

TecCOMFrame: Developing Prototype Technical Communication Curricula

Joyce Karreman
University of Twente
j.karreman@utwente.nl

Yvonne Cleary
University of Limerick
Yvonne.Cleary@ul.ie

Sissi Closs
Hochschule Karlsruhe
closs@ctopic.de

Zygmunt Drazek
Uniwersytet Szczeciński
drazek@wneiz.pl

Jan Engberg
Aarhus Universitet
je@cc.au.dk

Voichita Ghenghea
Universitatea Politehnica
Bucuresti
vghenghea@gmail.com

Birgitta Meex
KU Leuven
birgitta.meex@arts.kuleuven.be

Patricia Minacori
Université Paris Diderot
pminacori@eila.univ-paris-
diderot.fr

Julia Müller
tekomp
j.mueller@tekomp.de

Daniela Straub
tekomp
d.straub@tekomp.de

Abstract – In Europe, the number of academic programs in technical communication is limited, and the academic profile of the field remains low as a result. The three-year TecCOMFrame project, designed to address the shortage of academic programs, began in October 2015. The project involves academic partners from eight European countries and is coordinated by Tekomp Europe, the European Association for Technical Communication. The project deliverables include an academic competence framework and several prototype curricula developed from the competence framework. The process of developing the prototypes was iterative and collaborative. The purpose of the prototypes is to provide inspiration and guidance for academics planning to develop a technical communication program. The prototypes follow European norms as outlined by the Bologna process: each curriculum corresponds to a level within the European Qualifications Framework, specifies European credits, and includes modules, subjects and learning goals. The prototypes include a three-semester master's program and a master's-level specialization in a language studies program.

Index Terms – Academic programs, curricula, Europe technical communication.

BACKGROUND

In Europe, technical communication remains a niche academic field, in spite of the buoyant labour market for technical communicators. Tekomp Europe, the European Association for Technical Communication, developed the TecCOMFrame project to work towards increasing the number of academic programs and program specializations in technical communication. This project involves eight academic partners from different European countries, is funded by the European Union, and runs from October 2015 to September 2018.

The outputs of the project comprise an academic competence framework [1], prototype technical communication curricula at various academic levels, an update to the TecDoc-Net Guidelines developed as part of an earlier funded project [2], and a competence and qualification profiling tool to be used by employers for recruitment.

A previous paper [3] described the project goals, structure, and methods in more detail, and offered a comprehensive overview of the academic competence framework developed in the first phase of the project. This paper will first present a brief summary of the academic competence framework and a description of the European education system. It will then discuss the

methodology and focus of the prototype curricula developed by the project team, and derived from the framework. In the final part of this paper, detailed examples of two curricula will be offered.

ACADEMIC COMPETENCE FRAMEWORK

The project started with the development of an academic competence framework. The eight project partners and the project coordinators formulated learning goals and competencies relevant for technical communicators educated at higher education institutions. This resulted in a long, unordered list of competencies and learning goals. Learning goals were formulated using Bloom's Taxonomy of Educational Objectives in the cognitive area [4].

In an iterative process, this list was refined and ordered, using a justifiable and comprehensible methodological procedure. Each iterative round included a stage in which the project team formulated competencies and a stage in which they sent their results to a large group of different stakeholders (e.g. technical communication practitioners, managers, and teachers) and received feedback from them. The comments of this large group of 'silent partners' were extremely valuable and served as a starting point for the next iterative round. As well as collecting feedback from the 'silent partners', previous versions of the framework were presented at several colloquia and conferences, where additional feedback was collected.

At the end of this process, the project team grouped the competencies and the related learning goals into six dimensions:

- Academic Perspective
- Communication and Culture
- Content
- Management
- Technology and Media
- Transversal Competencies

Each of these dimensions includes subjects and sub-subjects, and the competencies and learning goals that are associated with each sub-subject. Figure 1 gives an impression of the structure of the competence framework. It shows the sub-subjects from Evaluation and User Experience, one of the subjects in the Content dimension. In addition, it shows the learning goals associated with one of these sub-subjects, Usability and User Experience.

EUROPEAN QUALIFICATIONS FRAMEWORK

The next objective of the project was to use the competence framework to develop curricula at various levels. Within the European education system, as prescribed by the Bologna process [5], in a full-time academic program students must undertake 30 credits of

study per semester. These credits are assigned to modules (equivalent to 'courses' in the United States).

In this project, curricula have been developed at two levels, corresponding to the European Qualifications Framework (EQF) [6]:

- EQF level 6: Bachelor's program
- EQF level 7: Master's program

A future project may involve development of a curriculum at doctorate level, but the goal of this project is to first increase the educational profile at bachelor's and master's levels.

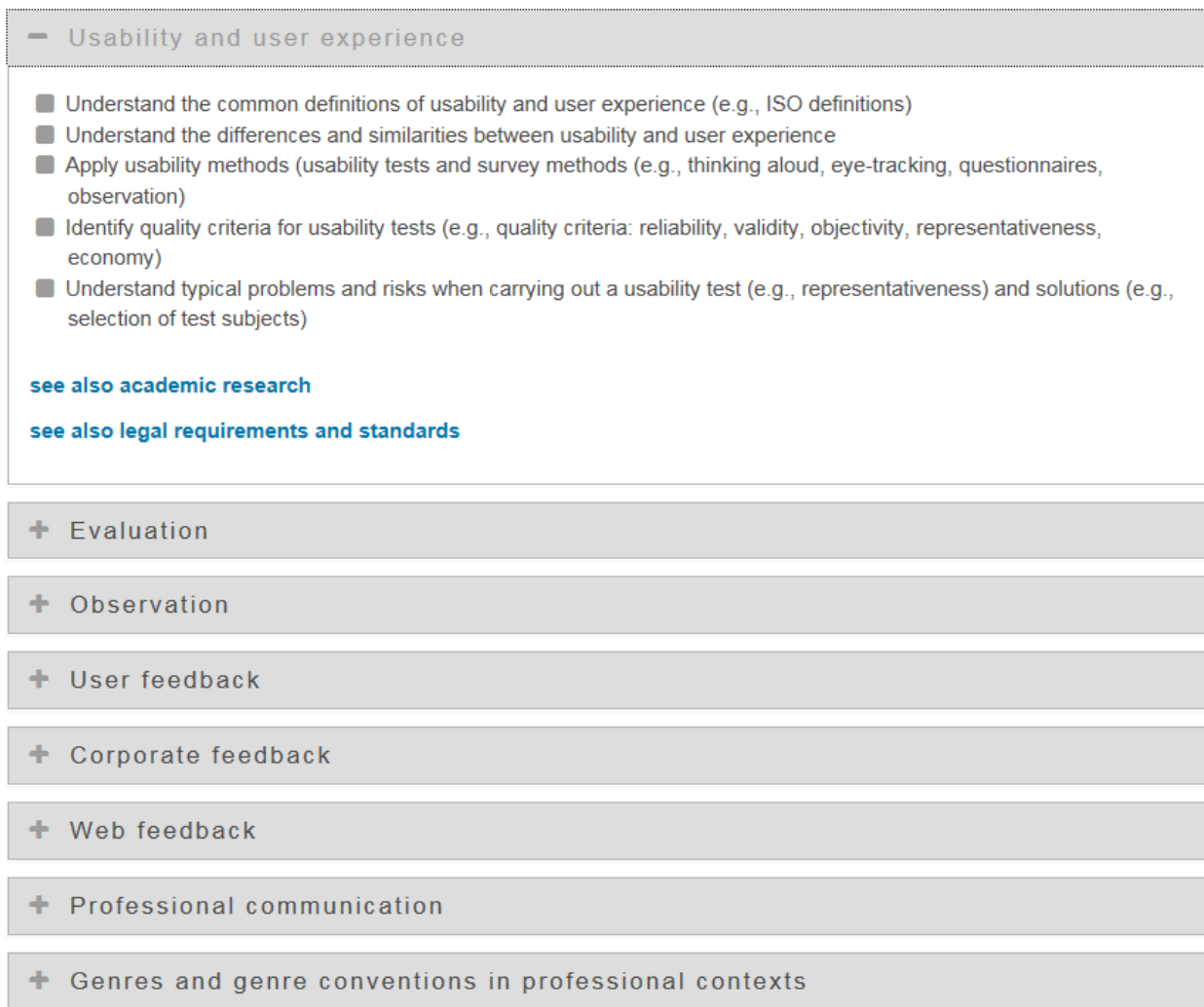
The prototype curricula were not designed to be implemented as standards. Although the Bologna process has standardized higher education requirements and qualifications in Europe, nevertheless there are many differences in how standards are implemented from one country to another, and even within a country. Furthermore, it is unlikely that any prototype will precisely match the needs and resources of a single institution.

The prototype curricula are meant to serve as inspiration for institutions planning to develop a technical communication program or specialization within a program. Institutions already offering a technical communication program could also find these examples useful for comparative purposes.

METHODOLOGY

The academic competence framework was the starting point for building the prototype curricula. The project partners worked in teams of two or three, based on expertise and interest, to develop the curricula. They collected comments from the other members on draft versions of their curricula. The teams used slight variations on the following agreed approach to build the curricula.

The first step was to identify the type of curriculum and the number of credits. Each team then selected content from the academic competence framework to be included in the specific curriculum. This process involved filtering content from the framework into a new curriculum spreadsheet. Content was selected at the most detailed level: the individual learning goals associated with the sub-subjects. Since the learning goals within each subject are at different levels in Bloom's taxonomy and have different levels of complexity, it was not appropriate to select all learning goals for a given subject. The teams discussed each learning goal (the competence framework consists of more than 1,000 learning goals) and carefully selected those that would match the purpose of the program under development. The next step was to note the subjects and sub-subjects associated with the selected learning goals.



The later stages of prototype development involved clustering the content selected into coherent modules, giving each module a title, and assigning credit

weightings to each module. The overall credits had to correspond to program requirements (for example, a two-semester program would be assigned 60 credits).

FIGURE 1. PART OF THE COMPETENCE FRAMEWORK, EXAMPLE OF SUB-SUBJECTS AND LEARNING GOALS

THE CURRICULA

The following prototypes were formulated:

- Bachelor's degree in technical communication.
- Consecutive master's degree (for students who have studied technical communication at bachelor's level).
- Non-consecutive master's degree (for students from any disciplinary background who have not studied technical communication).
- Subject stream in a bachelor's degree in another field (e.g. language studies or engineering).
- Subject stream in a master's degree in another field (e.g. language studies or engineering).

Each prototype includes a brief overview, outlining the level of qualification, purpose, and scope of the program,

target students, pre-requisites, whether an internship is included, competencies of graduates, and potential further study. Each module template provides information commonly found in module outlines throughout Europe, such as module title, credit weighting, indicative syllabus and learning outcomes. The module templates do not include details about readings or assessment, since these components date quickly and may be specific to an institution, language, or country.

The following sections present two prototype curricula in more detail.

1. Non-consecutive master's degree

This curriculum is designed for students who hold a primary degree in any disciplinary background. The goal of this curriculum is to equip students with skills and competencies needed to work as technical

communicators, in a three-semester program (90 ECTS). From their primary degrees, students on this prototype program will have acquired relevant transferable competencies. In addition, they must be good writers in English [and their native language, if their first language is not English] and competent users of technology. They do not need programming skills or knowledge of specialist applications.

The program incorporates two semesters of taught modules (60 ECTS) followed by a dissertation, project, or internship (30 ECTS). The taught modules are listed below:

- Communication and Language (10 ECTS)
- Regulation and Standards (5 ECTS)
- Content (15 ECTS)
- Visualisation and Evaluation (5 ECTS)
- Tools and Delivery (10 ECTS)
- Management (5 ECTS)
- Training and E-Learning (5 ECTS)
- Research and Philosophy (5 ECTS)

The Communication and Language module includes content on communication theory, intercultural communication, terminology, language skills, and the multilingual workflow.

Regulation and Standards covers standards, legal issues (including intellectual property, and contract and liability law), risk assessment and product safety, and data protection.

The Content module is at the core of this curriculum. The coverage within this module is, therefore, very broad and deep, and it has a high credit weighting. It is likely that this module will need to be delivered over two semesters, or split into two modules depending on an institution's norms. It covers various aspects of information mining, information architecture, and content development.

Within the Visualisation and Evaluation module, students learn about guidelines for print, digital and video design, as well as user experience and evaluation.

The Tools and Delivery module is another large module that may benefit from delivery over two semesters. In this module, students learn about features of different types of content (print, digital, and intelligent content), and acquire skills in the applications required to design and deliver content.

The Management module introduces corporate management principles, and prepares students for various workplace management tasks, including information management, project management, and quality management.

In the Training and E-Learning module, students develop an understanding of instructional design theory and e-learning practice.

The final taught module, Research and Philosophy, covers principles of academic research in technical communication, and basics of the ethics of technology.

On completion of the taught modules, students either write a dissertation, develop a project, or undertake an internship. Students undertake this component in the final semester, and work independently with guidance from a supervisor.

At the end of the program, graduates should be able to:

- Apply communication theory to practice
- Implement regulations and standards
- Develop, structure, evaluate, and publish content
- Manage content and projects
- Use industry-standard tools
- Create appropriate visuals
- Undertake research in the discipline

While it would be possible to continue to PhD studies, most graduates of this prototype program would not need to undertake follow-up study to gain employment. Graduates should be able to work as technical communicators and in many related roles, and in software and manufacturing environments. Early-stage graduates should be able to work in teams and independently, while graduates with a year or more experience should be able to manage teams and projects.

II. Subject stream in a master's degree in language studies

This curriculum is developed for students in a master's program in communication studies, translation studies, or (applied) language studies, who are interested in Technical Communication. The curriculum would offer them the possibility to spend one semester (30 ECTS) getting acquainted with this field. These students are assumed to have good language skills, insight into communication theories and processes and experience with text and discourse. The curriculum builds upon this knowledge. The goal of the curriculum is to give these students a broad overview over the field of Technical Communication by teaching them basic knowledge on important topics and concepts and by teaching them some basic, necessary skills, so that they will be able to closely collaborate with technical communicators in their future jobs as translators, or so that they will be able (with some further education) to start working as technical communicators themselves.

The curriculum consists of five modules:

- Catching the Context (3 ECTS);
- Planning (8 ECTS);
- Creating and Testing (8 ECTS);
- Supporting Planning and Testing (8 ECTS);
- Managing Projects (3 ECTS).

It is recommended that this specialization starts with the small module on Catching the Context. This module serves as an introduction to the field and it explicitly builds upon the supposed prior knowledge. The module comprises three different subjects: the multilingual workflow, legal requirements and standards, and corporate management principles. After this introduction, the students are ready to start with the core modules of this curriculum.

In the module Planning, students will learn about the subjects of information mining and information architecture, that both belong to the competence dimension Content. Sub-subjects include information acquisition, target group analysis and content analysis. The goals of this module are that students are able to select all information they need to develop a specific user document and that they are able to create a content structure.

The module Creating and Testing follows on from the Planning module. Students will learn how to develop content and how to visualize content. The first part of the module focuses on sub-subjects such as the content development process, writing according to rules and guidelines, and digital design. In the last part of the module, students will learn how they can evaluate their documentation and manage the quality of their work. Examples of sub-subjects in this part of the module are corporate feedback, user feedback, and quality assurance.

The third core module should be offered next to the two other modules, because it comprises two subjects that are supportive to the process of planning, creating and testing documentation: information management and information technology. Important sub-subjects are: content management, document management and database principles.

The last module in this curriculum is a small module on Managing Projects. Although it is not expected that students of this curriculum would be able to manage projects directly after their graduation, it would be helpful for them to learn about basic project management principles to know somewhat more about the context they will be working in.

FINALIZATION OF THE PROJECT

The two curricula presented here are indicative of the level of detail in the remaining curricula developed for the TecCOMFrame project. The project will conclude in September 2018. Before that time, the various curricula will be presented at several colloquia and conferences to collect feedback. Based on feedback from these events, the curricula will be revised and will undergo quality checks. Subsequently, all curricula will be published on the TecCOMFrame website, together with the academic competence framework, a competence and qualification

profiling tool, and an updated version of the TecDocNet Guideline. The website address is: teccom-frame.eu/

ACKNOWLEDGEMENTS

This project is part-funded by the Erasmus + Programme of the European Union.

REFERENCES

- [1] tekcom Europe (2017). Academic competence framework for technical communication. [Online]. Available : <https://www.teccom-frame.eu/competence-framework/overview/>
- [2] TCeurope (2005). TecDoc-Net Guidelines: Professional education and training of technical communicators in Europe. [Online]. Available: http://www.technical-communication.org/uploads/media/176/teccodoc_17651.pdf
- [3] Y. Cleary et al., "TecCOMFrame: a competence framework for technical communication," in *Proc. IEEE Int. Professional Commun. Conf.*, 2017.
- [4] B. S. Bloom et al. *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain*. New York: David McKay, 1956.
- [5] European Commission. The Bologna Process and the European Higher Education Area. [Online]. Available: http://ec.europa.eu/education/policy/higher-education/bologna-process_en
- [6] European Commission. Descriptors defining levels in the European Qualifications Framework (EQF) [Online]. Available: <http://ec.europa.eu/ploteus/en/content/descriptors-page>

ABOUT THE AUTHORS

Joyce Karreman is an assistant professor of Technical Communication at the University of Twente, the Netherlands. She received her PhD in technical communication from this university. Her research interests include the design of instructive documents, human-centered design processes and intercultural issues related to usability and user experience. She has presented her work at international conferences on technical and professional communication and has published in several journals.

Yvonne Cleary is a lecturer in Technical Communication and Instructional Design, and Program Director for the MA in Technical Communication and E-Learning at the University of Limerick, Ireland. She holds an MA and a PhD in technical communication. Her research interests include professional issues in technical communication, technical communication pedagogy, virtual teams, and international technical communication. She has presented her work at conferences in Europe and the United States and has published in leading journals in the technical communication field.