkiai aukštajame moksle, ypač susiję su technologinėmis transformacijomis, dar labiau didina švietimo neapibrėžtumą, todėl numatyti, ko reikės ateityje, pavyzdžiui, ateičiai reikalingas kompetencijas, tampa vis sunkiau (Markauskaitė ir kt., 2022). Taigi, švietimas turi stoti akis į akį su neapibrėžtumu ir ugdyti strategijas, įgalinančias besimokančiuosius veikti neapibrėžtuose kontekstuose. Tai iš esmės sunkiai suderinama su dabartine švietimo sistema, kuri paremta reprezentatyviu požiūriu (Osberg ir Biesta, 2007; Zembylas, 2017) ir orientacija į pamatuojamus – taigi ir apibrėžiamus – mokymo(si) rezultatus. Šiuo atveju reprezentatyvumas reiškia siekį švietimo pasauliu atkartoti realų, už jo ribų egzistuojantį, pasaulį, t. y. įprasta kompetenciją konceptualizuoti per iš anksto nustatytus ir pamatuojamus elementus (pvz., žinias, gebėjimus ir pan.), kurie sietini su realybe, egzistuojančia už švietimo pasaulio ribų. Tuo tarpu žvelgiant į kompetencijos konceptą per nereprezentatyvumo prizmę siekiama jį pamatyti kaip neatskiriamą to pasaulio dalį – dinamišką, santykinį ir emergentišką reiškinį, atsirandantį sąveikoje su nuolat kintančiais kontekstais. Keliant klausimą, kaip būtų galima konceptualizuoti kompetenciją, kai ateitis ir pats pasaulis negali būti visiškai reprezentuoti ar iki galo pažinti, šiame tyrime taikoma nereprezentatyviu požiūriu grįsta kompleksiškumo teorijos perspektyva.

KGM, kaip vienam iš pagrindinių Europos aukštojo mokslo erdvės principų, didžiausią įtaką turėjo 1992 m. Mastrichto sutartis ir 1998 m. Sorbonos bei 1999 m. Bolonijos deklaracijos (Davies, 2017). Pastarosiomis prasidėjęs Bolonijos procesas žymi siekį pereiti „nuo į dėstytoją orientuoto mokymo prie į studentą orientuoto mokymosi“ (ten pat, p. 2). Ilgainiui dauguma Europos studijų programų vis labiau perorientuojamos į rinkos poreikius atitinkančių kompetencijų ugdymą, kuriuo siekiama skatinti inovacijas ir stiprinti ekonominį konkurencingumą – procesus, į kuriuos pažvelgus galima kalbėti apie kur kas platesnį neoliberalų posūkį aukštajame moksle (Marginson, 2004).

Nors KGM šiandien yra vienas centrinių aukštojo mokslo principų, pati kompetencijos sąvoka politikos dokumentuose apibrėžiama nevienodai ir išlieka diskutuotina. Tuningo ir kitose panašiose gairėse kompetencijos laikomos studijų programų kūrimo pagrindu, o mokymosi rezultatai apibrėžiami kaip „kompetencijų, apimančių žinias, supratimą ir gebėjimus, visuma“, kurią besimokantieji turi pademonstruoti (González ir Wagenaar, 2003, p. 24). Tačiau Europos Sąjungos politikos dokumentuose dažnai pirmenybė teikiama įsidarbinimui ir veiklos rezultatams, nesigilinant į pačią kompetencijos sampratą. Pavyzdžiui, Bolonijos proceso komunikatuose akcentuojamos studijuojančiųjų kompetencijos, reikalingos įsilieti į darbo rinką, taip suponuojant, kad galimybė įsidarbinti yra vienas esminių studijų aukštojo mokslo institucijose tikslų. Be to, kompetencijos įvairiuose dokumentuose ir gairėse apibrėžiamos skirtingai. Europos kvalifikacijų sandaroje kompetencija apibrėžiama kaip „įrodytas gebėjimas taikyti žinias, įgūdžius ir gebėjimus“ konkrečiame kontekste, dažnai pabrėžiant asmens „atsakomybę ir savarankiškumą“ (Europos Parlamentas ir Taryba, 2008, p. 4). Tuo tarpu pagrindinės kompetencijos mokymuisi visą gyvenimą apibrėžiamos kaip žinių, įgūdžių ir nuostatų derinys (Europos Komisija, 2018). Vis dėlto šiuose dokumentuose terminai „įgūdžiai“, „gebėjimai“ ir „kompetencijos“ dažnai vartojami sinonimiškai, o tai rodo, kad konceptualiai ši sąvoka nėra vienareikšmė.

Panašus nenuoseklumas pastebimas ir globaliu mastu. EBPO kompetenciją apibrėžia kaip „kažką“ daugiau nei vien žinios ir įgūdžiai – tai gebėjimas atliepti sudėtingus reikalavimus tuo pat metu sutelkiant tam reikalingus psichosocialinius išteklius (EBPO, 2005). Tuo tarpu UNESCO kompetenciją apibūdina kaip gebėjimą „mobilizuoti ir etiškai taikyti“ žinias, įgūdžius ir vertybes įvairiuose kontekstuose (UNESCO IBE, 2017, p. 27). Vis dėlto šių

organizacijų gairėse dažnai taip pat vyrauja tam tikrais ekonominiais poreikiais grindžiamas požiūris, orientuotas į darbo rinką ir jos reikmes.

Taigi, politikos dokumentuose ir mokslinėje literatūroje kompetencija ateities kontekste dažnai siejama su gebėjimu prisitaikyti, atsparumu ir mokymusi visą gyvenimą. Tačiau pats neapibrėžtumas paprastai nepatenka į kompetencijos apibrėžtį ir laikomas neaiškia išorine aplinkybe. Be to, žvelgiant iš kritinės perspektyvos, į mokymosi rezultatus orientuota švietimo politika dažnai skatina vertinti tai, kas pamatuotina, o ne tai, ką iš tiesų svarbu įvertinti (Biesta, 2009), o KGM orientacija į rinką ir jos poreikius apskritai stipriai susiaurina švietimo misiją (Wheelahan, 2010).

Apibendrinant pasakytina, kad politikos dokumentuose nerasime vienareikšmės, stabilios kompetencijos apibrėžties, tačiau nuolat juntamos pastangos akcentuoti studijas baigusiųjų gebėjimą veikti ir jų galimybes įsidarbinti. Todėl šioje disertacijoje ieškoma būdų, kaip, atsiplėšus nuo šio neoliberalaus posūkio ir jam būdingo „rinkos fetišizavimo“ (Marginson, 2004), į kompetencijos konceptą pažvelgti kompleksiškai ir atsižvelgiant į VUCA pasaulio keliamus iššūkius, kurie reiškiasi tiek švietimo politikoje, tiek teorijoje bei praktikoje.

Kompetencijos ugdymas vertėjų rengimo kontekste

Vertimas ir vertėjo veikla visais laikas buvo tiesiogiai susijusi su neapibrėžtumu. Hermeneutinis neapibrėžtumas yra „neatsiejama vertimo meno dalis“, daranti įtaką tiek minties interpretacijai, tiek pačiam prasmės perteikimui (Wallaert, 2016, p. 168–169). Be kita ko, vertėjai nuolat susiduria su ekonominiu bei technologiniu neapibrėžtumu, ypač pastaraisiais dešimtmečiais sparčiai tobulėjant mašininio vertimo programoms bei DI technologijoms, kurių galimybės ateityje yra neprognozuojamos (Dequech, 2000; Beckert, 2016). Tokia profesijos dinamika leidžia daryti prielaidą, kad vertėjo kompetencija ir jos ugdymas yra disertacijos temai ypač paranki sritis, padedanti atskleisti aukštojo mokslo patiriamus iššūkius VUCA pasaulio kontekste.

Vertėjų rengimas keitėsi nuolat – nuo vadinamųjų nepedagoginių praktikų iki į besimokantįjį orientuotų ar į profesinę veiklą nukreiptų požiūrių (Kelly, 2005; Schäffner, 2020). Pastaruoju metu ypač pabrėžiama besimokančiojo ontologinė perspektyva ir profesinis vertėjo tapsmas, kuomet keliamas klausimas ne tik „ko išmokau?“, bet ir „kuo besimokydamas tampu?“ (Washbourne ir Liu, 2023, p. 188). Tai atitinkamai susiję su minėtu ontologiniu posūkiu, kai, be pamatuojamų gebėjimų, iškeliama vertėjo tapatybės, gebėjimo prisitaikyti ir nuostatų svarba.

Vertimo ir vertėjo sampratų yra įvairių ir jos dažniausiai priklauso nuo konteksto. Vertimas gali būti konceptualizuojamas kaip kultūrinė, funkcinė, sociologinė ar technologinė praktika, o šiuolaikinė vertimo teorijos literatūra ragina tyrėjus bei vertimo praktikus „iš naujo permąstyti vertimą“ skaitmeninių pokyčių kontekste (Pym, 2024). Atitinkamai vertėjo kompetencija apima ne tik lingvistinius gebėjimus, bet ir profesines, tarpasmenines bei strategines plotmes (Kelly, 2005). Be to, disertacijoje taip pat aptariama skirtis tarp *vertimo* kompetencijos ir *vertėjo* kompetencijos, rodanti poslinkį nuo konkrečiai užduočiai reikalingų gebėjimų prie įkūnyto, besiformuojančio profesinio tapsmo (Kiraly, 2013).

Naujausiuose vertimo studijų tyrimuose vertimo samprata remiasi ekologine (Cronin, 2017), biosemiotine (Marais, 2019), *vertimiškumo* (angl. *translatoriality*, Koskinen, 2020), situacine-kognityvine (Risku, 2012), kompleksiškumo (Kiraly, 2016; Marais ir Meylaerts, 2022) ir kitomis perspektyvomis. Kadangi vertimo studijose siekiant paaiškinti, kaip daugybė skirtingų vertimo proceso „dalių“ siejasi su pačiu vertimo, kaip „visumos“, reiškiniu, vis dar dažnai kyla iššūkių (Marais, 2013), kompleksiškumo teorijos perspektyva darosi vis aktualesnė. Šiuo požiūriu vertimas ir vertėjo kompetencija vertimo studijų literatūroje jau traktuojami ir kaip emergentiški reiškiniai, kuriuos iš esmės lemia tarpusavyje sąveikaujantys socialiniai, technologiniai ir kontekstiniai veiksniai (Kiraly, 2016).

Taigi, vertėjų rengimas – ypač palanki terpė kompetencijai neapibrėžtumo kontekste tirti, nes dėl sparčių technologinių pokyčių bei kintančios profesinės tapatybės vertėjo kompetenciją galima numanyti esant ypač dinamišką, nuolat kintančią ir glaudžiai įsišaknijusią įvairiuose kontekstuose.

Kompleksiškumo teorija ir naratyvinės ateities įžvalgos

Kompleksiškumo modeliavimo metodams tobulėjant bei vis dažniau atkreipiant dėmesį į jų derinimo galimybes su kokybiniais metodais, kompleksiškumo teorijos perspektyva vis dažniau taikoma socialiniuose moksluose, tarp jų ir ugdymo mokslų tyrimuose (Lemke ir Sabelli, 2008). Analizuojant įvairias natūraliai susiformavusias socialines sistemas bei jų veikimą, vis dažniau naudojamasi tokiomis sąvokomis kaip emergentiškumo modeliavimas (angl. *emergent patterning*), sistemos ir aplinkos sąveika (angl. *system-environment interaction*) ar įvairios saviorganizacijos (angl. *self-organisation*) formos (Lemke ir Sabelli, 2008, p. 119). Šioje disertacijoje taikomos viena kitą papildančios kompleksiškumo teorijos ir naratyvinių ateities įžvalgų prieigos.

Kompleksiškumu grįstas mąstymas (angl. *complexity thinking*) – „kaip tam tikras būdas ir mąstyti, ir tuo pačiu veikti“ (Davis ir Sumara, 2006, p. 18) – meta iššūkį linijinėms ir preskriptyvumu pasižyminčioms ugdymo mokslų paradigmoms. Kompleksinių sistemų neįmanoma suprasti analizuojant vien tik jų sudedamąsias dalis, nes jos pasižymi tarpusavio sąveika ir priklausomybe, nelinijiškumu bei naujos tvarkos atsiradimu (Cilliers, 1998). Todėl kompleksiškumo teorijos perspektyva ugdymo moksluose perkelia dėmesį nuo pastovių, galutinių atsakymų paieškos prie klausimų apie pažinimą, mokymą(si) ir mokymosi rezultatų vertinimą neapibrėžtumo ir ateities sąlygomis (Morrison, 2008).

Ugdymo mokslų tyrimuose kompleksiškumo teorija gali būti tiek gan plačiai suprantama kaip vystymosi ir kaitos teorija, grindžiama ugdymo reiškinius sudarančių elementų tarpusavio ryšiais, kurie nuolat kinta (Morrison, 2008), tiek kaip atskira ugdymo teorija (Davis ir Sumara, 2008). Tam tikra prasme mokymasis savaime yra vienas esminių kompleksinių sistemų bruožų: „visos kompleksinės sistemos ir reiškiniai turi *mokytis*, prisitaikyti ir keistis, kad galėtų išlikti“ (Fullan, 1989, cituojama Morrison, 2008, p. 19). Vis dėlto kai kurie šio požiūrio kritikai kelia klausimą, ar kompleksiškumo teorijos taikymas kuria kokią nors pridėtinę vertę ugdymo moksluose, nes kai kurios iš kompleksiškumo teorijoje vartojamų sąvokų ir taip jau egzistuoja švietimo diskurse (Morrison, 2008).

Disertacijoje, be kita ko, pristatomos konceptualios kompleksinių sistemų taikymo ugdymo moksluose gairės (Lemke ir Sabelli, 2008; Jacobson ir kt., 2016), nuo kurių atsispyrus buvo kurta kompleksinės teorijos konceptų sistema, vėliau naudota konceptualiam vertėjo kompetencijos kaip KAS modeliui parengti. Šiam modeliui sukurti taip pat atlikta sisteminė literatūros apžvalga, kuria siekta suprasti, ar ir kaip kompleksiškumo teorijos prieigą taikančioje mokslinėje literatūroje konceptualizuojama kompetencija. Sisteminė literatūros analizė atskleidė, kad taikant šią perspektyvą akcentuojama kompetencijos dinamika, kismas laike ir nuolatinė sąveika su aplinka (Levanaitė, 2025). Be to, atlikus literatūros apžvalgą, išryškėjo poreikis kurti būtent *adaptyvios* kompleksinės sistemos modelį, nes KAS tarp kitų kompleksinių sistemų išsiskiria tuo, kad, be kitų šioms sistemos būdingų savybių, dar geba „keisti ir reorganizuoti savo sudedamąsias dalis, kad galėtų prisitaikyti“ (Holland, 2018, p. 18), o tai yra viena esminių mokymosi ateičiai ir neapibrėžtumui sąlygų (Barnett, 2012).

Taigi, remiantis kompleksiškumo teorijos prieiga, konceptualus KAS modeliavimas, apimantis kompetencijos kaip sistemos sudedamųjų dalių ir jų tarpusavio sąveikas bei ryšius su kitais kontekstiniais veiksniais, pasirinktas kaip tolesnė šios disertacijos metodologinė perspektyva. Svarbu pažymėti,

kad tokiu modeliu nesiekiama pakeisti jau egzistuojančių vertėjo kompetencijos modelių, veikiau tikimasi pasiūlyti papildomą perspektyvą, kuri leistų pamatyti vertėjo kompetenciją kaip neatskiriamą nuo neapibrėžtumo, taigi nuolat kintančią, adaptyvią ir emergentišką.

Šią KAS modeliavimo prieigą disertacijoje papildo naratyvinės ateities įžvalgos – žvilgsnis į alternatyvias ateitis per tyrimo dalyvių pasakojimus ir įsivaizduojamus ateičių scenarijus (Milojević ir Inayatullah, 2015). Šios prieigos ištakos – priežastinių sluoksnių analizė (angl. *Causal Layered Analysis, CLA*), kuri leidžia geriau suprasti, kaip naratyvai formuoja dabartinius veiksmus ir ateities galimybes. Tiek kompleksiškumo teorijoje, tiek naratyvinėse ateities įžvalgose pabrėžiama laiko, arba laikinumo, svarba, o kompleksinėse sistemose laikas yra „neatsiejama pačios sistemos struktūros dalis“ (Osberg ir kt., 2008, p. 222). Taigi, ateities įžvalgų scenarijai ir jų analizė šiame tyrime yra tai, nuo ko atsispiriama pradedant kurti vertėjo kompetencijos kaip KAS modelį. Be to, kadangi kuriant konceptualų modelį nėra galimybės jo patikrinti taikant kompiuterines simuliacijas, scenarijai šiame tyrime taip pat veikia kaip „keliai, arba trajektorijos, į kompleksinę adaptyvią sistemą“ (Cilliers, 1998) – šiuo atveju vertėjo kompetenciją. Derinamos kartu, šios prieigos sudaro prielaidas į ateitį ir neapibrėžtumą orientuotai kompetencijos sampratai konceptualizuoti, nes būtent ateičių scenarijai leidžia kuriant modelį įtraukti laiko perspektyvą.

Tyrimo struktūra ir modelio kūrimo logika

Duomenys tyrimui rinkti remiantis kokybine tyrimo prieiga, grindžiama išsamia mokslinės literatūros analize, kurios pagrindu buvo parengtas interviu instrumentas bei kompleksinės teorijos konceptų sistema. Empiriniai duomenys surinkti taikant pusiau struktūruotus ir fokusuotų grupių interviu su tarptautiniais vertimo studijų programų dėstytojais, studentais ir profesionaliais vertėjais. Šie duomenys tapo pagrindu tiek į ateitį orientuotiems vertėjo profesijos scenarijams, tiek nuo jų atsispiriant kurtam vertėjo kompetencijos kaip KAS konceptualiam modeliui, kuris galiausiai buvo įvertintas ir validuotas ekspertų. Duomenys koduoti ir analizuoti taikant teminę analizę (Braun ir Clarke, 2006), derinant indukcinį scenarijų konstravimą su dedukcine analize, be kita ko, naudojantis kompleksiškumo teorijos konceptais.

Vertėjo kompetencijos kaip KAS modelis buvo kuriamas trimis etapais. Pirmiausia, siekiant apimti laiko ir neapibrėžtumo aspektą, buvo kuriami naratyvinių ateities įžvalgų scenarijai; šiame etape ėmė ryškėti kai kurie vertėjo kompetencijos kaip KAS elementai. Antra, buvo atliekama teminė

analizė, kurios metu buvo siekiama identifikuoti esminius tyrimo duomenyse aptinkamus vertėjo kompetencijos elementus. Galiausiai, buvo kuriamas pats modelis: remiantis kompleksiškumo teorijos konceptų sistema, duomenys buvo peržiūrimi iš naujo keletą kartų siekiant suprasti, kaip identifikuoti elementai sąveikauja tarpusavyje, ir kurias KAS savybes galima aptikti tyrimo duomenyse. Paskutinis modelio kūrimo žingsnis buvo susieti viską į vieną bendrą sistemą, kuri leistų vertėjo kompetenciją konceptualizuoti, o galiausiai ir vizualizuoti, kaip dinamišką, nelinijinę, nuolat kintančią sistemą, kurios kompleksiškumas atsiskleidžia per elementų tarpusavio sąveiką.

Validumas šiame tyrime suprantamas kaip lygmens, o ne absoliučios būsenos klausimas (Cohen ir kt., 2007), todėl ypatingas dėmesys skiriamas skaidrumui, trianguliacijai ir ekspertiniam vertinimui. Taikyta dalyvių, duomenų ir erdvės trianguliacija, o siekiant sustiprinti teorinį ir įvertinamąjį validumą (angl. *theoretical and evaluative validity*, Maxwell, 1992), dvi tarptautinių ekspertų grupės įvertino ir validavo tiek scenarijus, tiek konceptualų modelį. Be to, į validavimo procesą šioje disertacijoje žvelgiama iš kokybinių tyrimų perspektyvos, remiantis Mishlerio (1990) požiūriu, kad tradiciniai eksperimentiniu modeliu grįsti validavimo metodai yra ne visada tinkami socialinių mokslų tyrimuose. Pastaruosiuose validumas suprantamas kaip socialiai konstruojamas ir mokslo bendruomenės kolektyviai vertinamas reiškinys. Kadangi šiame tyrime sukurtu vertėjo kompetencijos kaip KAS modeliu nesiekiama kompetencijos matuoti, bet veikiau atskleisti jos kompleksiškumą, validumas tyrime grindžiamas ne formaliais matavimo kriterijais, bet ekspertiniu vertinimu ir kokybinėmis ekspertų refleksijomis. Prieš pradedant empirinį tyrimą, kreiptasi į Vilniaus universiteto Filosofijos fakulteto Atitikties mokslinių tyrimų etikai komitetą, kuris įvertino tyrimą kaip atitinkantį universitete tokiems tyrimams keliamus reikalavimus. Tyrimo dalyviai pildė informuoto sutikimo formas, o surinkti duomenys buvo visiškai anonimizuoti ir tvarkomi laikantis konfidencialumo principų.

Svarbu paminėti atlikto tyrimo ribotumus. Pirma, vertėjo kompetencijos kaip KAS konceptualus modelis yra veikiau tiriamojo, o ne prognostinio pobūdžio, nes tokį modelį patikrinti taikant kompiuterines simuliacijas galimybės nėra. Antra, naratyvinių ateities įžvalgų metodas taikomas selektyviai, nesilaikant viso priežastinių sluoksnių analizės proceso. Galiausiai, tyrimo imties dydis ir geografinė aprėptis – ypač už kitas mažesnė profesionalių vertėjų imtis – gali riboti rezultatų apibendrinamumą, nes tyrime labiau siekta užtikrinti požiūrių įvairovę.

Disertacijos autorė laikėsi refleksyvios, kompleksiškumo teorija grįstos pozicijos, pripažindama, kad tyrėjas neišvengiamai yra modeliuojamos sistemos dalis. Remiantis Byrne ir Callaghan (2014), kompleksiškumo

tyrimuose pripažįstamas dalinis ir kartu emergentiškas pažinimas, todėl siekiant išvengti pernelyg supaprastintų interpretacijų ir išlaikyti analitinį nuoseklumą konsultuotasi su ekspertais bei naudotasi jų refleksija. Be to, būtent šiuo tikslu pagrindiniai tyrimo rezultatai – keturi vertėjo profesijos naratyvinių ateities įžvalgų scenarijai ir konceptualus vertėjo kompetencijos kaip KAS modelis – buvo vertinami ir validuojami tarptautinių ekspertų.

Tyrimo radiniai

Naratyvinių ateities įžvalgų scenarijai. Žvilgsnis į tyrimo dalyvių įsivaizduojamas vertėjo profesijos ateitis buvo pirminė prielaida vertėjo kompetencijos kaip KAS modeliui sukurti. Taikant indukcinę analizę, sukodavus duomenis MaxQDA Analytics Pro (versija 24.3.0) programa ir sugrupavus juos į temines grupes, sudaryta *ateičių lentelė* (angl. *futures table*) (Seppälä, 2013; Zwicky, 1967), taikoma scenarijų kūrimui įvairiose ateičių studijose. Ši lentelė naudojama siekiant sistemiškai modeliuoti skirtingas ateities perspektyvas, remiantis įvairiais kokybiniais elementais ir jų „būsenomis“. Disertacijos duomenų analizėje naudotos lentelės pagrindą sudarė šie pagrindiniai elementai: kalbinė įvairovė, komunikacijos poreikis, literatūros ir tekstinės kultūros poreikis, technologinė pažanga, žmogaus indėlio svarba ir etikos standartai. Remiantis šia lentele vėliau parengti keturi scenarijai. Svarbu paminėti, kad jie nebuvo skirti konkrečioms ateitims prognozuoti, bet veikiau skirtingų ateičių trajektorijoms tyrinėti (Inayatullah, 1998, 2019).

Scenarijai apima skirtingas galimas ateities kryptis: nuo ateities, kurioje aukštos kvalifikacijos vertėjai-žmonės išlaiko etinį autoritetą ir dirba kartu su DI (S1), iki labiau politizuotų ir technologijomis grindžiamų scenarijų, kur vertėjo darbą vis sunkiau atskirti nuo technologijų ir vertėjas prilyginamas mediatoriui (S2) ar turinio inžinieriui (S3), ir galiausiai iki kraštutinių utopinių ir net distopinių ateities vizijų, kuriose vertimas gali visiškai išnykti (S4). Šiose naratyvinėse ateities įžvalgose pabrėžiamas žmogaus ir technologijų santykis bei kintanti vertėjo ekspertinių žinių reikšmė neapibrėžtuose kontekstuose.

Devyni tarptautiniai ekspertai įvertino scenarijus pagal aktualumo, tikėtinumo, nuoseklumo, išsamumo ir poveikio kriterijus (Van der Heijden, 2004). Apskritai scenarijai įvardyti kaip aktualūs ir reikšmingi šiuolaikiniam vertėjų rengimui, net jei jų tikėtinumas buvo vertintas prieštaringai. Ekspertai pažymėjo, kad „turime mąstyti apie ateitį, nors niekada nežinome, kas įvyks“ (E3(SC)), ir kad tokios refleksijos tikrai turi įtakos studijų programų sprendimams. S3 scenarijus buvo įvertintas kaip turintis didelį poveikį vertėjų

rengimui ir, ekspertų požiūriu, vienas išsamiausių, o S4 laikytas mažiausiai tikėtinu, tačiau skatinančiu ypač kritiškai mąstyti apie vertėjų rengimo aukštajame moksle kontekstą. Čia ekspertų nuomonės išsiskyrė: keletas jų paatviravo, kad negalėtų rengti studentų ateičiai, galvodami, kad vertėjai nebebus reikalingi; tuo tarpu kiti tokio scenarijaus refleksiją laikė labai vertinga, nes būtent ši ateities trajektorija pabrėžia vertėjų gebėjimą prisitaikyti, poreikį ugdyti perkeliamuosius gebėjimus ir etinį sąmoningumą.

Vertindami scenarijus ekspertai didelį dėmesį skyrė vertėjų vaidmenims DI proveržio kontekste, įvardydami vertėjus kaip mediatorius, technologinių sprendimų ekspertus ir pan. Be to, tiek per interviu renkant duomenis, tiek vėliau kuriant pačius scenarijus, šios naratyvinės įžvalgos buvo traktuojamos kaip refleksijos, padedančios laike ir kontekste pamatyti vertėjo kompetenciją ir jos ugdymą. Kitaip tariant, šie scenarijai suteikė laiko ir konteksto perspektyvą vertėjo kompetencijai konceptualizuoti kaip dinamiškam, nelinijiniam reiškiniui, kuris formuojasi ir nuolat kinta neapibrėžtumo sąlygomis. Be to, juos analizuojant pradėtos identifikuoti kompetenciją sudarančios sudedamosios dalys bei jų sąveika – esminės prielaidos kompleksiškumo teorija grįsto vertėjo kompetencijos modelio kūrimui.

Vertėjo kompetencijos elementų identifikavimas. Šiame analizės etape, remiantis kompleksiškumo teorija grindžiama prieiga ir taikant teminę analizę, buvo ieškoma svarbiausių vertėjo kompetencijos kaip KAS elementų. Tam interviu duomenys buvo susisteminti pagal pagrindines kategorijas: vertimo ir vertėjo sampratos, vertėjo kompetencija praeityje, dabartyje ir ateityje, technologijų poveikis vertėjų darbui bei vertėjų rengimo pokyčiai.

Vertimas. Tyrimo dalyviai pateikė įvairių vertimo sampratų. Tarp profesionalių ilgametę patirtį turinčių literatūros vertėjų vertimas aiškintas metaforiškai – kaip „tilto tarp dviejų pasaulių statymas“ (T3), kaip empatija grįsta veikla, leidžianti „įsiskverbti į kito mintis ir pajusti [jas] per tekstą“ (T4). Kiti vertimą apibrėžė pragmatiškiau, pavyzdžiui, kaip „viena kalba išreikštų minčių perteikimą kita kalba“ (T1). Dėstytojai pabrėžė vertimą kaip „tarpkalbinę ir tarpkultūrinę komunikaciją“ (E8) ir teigė, kad jo esmė išlieka net ir tuo atveju, jei „mašina darbą atlieka vietoj žmogaus […], keičiasi tik priemonės, kurios tai įgalina“ (E8).

Vertėjas. Skirtingos vertimo sampratos dažnai lemia ir skirtingą požiūrį į vertėjo sampratą. Tyrimo dalyviai vertėjus konceptualizavo kaip mediatorius, derybininkus, „tarpinėje erdvėje“ veikiančius veikėjus, tačiau kai kurie pažymėjo, kad „iki šiol nėra aiškiai apibrėžta, kas yra vertėjas“ (E10). Technologiniai pokyčiai dar labiau ištrina ribas tarp šių sampratų įvairovės: plačiai paplitęs mašininis vertimas keičia vertėjo vaidmenį, kuris vis dažniau

siejamas su sugeneruoto turinio atrinkimu ir postredagavimu, todėl randasi ir naujų profesinių pakraipų, pavyzdžiui, turinio inžinieriaus (T5). Tuo pat metu srityse, kuriose būtinas tikslumas ir didelė atsakomybė, vis dar išlieka stiprus aukštos kvalifikacijos profesionalių vertėjų poreikis (E7).

Vertėjo kompetencija praeityje, dabartyje ir ateityje. Tyrimo dalyviai pabrėžė kintantį vertėjo kompetencijos pobūdį. Istoriškai vertėjai dažnai veikė kaip įvairias kalbas ir kultūras išmanantys tarpininkai įvairiose srityse (E10), o šiandien vertėjo kompetencija dažnai apibrėžiama remiantis įvairiais kompetencijos modeliais, tarp kurių vienas populiariausių – Europos vertimo magistro vertėjo kompetencijų sistema (angl. *European Master's in Translation Translator (EMT) Competence Framework*). Daugelis dalyvių akcentavo, kad vertėjo kompetencijos sudedamosios dalys yra neatskiriamos vienos nuo kitų – jos yra „taip glaudžiai susipynusios, kad jų iš tikrųjų neįmanoma atskirti" (E1–E9). Be to, kalba ir kultūra laikomos „pamatų pamatu" (E8), o vertimo kompetencija – „visko, kas atliekama verčiant, pagrindu" (E1). Technologinė kompetencija taip pat tapusi itin svarbi, nes ji reikalauja gebėjimo prisitaikyti, kritiškai naudoti technologinius įrankius ir bendradarbiauti (E3, E4). Tyrime dalyvavę studentai pabrėžė būtinybę visose kompetencijų srityse išlaikyti žmogiškąjį aspektą (angl. *human-in-the-loop*) (ST2). Visi dalyviai pripažino technologijų poveikį vertėjo profesijai, tačiau skirtingai vertino jų pasekmes. Vieni teigė, kad esminės kompetencijos išliks, nes vertimo kaip komunikacijos esmė nekinta (E8), tuo tarpu kiti prognozavo reikšmingus pokyčius, susijusius su tokiais aspektais kaip kūrybiškumas, rizikos valdymas, kokybės užtikrinimas ir technologinis raštingumas (E2, E4, E10). Apibendrinant galima teigti, kad ateities vertėjai gali tapti „ypač svarbiais kalbos konsultantais", kurie bus atsakingi už technologijų vertinimą ir didesnių vertimo apimčių valdymą (E2).

Technologijų poveikis. Technologijos leidžia vertimą atlikti greičiau ir didesniais kiekiais, tačiau kartu, kaip pažymi dalyviai, „nuvertina ir nupigina" vertėjų darbą bei didina profesinį nerimą (E8, E9). Dėl sparčiai besivystančių technologijų žmogaus atliekamas vertimas vis labiau sutelkiamas į specializuotas sritis, o tai kelia etikos, kokybės ir jų reguliavimo klausimus. Visuomenėje vyraujantis naratyvas, kad DI jau visai netrukus pakeis vertėjus, daro įtaką vertėjo profesinei tapatybei bei stojančiųjų pasirinkimui renkantis studijas, nors daugelis tyrimo dalyvių pabrėžė, kad technologijų reikėtų ne bijoti, o išmokti jas efektyviai išnaudoti.

Vertėjų rengimo pokyčiai. Vertėjų duomenyse išryškėję pokyčiai individualiu, studijų programų, instituciniu ir visuomeniniu (arba profesijos) lygmenimis. Individualiu lygmeniu išryškėjo įtampa tarp pamatinių vertimo gebėjimų ugdymo ir pernelyg ankstyvo studentų noro naudotis mašininio

vertimo programomis. Kyla poreikis dėstytojams padėti studentams mokytis „gerai valdyti“ technologinius įrankius, kad studentai netaptų nuo jų priklausomi (ST2). Studijų programose vis dažniau integruojami moduliai ar temos, siejamos su technologijomis, rizikos valdymu ir kritiniu jų vertinimu, tačiau aukštojo mokslo institucijoms sudėtinga suspėti su sparčiais technologiniais pokyčiais (E3, E6). Svarbu paminėti ir tai, kad vertėjų rengimas yra labai tarpdisciplininiškas („nors pati profesija gali atrodyti siaura, studijos suteikia platų komunikacinių gebėjimų spektrą“ (E9)) ir orientuotas į mokymąsi visą gyvenimą, o tai atitinkamai lemia ir vertėjo kompetencijos, kaip viena disciplina neapsiribojančio ir visą gyvenimą trunkančio proceso, sampratą. Galiausiai, tyrimo dalyviai pabrėžė būtinybę kvestionuoti pesimistinius naratyvus apie vertėjo profesijos ateitį ir galimą jos išnykimą, o vertėjo kompetenciją suvokti kaip kintantį, kontekstinį ir platesnėse sociotechnologinėse sistemose įsišaknijusį reiškinį.

Apibendrinant reikėtų paminėti, kad atlikus šią tyrimo duomenų analizės dalį išskirti šie vertėjo kompetencijos kaip KAS elementai: asmeninė ir tarpasmeninė kompetencija, asmeninės nuostatos, ekonominiai veiksniai, etika, kitos kompetencijos, kultūrinė ir kalbinė įvairovė, kultūrinė ir kalbinė kompetencija, nuovoka, paslaugų teikimo kompetencija, rizika, sociopolitiniai veiksniai, technologinė kompetencija, ugdymas, komunikacija, vertėjas, vertėjo darbas, vertimas, vertimo kompetencija, vertimo paslaugų rinka, technologijos, žmogaus dalyvavimas.

Konceptualus modelis. Vertėjo kompetencijos kaip KAS modelis kurtas remiantis kompleksiškumo teorijos konceptų sistema, sudaryta remiantis mokslinės literatūros analize bei iteratyviai taikant indukcinę ir dedukcinę teminę analizę interviu duomenims tirti. Buvo išskirta dešimt tarpusavyje susijusių KAS savybių: jautrumas pradinėms sąlygoms (angl. *sensitivity to initial conditions*), sistemos elementai ir jų tarpusavio sąveika (angl. *constituent elements and their interactions*), paralelinė sąveika (angl. *parallel interaction*), decentralizuota kontrolė (angl. *decentralised control*), sistemos lygmenys (angl. *system levels*), saviorganizacija (angl. *self-organisation*), emergentiškumas, arba naujos tvarkos atsiradimas (angl. *emergence*), nelinijiškumas (angl. *non-linearity*), grįžtamojo ryšio kilpos (angl. *feedback loops*) ir adaptacija bei evoliucija (angl. *adaptation and evolution*). Remiantis duomenų analize, pradinės sąlygos – tokios kaip studentų kalbinė kompetencija, kultūrinės žinios ar dalyko išmanymas – stipriai veikia kompetencijos ugdymo(si) trajektorijas („kalba ir kultūra – tai pagrindų pagrindas […], jei to neturi, net negalėsime pradėti [studijų]“ (E3)). Tyrimo dalyvių požiūriu, svarbi kompetencijos ugdymo seka („negalima pradėti

mokyti abėcėlės nuo raidės M“ (E7)), vertimo studijų literatūroje įvardijama kaip mokymosi nuoseklumas (angl. *sequencing*, Kelly, 2005). Kita vertus, kompetencijos ugdymo numatyti vien remiantis pradinėmis sąlygomis neįmanoma, nes ji ugdoma per nuolatinę ją sudarančių elementų sąveiką (Morrison, 2008).

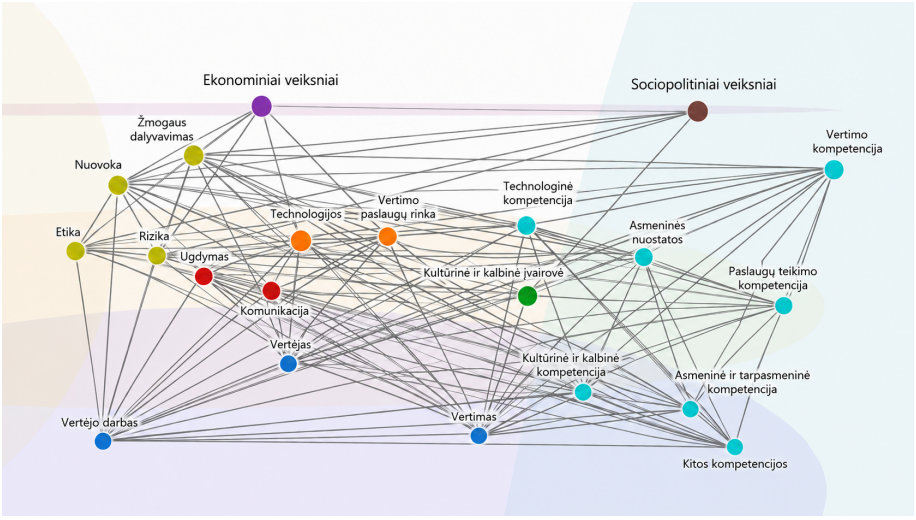
Kalbant apie kompetencijos sudedamąsias dalis, vertėjo kompetencija apima ne tik EMT apibrėžtus aspektus, bet ir kontekstinius bei nuostatas apimančius elementus, tokius kaip etika, rizika, vertimo rinka, sociopolitiniai, ekonominiai veiksniai ir pan., – kurių tarpusavio sąveika yra labai svarbi visai vertėjo kompetencijai. Tyrimo dalyviai nuolat pabrėžė šį kompetencijos elementų susipynimą ir neatskiriamumą (E1–E9). Be to, kompetencijos sudedamųjų dalių sąveikos vyksta paraleliai skirtinguose kontekstuose, susiedamos, pavyzdžiui, technologijas, vertimo rinką ir ekonomiką arba atitinkamai kultūrą, komunikaciją ir politiką. Nors technologijų ar kultūros elementus įprasta traktuoti kaip neatsiejamus nuo vertėjo kompetencijos, kontekstualūs veiksniai, tokie kaip ekonomikos ar politiniai faktoriai – taigi ir jų išmanymas, – įprastuose kompetencijos modeliuose nėra laikomi vertėjo kompetencijos dalimi.

Konceptualiame modelyje nėra vieno centrinio elemento, kuris kontroliuotų visą kompetencijos sistemą. Priešingai, remiantis duomenų analize galima daryti prielaidą, kad vertėjo kompetencija vystosi decentralizuotai, sistemos elementams paraleliai sąveikaujant tarpusavyje skirtingais lygmenimis, atliepdama mokslinėje literatūroje įvardijamą kompleksinių sistemų dinamiką (Davis ir Sumara, 2006). Šiuo požiūriu technologijų elementas tėra „priemonė […], o ne kažkas, kam vertėjai turėtų paklusti“ (ST2), taigi toks „decentralizuojantis“ požiūris į vertimo technologijas iš esmės keičia ir požiūrį į vertėjo santykį su technologijomis bei tai, kaip toks santykis galėtų būti ugdomas studijų programose.

Saviorganizacija ir emergentiškumas, arba naujos tvarkos atsiradimas, yra vieni svarbiausių šio konceptualaus modelio bruožų. Veikiama profesinės praktikos ir kintančių kontekstų vertėjo kompetencija nuolat persitvarko ir tai sunku numatyti bei apibrėžti iš anksto. Pasak tyrimo dalyvių, vertėjai vis dažniau imasi skirtingų užduočių – redagavimo, lokalizacijos, konsultavimo, turinio kūrimo ir pan. – t. y. realybėje vertėjo profesija nuolat persitvarko ir atitinkamai veikia naujai iškylančias vertėjo profesines tapatybes, tarp kurių viena ryškiausių – slinktis „kalbos profesionalų“ sampratos link (E3). Be to, emergentiškas kompetencijos pobūdis reiškia, kad ji visiškai atsiskleidžia tik konkrečioje veikloje ir negali būti suredukuota į atskirus iš anksto numatytus tai veiklai reikalingus įgūdžius (Morrison, 2008).

Kompetencijos ugdymui taip pat būdingas nelinijiškumas: tam tikri pokyčiai, pavyzdžiui, technologijų proveržis, gali reikšmingai keisti profesinius vaidmenis ir vertėjų rengimo studijų programose trajektorijas. Tačiau tuo pat metu sistemoje veikia grįžtamojo ryšio kilpos, sujungiančios, pavyzdžiui, technologijas, mokymą(si) ir profesinę tapatybę: spartus vertimo įrankių tobulėjimas verčia studijų programas daugiau dėmesio skirti prisitaikymui ir gebėjimui mokytis iš naujo apibrėžti save kaip profesijos atstovą (E3). Todėl adaptacija tampa viena esminių kompetencijos savybių: kompetencija suprantama kaip nuolatinis „tapsmo vertėju“ procesas, be kita ko, apimantis vertėjo gebėjimą reaguoti į kintančius aplinkos kontekstus bei permąstyti savo profesinius vaidmenis.

Šioje disertacijoje vertėjo kompetencijos konceptualų modelį sudaro ne tik kompetencijos elementų, jų sąveikos ir KAS savybių aprašymas. Vertėjo kompetencijos konceptualizavimas čia yra ir tam tikras, Maxwello (1992) žodžiais, mentalinis konstruktas, kurio vizualizacija padeda geriau suprasti vertėjo kompetencijos komplesiškumą ir nuolatinę jos dinamiką. 1 paveiksle pateikiamas konceptualaus modelio vizualizacijos fragmentas; pati vizualizacija yra keturmatė, nuolat judanti ir nepastovi, tad ją pamatyti galima sekant šia nuoroda: https://karolinalevanaite.github.io/cas-competence-model/.



1 paveikslas. Vertėjo kompetencijos kaip KAS modelio vizualizacija

Viena vertus, šios vizualizacijos tikslas – „įkūnyti“ šioje disertacijoje sukurtą konceptą, kuris iš esmės atskleistų vertėjo kompetencijos kompleksiškumą, nuolatinį nelinijinį judėjimą, decentralizaciją ir kitas savybes. Kita vertus, šioje vizualizacijoje neįvesta laiko dimensija, o ji yra

vienas iš esminių tokios sistemos aspektų. Tuo tikslu sukurtos dar keturios ateities scenarijus atitinkančios vizualizacijos*, kuriomis siekiama iliustruoti, kaip toks modelis atrodytų įvedus laiko matmenį. Be to, čia taip pat siekiama parodyti, kad modelio – tiksliau, vertėjo kompetencijos, kuri juo modeliuojama – vystymasis nėra iš anksto nulemtas ir gali turėti daug skirtingų trajektorijų, priklausomai nuo to, kaip keičiasi jo elementai ir jų tarpusavio sąveika. Nors iš šio tyrimo duomenų parengti iš viso keturi scenarijai, tokių ateičių ir scenarijų gali būti nesuskaičiuojama galybė – taigi, šitaip siekiama parodyti, kaip modelyje integruojamas neapibrėžtumo aspektas.

Konceptualus vertėjo kompetencijos kaip KAS modelis buvo įvertintas ir validuotas septynių tarptautinių ekspertų. Atsižvelgdami į tokius kriterijus kaip atitiktis realybei, apibendrinamumas, koncepto aiškinamoji galia ir indėlis į teoriją (Patton, 2002; Holland, 2006; Jacobson ir kt., 2016), ekspertai modelį įvertino palankiai, pažymėdami, kad kompleksiškumo teorija „panašu, kad kur kas geriau atspindinti tai, kas iš tikrųjų vyksta ugdant kompetenciją“ (E1(CAS)). Ekspertai pabrėžė modelio lankstumą ir teorinę reikšmę, apibūdindami jį kaip „taikliai visa apimantį požiūrį“ ir „reikšmingą žingsnį į priekį“, palyginti su statiškais modeliais (E4(CAS)). Ekspertai taip pat pasiūlė patikslinti, kas kompetencijos kontekste vyksta su tam tikrais aspektais, pavyzdžiui, rizika, žmogiškuoju aspektu technologijų kontekste, bei aiškiau išryškinti laiko dimensiją.

Taigi, sukurtas modelis vertėjo kompetenciją konceptualizuoja kaip atvirą, adaptyvią ir emergentišką sistemą, kurios dinamikai reikšmingiausia yra sąveika tarp skirtingų jos elementų, juos supantys kontekstai ir laiko dimensija. Priešingai nei dabartiniai modeliai, kuriais siekiama nusakyti iš anksto apibrėžtus mokymo(si) rezultatus, šis modelis turėtų būti suprantamas konceptualiu pagrindu (angl. *proof-of-concept*) kompetencijos ugdymui neapibrėžtose, technologijų veikiamose aplinkose suprasti bei sudaryti prielaidas tolesniems kompiuteriniu modeliavimu grįstiems tyrimams.

* Animuotos vertėjo kompetencijos kaip KAS modelio su ateities scenarijais vizualizacijos (anglų k.):
https://karolinalevanaite.github.io/cas_model_S1/;
https://karolinalevanaite.github.io/cas_model_S2/;
https://karolinalevanaite.github.io/cas_model_S3/;
https://karolinalevanaite.github.io/cas_model_S4/.

Disertacijos diskusija vedama apibendrinant penkias analizės metu išryškėjusias pagrindines temas: atotrūkį tarp teorijos ir praktikos, poslinkį nuo daugiakomponentiškumo link kompleksiškumo, kompetencijos ugdymo dimensijos svarbą, poreikį iš naujo permąstyti vertimą ir vertėjo vaidmenį bei ontologinį posūkį vertimo studijose ir aukštajame moksle.

Atotrūkis tarp teorijos ir praktikos. Mokslinėje literatūroje ir politikos dokumentuose kompetencija dažniausiai apibrėžiama kaip daugiakomponentė sąvoka, apimanti žinias, įgūdžius ir nuostatas, tačiau terminijos vartosena išlieka nenuosekli, o „kompetencijos“ terminas dažnai vartojamas sinonimiškai su „įgūdžių“ terminu. Empiriniai tyrimo rezultatai atskleidė atotrūkį tarp tokių apibrėžčių ir praktikos, ypač kompetencijos ateities ir neapibrėžtumo kontekste. Viena vertus, vertėjo kompetencijos ugdymas didele dalimi priklauso nuo pradinių sąlygų – kalbinių, kultūrinių ar dalykinių žinių (E3, E5, E7, E8), tačiau jos vystymosi trajektorijos nėra vienodos, nes jas lemia skirtingos studentų patirtys ir kontekstai. Tyrimas taip pat parodė, kad vertėjo kompetencija yra glaudžiai susijusi su socialiniais, technologiniais ir ekonominiais kontekstais. Dalyviai pabrėžė, kad vertimas formuojasi praktikoje ir yra susijęs su platesnėmis komunikacijos problemomis visuomenėje (E3), todėl vertėjo kompetencija globaliame pasaulyje įgyja vis didesnę reikšmę (E5, E10). Be to, vertėjo kompetencijos ugdymą lemia ne vien technologiniai pokyčiai. Tyrimo dalyviai atkreipė dėmesį į įvairius kitus veiksnius – kultūrinius pokyčius, informacijos gausą, etikos klausimus ir pan. (E10, T3, ST2). Galiausiai kompetencija pasireiškia per įvairias profesines veiklas už tradicinio vertimo ribų, pavyzdžiui, redagavimą, lokalizavimą ar konsultavimą (E2, E3, E5), todėl vertėjo kompetencija vis labiau siejama su gebėjimu prisitaikyti prie kintančių profesinių vaidmenų ir kontekstų (E3, E9, T1). Taigi, KAS perspektyva rodo, kad vertėjo kompetencija yra gerokai kompleksiškesnė nei konceptualizuojama įprastuose modeliuose. Be to, kompetencija yra neatsiejama nuo įvairių kontekstų, t. y. pasaulyje, kuriame viskas tarpusavyje glaudžiai susipynę ir vis labiau neatsiejama, net ir nedideli pokyčiai gali vienu metu paveikti kelis sistemos lygmenis: „pokytis viename komponente gali paveikti beveik bet kurį kitą komponentą“ (Heylighen ir kt., 2007, p. 117). Todėl konceptualizuodami vertėjo kompetenciją drauge su visais ją veikiančiais veiksniais iš esmės turime permąstyti jos ugdymą aukštojo mokslo studijų programose.

Poslinkis nuo daugiakomponentiškumo link kompleksiškumo. Tyrimo duomenys parodė, kad vertėjo kompetencijos kaip KAS konceptualizavimas išplečia kompetencijos sampratą dviem aspektais: į ją įtraukiami elementai,

kurie tradiciškai nėra laikomi kompetencijos dalimi, ir pabrėžiamos jų tarpusavio sąveikos. Nors vertimo studijose ilgą laiką dominuoja daugiakomponenčiai kompetencijos modeliai, kuriuos sudaro labai įvairūs elementai, tarp tyrimo metu išskirto dvidešimt vieno kompetenciją apimančio elemento – ne tik įprastos kalbinės ar technologinės kompetencijos, bet ir platesni kontekstiniai veiksniai, tokie kaip socioekonominė aplinka, technologijos ar rinkos pokyčiai. Empiriniai duomenys rodo, kad šie elementai yra glaudžiai susiję su vertėjo kompetencija, o jų išmanymas netgi gali būti konceptualizuojami kaip jos dalis. Todėl vertėjo kompetenciją sudarančių elementų sąrašui vis ilgėjant, ypač svarbu atkreipti dėmesį į šių elementų tarpusavio priklausomybę ir sąveikas. Būtent šis perėjimas nuo daugiakomponentiškumo prie kompleksiškumo laikomas vienu pagrindinių siūlomo modelio indėlių į teoriją – tai taip pat patvirtino ekspertai (E2(CAS), E4(CAS), E5(CAS), E6(CAS), E7(CAS)). Be to, tyrimas parodė, kad vertėjo kompetenciją formuoja ir platesni socialiniai, politiniai bei ekonominiai kontekstai, kurie tradiciniuose kompetencijos modeliuose dažnai lieka nepakankamai įvertinti. Todėl kompetencija galėtų būti suprantama ne tik kaip atskirų gebėjimų visuma, bet kaip dinamiška sistema, kurios elementai nuolat sąveikauja tarpusavyje bei su juos supančiu kontekstu, kurį, be kita ko, ne visada galima aiškiai apibrėžti.

Kompetencijos ugdymo dimensijos svarba. Duomenų analizė atskleidė svarbų skirtumą tarp to, kaip konceptualizuojama pati vertėjo kompetencija ir kaip konceptualizuojamas jos ugdymas. Kompleksiškumo teorijos požiūriu, kompetencija ir jos ugdymas – nuolat kintantis procesas, o tai pripažinti ypač svarbu VUCA pasaulio kontekste, kuriame kaita yra viena esminių profesinės veiklos sąlygų. Tyrimo dalyviai pabrėžė nuolatinį poreikį tobulinti vertėjo kompetenciją (E5, E7, E8, ST1, T1), o vienas jų apibūdino ją kaip tęstinį procesą ar *kontinuumą* (E6). Tačiau įprastiniuose vertėjo kompetencijos modeliuose dažniausiai konceptualizuojama kompetencija, o jos ugdymas suprantamas kaip atskiras procesas. Šiuo disertacijos tyrimu galima įžvelgti, kad kompetencija ir jos ugdymas yra neatsiejami, t. y. vertėjo kompetencija – tarsi koks atskiras konstruktas – neegzistuoja atskirai nuo jos ugdymo. Be to, tarp dalyvių būta pastebėjusių, kad kompetencijos ugdymas dažnai suprantamas kaip atskirų jos komponentų, dažniausiai kalbinių įgūdžių, tobulinimas, o tai dar kartą patvirtina tendenciją skaidyti kompetenciją į pavienius įgūdžius, nors profesinėje praktikoje ji visuomet vystosi kaip visuma. Dalyviai pabrėžė, kad vertėjo kompetencijos ugdymas reikalauja nuolatinio savarankiško darbo, nes „jei kasdien nedirbsite savarankiškai, jos [vertėjo kompetencijos] neišvystysite“ (E9). Ekspertai taip pat akcentavo kompetencijos dinamiškumą. Vienas jų pažymėjo, kad kompetencija nėra

galutinis tikslas, kurį pasiekus procesas baigiasi, nes ji „nuolat evoliucionuoja, yra dinamiška“ (E4(CAS)). Todėl vertėjo kompetencija turėtų būti suvokiama kaip nuolat besivystantis ir tarpusavio sąveikomis grindžiamas procesas, o ne kaip iš anksto apibrėžtų gebėjimų rinkinys.

Poreikis iš naujo permąstyti vertimą ir vertėjo vaidmenį. Tradicinių daugiakomponenčių kompetencijos modelių epicentre dažnai atsiduria *performatyvumas* – gebėjimas taikyti žinias, įgūdžius ir nuostatas praktikoje. Tačiau tyrimo dalyviai pabrėžė, kad nuolat kintančiame pasaulyje vertėjai susiduria su vis įvairesnėmis užduotimis, todėl keičiasi ir paties vertėjo vaidmens samprata (E2, E3, E10). Tai reiškia, kad šiandien kompetentingas vertėjas turi gebėti nuolat iš naujo apibrėžti savo profesinį vaidmenį ir prisitaikyti prie naujų vertimo praktikų bei technologinių sąlygų. Alternatyvių ateities scenarijų analizė taip pat parodė skirtingas galimas vertėjo profesijos trajektorijas. Vienuose scenarijuose pabrėžiama žmogaus vaidmens svarba daugialypėje ir DI grįsto vertimo aplinkoje, akcentuojant tokias kompetencijas kaip etika, rizikos valdymas ir daugiakalbystė (E2, E4, E10). Kituose scenarijuose numatomas didesnis technologijų vaidmuo ir naujos profesinės kryptys, pavyzdžiui, turinio inžinerija ar kalbinė mediacija (E3, E5), o kraštutiniai scenarijai kelia klausimą apie pačios vertėjo profesijos transformaciją ateityje. Tyrimo rezultatai rodo, kad šiandien vis dar vyrauja gana instrumentinis požiūris į vertėją kaip specialistą, atliekantį konkrečias į rinkos poreikius orientuotas užduotis. Tačiau tyrimo dalyviai pabrėžė, kad vertėjams vis svarbiau gebėti prisitaikyti ir nuolat atnaujinti savo profesinę tapatybę (E2, E3, E9). Todėl disertacijoje siūlomas vertėjo kompetencijos modelis atskleidžia ją tinkamiau VUCA realybę atliepiančiu būdu, parodydamas jos nuolatinį kismą besikeičiančiuose socialiniuose ir technologiniuose kontekstuose.

Ontologinis posūkis vertimo studijose ir aukštajame moksle. Ontologinė perspektyva ypač svarbi sprendžiant kai kurias šiuolaikinio aukštojo mokslo problemas, pavyzdžiui, žinių dekontekstualizavimą bei pernelyg didelį dėmesį epistemologijai, nepakankamai įvertinant ontologinę plotmę (Dall’Alba ir Barnacle, 2007). Vertėjo kompetencijos kaip KAS konceptualizavimas galėtų prisidėti prie disertacijos pradžioje minėto ontologinio posūkio aukštajame moksle, nes juo bandoma aprėpti ir tuos kompetencijos sampratos aspektus, kurie įprastuose epistemologija grįstuose modeliuose lieka neišreikšti ar nėra aiškiai įvardyti, pavyzdžiui, technologinės ateities įžvalgos (angl. *technological foresight*) ar saviaktualizacija (angl. *self-actualisation*). Šie ir panašūs vertėjo kompetencijos aspektai kartais aptariami su vertimo studijų programų studentais, tačiau dažniausiai priklauso nuo dėstytojų iniciatyvos, nes nėra įvardyti oficialiose studijų programose. Iš

dalies taip gali būti dėl to, kad šiuo metu studijų programos sudaromos vadovaujantis reprezentatyvumu ir epistemologiniu požiūriu grįstais vertėjo kompetencijos modeliais, kurie tokių ontologinių ypatumų neaprėpia. Todėl siekis išryškinti tuos vertėjo kompetencijos elementus, kurie yra numanomi (angl. *implicit*), gali prisidėti prie studijų programų tobulinimo, ypač kalbant apie kompetencijų ugdymą neapibrėžtumo kontekste. Viena vertus, neapibrėžtumą tiesiogiai „pavaizduoti“ tokiuose modeliuose vargiai įmanoma, kita vertus, modeliuojant kompetencijos kompleksiškumą galima atskleisti, kad neapibrėžtumas iš tiesų yra neatskiriama kompetencijos savybė.

Ekspertų vertinimai rodo, kad vertėjo kompetencijos kaip KAS modelis atitinka šiuolaikinę vertėjo profesijos dinamiką ir apima įvairius kompetencijos aspektus. Daugiasluoksnė modelio struktūra leidžia geriau suprasti kompetencijos vystymosi kontekstą – tiek vidinius (asmeninius), tiek išorinius (socialinius, profesinius) veiksnius. Todėl šis modelis gali būti naudingas kuriant universitetines studijų programas ir skatinant visuminį požiūrį į vertėjų rengimą, atsižvelgiant į sparčiai kintančias profesines veiklas. Be to, modelis atskleidžia vertėjo profesijos sudėtingumą ir daugialypiškumą, kuris dažnai visuomenėje yra nuvertinamas. Vertėjo darbas neretai laikomas amatu, tačiau iš tikrųjų jis reikalauja plataus žinių, gebėjimų ir nuostatų spektro, kontekstualios nuovokos, asmeninio ir profesinio reflektyvumo bei adaptyvumo.

Nors šiame tyrime sukurtu konceptualiu KAS modeliu siekiama išryškinti vertėjo kompetencijos kompleksiškumą, tuo pat metu pripažįstama, kad kompleksinių reiškinių neįmanoma iki galo paaiškinti ar suredukuoti į vieną modelį. Remiantis kompleksiškumo teorija ugdymo mokslų tyrimuose nesiekiama pateikti užtikrintų galutinių atsakymų, tačiau ji padeda kelti kitokius pamatinius klausimus, todėl šioje disertacijoje atsisakoma preskriptyvių rekomendacijų ar universalių sprendimų vertėjų rengimui aukštajame moksle. Konceptualiu modeliu siūlomi nauji būdai mąstyti apie vertėjo kompetenciją neapibrėžtumo sąlygomis, tačiau kartu pripažįstama, kad šis vertėjo kompetencijos konceptualizavimas visuomet išliks atviras, kintantis ir kels naujus klausimus.

Disertacijos diskusija baigiama pabrėžiant, kad aukštajame moksle dažnai nepakankamai įvertinamas kontekstinis pažinimas (angl. *situated knowing*), todėl siūloma vertėjo kompetenciją – ir kompetenciją plačiąja prasme – suvokti ne tik kaip intelektinį ar veiklos rezultatų matą, bet kaip tapsmo procesą ir egzistavimo būdą, susijusį su asmeniniu, socialiniu, istoriniu ir kultūriniu kontekstu – tai yra požiūris, kuris iš esmės gali padėti transformuoti aukštąjį mokslą neapibrėžtumo eroje.

Pirma, politikos dokumentuose ir akademinėje literatūroje kompetencija dažniausiai apibrėžiama kaip performatyvios žinios ir gebėjimai, derinami su darbo rinkos poreikiais. Tačiau aukštojo mokslo vaidmuo neturėtų būti susiaurinamas vien iki ekonominių imperatyvų. KGM sistema Europos aukštojo mokslo erdvėje vis dar remiasi reprezentatyviu požiūriu, kuriuo sunku aprėpti neapibrėžtumą, tačiau VUCA pasaulio keliami iššūkiai pirmiausia yra ontologinio pobūdžio ir susiję su tapatybe, savęs supratimu bei buvimo būdais. Vertimo studijų srityje tokie iššūkiai apima globalizaciją, migraciją, technologinius pokyčius, kintančias komunikacijos praktikas ir platesnius vertybių bei socialinės tikrovės pokyčius.

Antra, technologinis proveržis yra pagrindinis VUCA pasaulio iššūkis, turintis didžiulę įtaką vertimui ir vertėjo kompetencijai, trinantis vertėjo sampratos ribas bei iš esmės keičiantis vertėjo darbą. Žinoma, srityse, kuriose būtinas tikslumas, kūrybiškumas ir etinis vertinimas, žmogaus vaidmens svarba išlieka ryški, tačiau iš esmės ši prieštara išryškina ontologinių nuostatų, tokių kaip gebėjimas prisitaikyti, etinis jautrumas, kritinis mąstymas ir konceptualus atvirumas, svarbą. Todėl aukštojo mokslo institucijoms tenka užduotis padėti studentams suprasti šią žmogiškąją vertėjo profesinės veiklos dimensiją vis labiau technologizuotuose kontekstuose.

Trečia, įprastuose modeliuose vertėjo kompetencija dažnai konceptualizuojama instrumentiškai, daugiausia dėmesio skiriant tam, ką vertėjai žino ir gali daryti, o ne jų kontekstiniam ir santykiniam ugdymuisi. Toks instrumentinis požiūris stiprina visuomenėje besiplečiantį pesimistinį vertėjo profesijos ateities naratyvą, kad technologijos pakeis vertėjus, ir stipriai prisideda prie mažėjančio stojančiųjų į vertimo studijų programas skaičiaus bei studijų programų slinkties link orientavimosi į techninius gebėjimus. Tarp didžiausių iššūkių, kylančių studijuojant vertimo studijų programose, minimi pernelyg didelis studentų pasikliovimas technologijomis, mažėjantis kritinis jų naudojimas bei vertinimas ir didėjantis spaudimas dėstytojams kurti tokias mokymosi aplinkas, kuriose studentai patys konstruotų žinias ir išlaikytų veikimo autonomiją. Besimokantieji turi nuolat iš naujo permąstyti tai, kaip supranta pasaulį ir savo buvimą jame. Todėl siekiant kvestionuoti pesimistinius naratyvus būtina pereiti nuo instrumentinės prie santykinės kompetencijos sampratos.

Ketvirta, viena esminių tyrimo įžvalgų – vertėjo kompetencijos kaip KAS konceptualizavimas perkelia dėmesį nuo kompetencijos daugiakomponentiškumo į jos kompleksiškumą. Nors daugiakomponenčiai modeliai gali būti naudingi apibrėžiant planuojamus studijų programų

absolventų rezultatus, jų galimybės tiek konceptualiai, tiek praktiškai atskleisti kompetencijos dinamiką sparčių pokyčių sąlygomis yra ribotos. Kompetencija realios praktikos kontekstuose, o ypač neapibrėžtuose, formuojasi „iš apačios į viršų“ (angl. *bottom-up*), o reprezentaciniai modeliai ją dažniausiai aiškina „iš viršaus į apačią“ (angl. *top-down*). Politikos dokumentuose ir tyrimuose kompetencija dažnai apibrėžiama išskiriant atskirus jos elementus, o ne suvokiant ją kaip tarpusavio sąveikos persmelktą visumą. Atskleidus kompetencijos kompleksiškumą, atsiranda galimybė ją geriau suprasti kaip ontologinį reiškinį, o ne vien kaip atskirų gebėjimų ar žinių rinkinį.

Penkta, tiek empiriniuose tyrimo duomenyse, tiek iš dalies ir literatūroje pripažįstama, kad vertėjo kompetencija yra kompleksiškas reiškinys, tačiau šis supratimas dažnai lieka tik numanomas. Vertėjo kompetencijos kaip KAS konceptualizavimas leidžia kompleksiškumą paaiškinti taip, kad į jį būtų galima atsižvelgti formuojant švietimo praktiką bei kuriant studijų programas, t. y. integruojant pažinimo, veikimo ir buvimo būdus, o ne vien apsiribojant žinių perdavimu ir atskirų gebėjimų ugdymu. Todėl vertėjų rengimo programose svarbu ugdyti nuostatas, leidžiančias besimokantiesiems atpažinti ir įgyvendinti vertimo situacijas bei tapti reflektyviais savo profesijos atstovais. Vietoje normatyvinių rekomendacijų disertacijos pabaigoje pateikiami orientaciniai klausimai apie vertimo prigimtį VUCA pasaulyje, vertėjo tapatybę, kompetencijos reikšmę neapibrėžtumo kontekste bei aukštojo mokslo vaidmenį ugdant adaptyvius bei atsparius specialistus. Būtent šie klausimai galėtų būti tam tikros gairės vertimo studijų programų rengėjams ir įgyvendintojams.

Tyrimo rezultatai rodo, kad vertėjo kompetencijos kaip KAS modelis leidžia kompetenciją konceptualizuoti taip, kad ji apimtų neapibrėžtumą kaip neatsiejamą kompetencijos savybę. Toks požiūris padeda geriau suprasti kompetencijos vystymąsi ir jos raišką dinamiškuose bei nuolat kintančiuose kontekstuose.

Šios disertacijos tema toliau galėtų būti tiriama integruojant teorinius, kompiuterinio modeliavimo ir empirinius metodus. Kompetencijos kaip KAS konceptualus modelis sudaro prielaidas ateityje kurti kompiuterinius modelius, paremtus kiekybiniais ir ilgalaikių stebėjimų duomenimis, kurie galėtų prisidėti prie studijų programų tobulinimo, spręsti iššūkius, susijusius su mažėjančiu stojančiųjų į vertimo studijų programas skaičiumi, ir keisti pesimistinį naratyvą apie vertėjo profesijos ateitį. Taip pat siūloma išsamiau taikyti naratyvinės ateities įžvalgų ir CLA metodus, siekiant tyrinėti galimus vertėjo profesijos ateities scenarijus. Be to, lyginamieji tyrimai skirtinguose geografiniuose ir instituciniuose kontekstuose taip pat galėtų dar labiau

išplėtoti šią tyrimų kryptį ir padėti geriau suprasti vertėjo kompetencijos ugdymą ateičiai ir neapibrėžtumui.

Disertacija baigiama pastebėjimu, kad iš kompleksiškumo teorijos perspektyvos vertėjų rengimas – kaip ir aukštasis mokslas plačiąja prasme – negali pateikti galutinių sprendimų, nes „nėra galutinių sprendimų, yra tik nuolatinės sąveikos, vedančios prie vis sudėtingesnių sąveikų (ir „sprendimų“)“ (Osberg ir kt., 2008, p. 215). Todėl, tikintis, kad kompetencija galėtų veikti kaip besimokantįjį įgalinantis veiksnys šiandienos VUCA pasaulyje, jos pačios nestabilumas ir neapibrėžtumas taip pat turėtų būti pripažįstami ir vertinami.

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LIST OF PUBLICATIONS

1. Levanaitė, K. (2025). Competence modelling from the perspective of complex systems theories: a systematic literature review. *Pedagogika*, 156(4), 166–187. https://doi.org/10.15823/p.2024.156.8

2. Levanaitė, K. (2025). Translator education for the reality yet to come: translator competence development as a complex system. In P. Šveda, M. Djovčoš, & E. Perez (eds), *Confronting Digital Dilemmas in Translator and Interpreter Training* (pp. 56–76). Routledge. https://doi.org/10.4324/9781003562535-5

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