

Designing a Distance Learning Course in Language Technologies

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Abstract

Rapid development and widespread use of technologies in humanities (e.g. in language acquisition and corpus-based studies) have highlighted the topicality of language technologies skills advancement for linguists. Once being grounded within computer science, language technologies have expanded into humanities and social sciences equipping linguists with digital solutions for automated text analysis, sound processing, analysis of multimedia data and rich visualisations. In addition, contemporary solutions enable flexible distance learning options that the present study addresses for language technologies skills advancement. The goal of the study was to propose a distance learning course "Introduction to Language Technologies" design process and pre-pilot its selected sections. To reach the goal, the exploratory case study was applied as a research method and comprised the existent course content adaptation and administering a questionnaire. The study results reveal that the course content has been adapted successfully and after piloting it to part-time students with limited contact hours, a distance self-paced mode of it will be launched.

Keywords: *Language technologies, distance learning, online learning, digital competence.*

1. Introduction

The topicality of language technologies skills for linguists is determined by the contemporary technologies advancement directions, one of which is their advent across fields. This has led to technologies skills foregrounding in the National Development Plan of Latvia 2021-2027, the Regulations on the National Standard for Academic Education of Latvia, and the Cabinet of Ministers Regulations (Online 1, 2) and defining them as one of the core career aspects. In linguistics, language technologies have been increasingly present in researchers' studies since the last decades of the 20th century. A suggestive example is corpus linguistics research that employs machine readable text corpora and data extraction tools. Crosthwaite et al. (2022:367) argue that 'Corpus linguistics research has featured across a very diverse range of disciplines,

topics and languages and that the selected topics have been shaped by developments both in applied linguistics and in society more generally'. The growing presence of technological solutions in linguistic research calls for language technologies skills advancement. Similarly, the advancement of technologies that involves multimedia and tools for data management is acknowledged by researchers (e.g. Swan, 2020) as preconditions for the scenario enrichment of learning modes in education such as online learning solutions. Another core precondition for online learning acceleration and intensive technologies application discussed by researchers (Sato et al. 2024; Kern, 2021, 2024) is teaching experience gained during the Covid-19 pandemic that pressured the transition to virtual solutions in education. As a result, such non-traditional learning modes as e-learning, mobile learning, and remote education are viewed and discussed as indispensable distinguishing features of contemporary distance learning (Tzafilkou et al. 2021: 7282). Swan (2020:75) labels this many-faceted contemporary learning mode as a 'post-industrial distance education', with this differentiating it 'from distance education of the previous era'. Among its distinguishing features, Swan (2020) discusses the importance of knowledge-centeredness in an online learning environment (i.e. distance learning course) features that distinguish contemporary distance learning realised through online courses. Knowledge-centeredness alongside with well-structured content-centred materials refers to the integration of more diverse media than in traditional learning environment, multiple and more varied activities that would encourage an insightful, in-depth learning and reflection, authentic materials, feedback activities and flexible paths for the revising of course materials and activities. These content delivery features obviously are particularly vital for a fully independent distance learning course. The focus on the content is consistently brought out by Kern (2024). The researcher suggests an in-depth, even critical reflection towards pertinent solutions of technologies skills advancement, so that digital competence aspirations refrain from overshadowing of learning content. These aspects serve the goal of the present study - to design a fully independent distance learning course "Introduction to Language Technologies" which focuses on digital competence advancement of students in humanities and to pre-pilot the selected sections of it.

2. Tertiary Education Context in Latvia: Language Technologies Initiative Project

Focusing on the Latvian context, the Ministry of Education and Science of Latvia has highlighted the need for language technologies module introduction to tertiary education and launched the Language Technologies Initiative project within the framework of the European Union Recovery and Resilience Mechanism and the National Development Plan in 2022. The present research is a part of a larger project, the aim of which was to increase the number of specialists with high-level digital skills by June 2026, implementing the Digital Decade Policy Programme 2030 (Online 4). It is to be achieved by designing language technologies modules

and integrating them into the existing tertiary level programmes in humanities and social sciences of three leading universities in Latvia, i.e. the University of Latvia, Riga Technical University and Riga Stradiņš University. The design process was benchmarked against DigComp 2.2 (Online 3) digital competence framework and validated by the external stakeholders, i.e. the Ministry of Education and Science as well as Latvian Information and Communication Technologies Agency experts. Its results are five language technologies modules integrated into curricula.

Depending on the subject matter of the courses, distance learning mode was offered in some of modules and courses, including the course "Introduction to Language Technologies" provided to the students majoring in English Studies.

3. Methodology

The research method implemented in this study is an exploratory case study (Stake, 2005; Yin, 2003). The particularity of the case lies in uncovering the language technologies subject matter, aligning it with digital competence areas of DigComp 2.2 (Online 3), verifying it with the external stakeholders, adapting the course content for the distance learning version of the course and pre-piloting it to potential target audience. The present research focuses on the last stage, namely, designing the distance learning mode of the course. The research procedure comprised the review of the designed course materials, their adaptation for distance self-study learning mode through changing task types, scaffolding, creating course meta-notes and exit tests. Following this, pre-piloting of selected chapters to three students, namely, Participant 1 (P1), Participant 2 (P2), Participant 3 (P3), was done and a questionnaire following it was administered for further course fine-tuning. The participants were three undergraduate students in humanities, all majoring in English Studies and pursuing three different minor specialisations. This selection ensured a degree of disciplinary diversity, while maintaining relevance to the target audience of the course. The participants were purposefully selected based on several criteria: (1) their academic background in linguistics and related fields; (2) their expressed motivation to develop language technology skills for potential application in their future thesis research; and (3) their availability and willingness to engage with the pre-piloting tasks within the required timeframe. This combination of criteria allowed for the inclusion of participants who were both representative of the intended learner group and sufficiently motivated to provide detailed and reflective feedback on the course design.

This study represents an early-stage pre-piloting phase within a broader course development process. The small sample size ($n = 3$) is a deliberate methodological choice aligned with formative evaluation practices in instructional design, where the goal is to identify usability issues, refine course structure, content accessibility and clarity of instruction (Dörnyei, 2007; Rasinger,

2013). Therefore, the findings should be interpreted as preliminary insights into learner experience and course design effectiveness, with further validation in subsequent large-scale piloting with part-time students. At this stage, in-depth qualitative feedback is prioritised over representativeness. The participants completed a questionnaire, displaying the section on informed consent and eight open-ended questions, the six of which were sub-points (1.1 - 1.6) of Question 1 (see Appendix 1) devoted to in-depth involvement into content to provide detailed suggestions from students' perspective, involving 'greater freedom of expression' (Dornyei, 2007: 107) to implement these suggestions for the second piloting stage, involving part-time students. Question 2 and Question 3 aimed at the summary of the evaluations and suggestions. The compact design of the questionnaire was preferred to avoid 'information overload', as suggested by Rasinger (2013:68). Then the theme-based Content Analysis (CA) of the questionnaire results was performed (according to Croucher and Cronn-Mills, 2022: 156, 157). The participants' responses were arranged in six thematically exclusive categories complying with course section structure (see Table 2): C1: Content explicitness of input materials; C2 Volume of input materials; C3: Clarity of activity instructions; C4: Difficulty level of exit quizzes; C5: Volume of exit quizzes; C6: Correspondence of materials to the outcomes defined in the section introductions. Each category was further arranged in subcategories: positive evaluations (C1.1; C2.1; C 3.1; C 4.1; C5.1. C6.1) and suggestions for improvement (C1.2; C2.2; C 3.2; C 4.2; C5.2.; C6.2). The context of participants' statements was examined to ensure their placement in a relevant category. The further stages of the case study will comprise the full course content piloting to thirty-eight part-time students with limited contact hours in spring 2026, collecting course performance metrics and launching fully self-paced course to a wider audience.

4. Procedure and Results

4.1. Course Structure

The course comprises 3 ECTS (European Credit Transfer and Accumulation System) and consists of eight sections (see Appendix 2). The content was designed, selecting language technologies to cover a wide range of linguistic phenomena and conduct linguistic analysis top-down, i.e. starting with the genre and text analysis and representation using digital tools, followed by syntactic analysis, parts of speech analysis. The course also clarifies the idea of a text corpus, their types, metadata of texts and introduces linguistic data extraction from text corpora hosted by English-Corpora.org, basic descriptive statistics, revealing occurrence of linguistic features, depending on the selected variables, and the application of concordancers for data extraction and visualisation. The course content covers "Information and data literacy" and "Digital content creation" competence areas of DigComp 2.2 (Online 3). The specific competences of each area are shown in Appendix 2.

As seen in Table 1, each section of the course was designed implementing the following structure: an introduction, input activities, step-by-step versatile practice activities, a multiple-choice exit quiz, a summary on the acquired knowledge and skills and suggestions for further practice. It considered the principles of intrinsic motivation, made the relevance of the material explicit and explained why it mattered, included quick-pace small activities, provided frequent feedback and used real-world examples. In order to maintain engagement throughout the course, it stated expectations and learning outcomes at the beginning of each section in the introduction, showed model examples, used simple and direct instructions, enabled multiple attempts to accomplish activities and exit quizzes.

Table 1. Design of course Introduction to Language Technologies sections

Structure	Purpose
Introduction	Expectations and learning outcomes
Input activities	Theoretical background, activating schemata
Step-by-step practice activities	To develop skills and competences for DigComp
Multiple choice exit quiz	Identification of the acquired knowledge and skills
Summary	Summary of the acquired knowledge and skills
Further practice	Activities for the further practice

The structure of each section was homogeneous, which, when shifted to the fully self-paced distant learning mode, will make the process of learning predictable and less stressful for students.

4.2 Pre-piloting

Having adapted the materials for the distance learning mode, the selected sections of the course (1, 2, 3, 5, 7) have been pre-piloted. These particular sections were chosen to represent a range of content types, including theoretical input, tool-based practice, and higher-level analytical tasks, allowing for evaluation of different instructional design components. The CA of participants' feedback was performed as outlined in Methodology.

The participants' statements adhering to thematic category C1.1 reveal their acknowledgement of input material explicitness in the sections. For example, P1 has noted that content 'is generally explicit, understandable, and logically structured'. Participants' feedback shows that they considered input activities appropriately ordered that supports effective covering of them. Moreover, for example, P2 has positively evaluated the presentation manner of the theoretical material by noting that 'even the theoretical material is presented in an interactive way'.

Meanwhile, the statements compiled in C1.2 category uncover the participants' suggestions concerning particular sections (Section 1 and Section 2) that would benefit from the inclusion of more detailed presentation of definitions of terms and section introductions, (e.g., definitions

of digital humanities, data, narrative, explanation of some abbreviations). Other suggestions refer to the expanding of the theoretical input in Section 3 and Section 7 by providing more depth and detail. These participants' insights will serve for the upgrading of the content by complementing theoretical materials in the next version of the course. Thus, participants' feedback contributes to the mentioned course section enrichment with additional self-paced independent study.

Comments referring to the volume of input material (C2.1), uncover participants' acknowledgement of the concise volume, explicit format, and the convenient location of these materials on the same e-course page, thus easing navigation and improving usability. For example, P1 has summarised that 'the volume is appropriate for each section'.

Concerning explicitness of activity instructions (C 3.1), participants consider that they are brief and explicit throughout practice activities at each stage of step-by-step guidance. For example, P2 has noted that 'the requirements to complete the tasks are given clearly and concisely'. Meanwhile, the participants have provided minor suggestions (C3.2) for formatting or other technical improvement in separate cases.

Participants' feedback comments on the difficulty level of quizzes (C4.1) confirm their appropriateness and relevance in the context of the materials participants had covered during their pre-piloting. So, for example, P3 has pointed out that 'the quiz questions are appropriate and relevant'; accordingly, no comments were found that would relate to C 4.2. However, there are detailed comments (C5.2) referring to the volume of exit quizzes. Participants have suggested increasing the number of exit quiz questions to fifteen, and this suggestion has been considered for putting into practice. Their feedback has also revealed that they would prefer not only multiple-choice, but also open-ended questions in exit tests. However, it is impossible to use open-ended questions in a self-paced distance learning mode of the course as feedback options are limited for open-ended questions, so they will be kept in the course version for part-time students. The level of difficulty is generally evaluated as appropriate.

Evaluating the relevance of materials to the outcomes defined in the introductions of sections (C 6.1), the participants have claimed that materials (videos, practice tasks, quizzes) support learning outcomes and provide options for revisiting of course materials and activities. They also have noted that there is a great variety of them to prevent monotony and enhance retention and that the course is suitable for introductory level.

Giving suggestions (statements compiled in C 6.2.) for improvement to comply with the defined outcomes, students have noted mostly technical inconsistencies, some infrequent typos, a possibility to have subtitles or script for videos, change question types in some exercises, to have a summary and a progress checkbox at the end of each session.

Conclusions

The review of the secondary sources, the design of self-paced distance learning course ‘Introduction to Language Technologies’ and the pre-piloting of the selected sections of the course allow drawing the following conclusions.

The review of the secondary sources confirms that the advancing of language technologies application is an urgent precondition for field-specific digital competence development in linguistic studies, whereas the variety of contemporary online learning modes can serve for the adapting of the materials for a fully self-paced online course such as “Introduction to Language technologies” the content of which aims at language technologies related digital competence advancement.

The adaptation results of course materials for distance self-study learning mode revealed that by fostering digital competence, interactive learning, and online assessment practices, the course contributes to the objectives of the Language Technologies Initiative project, which in turn considers the principles of the EU Digital Decade strategy for the development of digital skills among adults (Online 4).

The piloting of the adapted distance-learning materials demonstrates that the course effectively meets its intended learning outcomes and provides a clear, logically structured framework for introductory-level students in English Studies. Overall, participants evaluated the theoretical content, task design, and interactive elements positively, confirming the relevance and pedagogical value of the materials in a digital learning environment.

The findings indicate that while the course structure and clarity are generally strong, certain sections would benefit from more explicit definitions and expanded introductory explanations. Students’ feedback highlights the importance of balancing conciseness with sufficient theoretical depth, particularly in distance learning contexts where independent comprehension plays a crucial role. The planned addition of supplementary independent study tasks addresses this need without compromising usability.

This study contributes to the emerging field of language technologies education by providing a structured model for designing self-paced courses aligned with digital competence frameworks (DigComp 2.2) and empirically informed through iterative learner feedback.

A key limitation of the study is the small number of participants, which restricts generalisability. The findings should, therefore, be interpreted as preliminary and indicative of usability rather than effectiveness. It also demonstrates how small-scale pre-piloting can inform scalable course design.

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Appendix 1: Questionnaire

1. What is your opinion about each section of the course regarding the following aspects?

- 1.1 The content clarity of the theoretical material.
- 1.2 The volume of the theoretical material.
- 1.3 The clarity of various activity instructions.
- 1.4 The difficulty level of exit quizzes.
- 1.5 The number of questions in multiple choice exit quizzes.
- 1.6 The correspondence of materials to its outcomes explained in the section introduction.

2. What did you like about this course section?

3. What would you suggest improving in this section?

Appendix 2: Sections and skills of the course "Introduction to Language Technologies"

Sections	Competences and DigComp 2.2 level
Section 1. Introduction to Digital Humanities and Language Technologies. Types of Linguistics Data	Evaluating data, information and digital content 6
Section 2. Introduction to Linguistic Data Extraction	Evaluating data, information and digital content 6
Section 3. What is a corpus? English Corpora	Evaluating data, information and digital content 6
Section 4. English Corpora: Data Extraction	Browsing, searching and filtering data, information and digital content 6-7
Section 5. Concordancers and data extraction: AntConc	Browsing, searching and filtering data, information and digital content 6-7
Section 6. Concordancers and data extraction: Voyant tools	Browsing, searching and filtering data, information and digital content 6-7
Section 7. Interactive Narrative and Genre analysis: Knightlab un Twine.	Developing digital content; Programming 6 -7
Section 8. Analysis of Grammatical Aspects: CLAWS, World Atlas of Language Structures, NLTK	Developing digital content; Programming 6 -7