Genre pedagogy for digital learning environments – Design patterns for dialogues about texts

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Abstract

The design of digital learning environments is not a neutral enterprise. The design tells about the designers' and developers' view of a learning activity. The main idea in this paper is to map knowledge about genre pedagogy in practice, in prospect of new applications of technology in future teaching practices. The research questions were: How is genre pedagogy implemented in traditional classrooms? How could digital learning environments be designed in order to take advantage of how genre pedagogy is implemented in traditional classrooms? The point of departure for our study is an analysis of three existing case studies of use of genre pedagogy in the classroom. The analysis indicated that genre pedagogy was adapted to the students differing writing experience. Moreover, the different stages of the method could be implemented at various times during the process and they could also be present in varying degrees. On the basis of these results, we argue for certain ways to design digital learning environments based on genre pedagogy. We use design patterns as means for making our design suggestions concrete, and available for communication and development.

Keywords: writing, genre pedagogy, design patterns

INTRODUCTION

Virtual learning environments (Hermans 2014; Tibaut 2014; Uzunboylu 2011), also known as Learning management systems (LMS) or Content managing systems (CMS), are not neutral arenas for just any kind of learning; they are designed with a purpose and from a perspective or view on pedagogy, explicit or implicit manifested in the design of the virtual learning environment (VLE). The type of pedagogical activities the design of these environments makes room for, could be mapped to different pedagogies (Conole, Dyke, Oliver & Seale, 2004). For instance, environments that "guide and inform users through a process of activities could be used to good effect to embed and enable constructivist principles" (ibid, p 19). On the other hand there is perspectives such as the cognitive one, with intelligent systems which should support transformations of the learner's internal cognitive structures

(Conole et al, 2004). Several other pedagogical perspectives are more or less visible and possible in different VLEs. Notably, it is one thing what the design of the VLE aims for, another thing what will happen when teachers and students start using the VLE.

Genre pedagogy is a writing pedagogy model that has gained increased attention amongst educational scientists during the past years. It is an educational method with the aim to support students how to write successfully in different genres by enhancing the metalanguage about linguistic, textual and contextual features. It is founded on Vygotsky's theories about learning (Vygotsky, 1978), Halliday's systemic functional linguistic theory (Halliday, 1978) and Bernstein's theories on sociology of education (Bernstein, 1996). Problems for students and educators with writing have been accentuated since both the social arenas (migration, professional and social complexity etc.) and the communicative arenas (digital media, extensive use of writing in more fields) have developed and merged. The communicative situation for individuals and groups are far more complex than before. Writing and literacy is not just something individuals learn to handle once and for all. This puts new demands on educators and designers to offer resources for learners to use in different situations throughout life (Karlsson, 2009; Lankshear & Knobel, 2006; New London Group, 2000; Selander, 2008). Implementation of genre pedagogy in the classroom requires time and resources. In Australia, where the method was first developed, teacher education and collaboration with scholars and universities has been an apparent part of the implementation of genre pedagogy in the literacy education and teaching in different subjects. In Scandinavia, genre pedagogy has been introduced the latest years, and most teachers have not had the opportunity to adopt the method and the metalanguage that is required.

A digital environment would help teachers to implement genre pedagogy successfully in their teaching. Frequently, teachers have to construct and experiment with their pedagogy in digital environments by themselves although ideas often have been conceptualized elsewhere already (Blåsjö et al, 2012). With the aid of a virtual learning environment designed for genre pedagogy, this design work might be easier to perform. This leads us to the following research questions:

- How is genre pedagogy implemented in traditional classrooms?
- How could VLEs be designed in order to take advantage of how genre pedagogy is implemented in traditional classrooms?

GENRE PEDAGOGY

Genre pedagogy developed in Australia during the 1970s and 1980s. It evolved as a response to the fact that students from non-academic background presented weak results in school (Martin & Rose, 2005). The pedagogical project tended to make different writing norms visible and explicit to students, and to "stress explicit identification and teaching of the stages of the target text or "genre" (Christie & Unsworth; 2005:7). It offered a model that helped teachers to teach not only correct language use, but genres, involving a sequence of steps for the student's progress towards the independent writing of a certain text or genre (ibid.).

The Teaching-Learning Cycle

The most spread model for genre pedagogy is the teaching-learning cycle (Johns, 2002:5). The teaching-learning cycle has been presented in different formats. The main stages are the following according to Holmberg (2009):

1. Setting context and building field, 2. Deconstruction, 3. Joint construction, 4. Independent construction.

The metaphor "teaching learning cycle" indicates that "there are different points of entry for students according to their development in learning and literacy" (Rothery, 1996:102). At stage 1 the focus is set on context; this stage is often characterized by reading and discussing, and may include both "diagnosis" of students' level of knowledge, building new knowledge and learning new words from the studied field, such as electricity or tourism. Stage 2 is based on deconstruction of text. The teacher and students read and discuss texts from the targeted genre with focus on language aspects, such as text-structure, but also the social function of the genre. The scaffolding role of the teacher, supporting students to identify and name different linguistic features, is of key importance. In stage 3, the teacher and the students together produce a text corresponding to the focused genre. Stage 4 consists of individual writing or writing in smaller groups where the teacher's scaffolding is decreasing.

The Contextual Model

In connection with the genre pedagogic model, a contextual model has been developed by Macken-Horarik (1996). Macken-Horarik describes three domains of knowledge where learning takes place: The *everyday domain* is based on language that we use in our everyday life, at home etc. In the *specialized domain* students learn to shape knowledge within different school subjects. In the *reflexive domain* the student "begins to reflect on and question the grounds and assumptions on which specialized knowledge rests" (Macken-Horarik, 1996:237). The students here learn

to construct texts with controversial and concurring opinions. Everyday knowledge and language can be described as dialogical, concrete and close to the direct experience, while school language is monologic, specialized and abstract (Painter, 1996).

METHOD

To answer the research questions, the study requires analysis of everyday teaching in real classroom situations. This article is based on published case studies of teaching settings where the teaching learning cycle is more or less applied. The analysis is hence based on analysis of descriptions of observations performed in Australia. The method is inductive, where the published classroom observations are analysed by the means of categories and models, which are relevant to the stated questions. The different stages of the teaching learning cycle are supposed to be carrying different phenomena, possible to transfer to and use in different kinds of digital tools. These stages and how they are performed by the teachers are therefore important for the study. The stages are analysed in terms of how scaffolding is manifested in the teaching. Scaffolding is seen as a bearing element of genre pedagogy and is supposed to indicate how a VLE could be constructed for different parts of the pedagogic process. Both teacher's scaffolding and peer scaffolding is important to describe since they are both apparent parts of the teaching learning cycle. Hence, Macken-Horarik's contextual model (see above) represents an analytical approach. All these aspects are seen as relevant categories to emphasize for a subsequent description of a potential VLE. The rationale to focus on teachers is that they are the main users of the VLEs when it comes to making design choices from the tools provided by the VLE designers. The method and relevant analytical categories are represented in Figure 1.

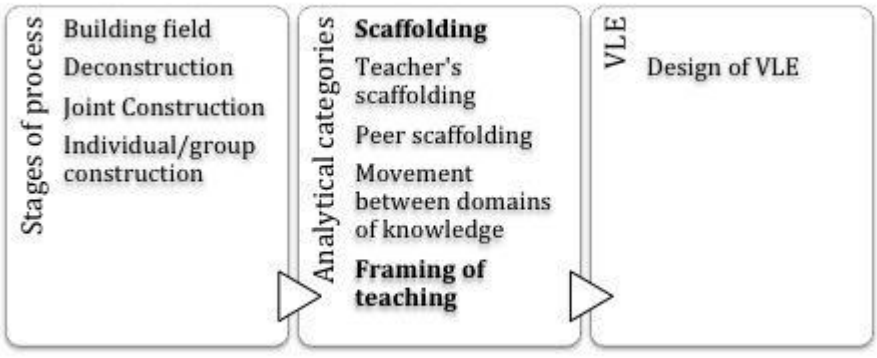

Figure 1. Analytical approach for analysing the case studies and how it feeds the conceptual design of VLEs.

The analysed case studies also contain descriptions and analyses of the student's writing assignments. These results contribute to the study since they could indicate which linguistic challenges the students face in their individual or group writing; therefore they are of importance when developing a VLE for different assignments.

In Human-Computer Interaction there is a strong tradition to do design by empirical studies, with a specific user group and use situation in focus. However, there are other approaches, which are more conceptual and theoretically driven (Stolterman & Wiberg 2010; Gaver & Martin, 2000). The design work presented here uses the analyses of three case studies, published in Macken-Horarik (1996; 2002) and Hedeboe (2002), as input to the VLE design. We present a conceptual design, where the design solutions are on an abstract level, and do not focus on a specific solution in a specific interactive system. The concepts are not only focusing on the design of the interactive system (interaction design), also they aim to capture the pedagogical design, and how the move from classrooms to the virtual learning environments could be arranged. We use sketches for illustrating the concepts, and in addition we have chosen to present our findings as design patterns (Alexander, Ishikawa & Silverstein, 1977; Dearden & Finlay, 2006).

Analysed Case Studies

The analysed case studies were all performed in Australia where the genre-pedagogic method was first developed and where it is most applied and improved (Christie & Unsworth, 2005). The case studies were performed by two different scholars, Mary Macken-Horarik (1996; 2002) and Bodil Hedeboe (2002). Below, we give a brief description of each case study, focusing on the studied teachers: Margaret, Bill and Stella.

Margaret teaches a class of 10-year science. She is an experienced head teacher in science and her teaching is interesting to analyse because it forms an example of genre pedagogic teaching in another subject than language. The class is composed of students who are not from ”disadvantaged socioeconomic backgrounds” (Macken-Horarik, 1996:262). The case study is performed during a period of 10 weeks. Margaret has been taking part of education in the genre pedagogic method lasting for several years. The class focuses at the time of the case study on sexual reproduction and in vitro fertilization (Macken-Horarik 1996; 2002)

Bill is also an experienced teacher. He is teaching English in a high school and has been educated in genre-based approaches. The class is composed of girls “most of whom come from non-English speaking backgrounds” (Macken-Horarik, 1996:251).

The case study is performed during a period of 10 weeks and the theme of the classroom practice at the time is the situation comedy of TV (Macken-Horarik, 1996).

Stella teaches English as a second language for adults, at a level equivalent to year eleven. Stella adapts a clearly genre pedagogic structure to her classes. The class focuses at the time for the case study on different kinds of family constellations (Hedeboe, 2002).

RESULTS

The results of the analysis of the published case studies are here presented in the order of the teaching-learning cycle.

Building Field

The phase of the genre pedagogic cycle where the field of subject is built could be seen as present in all three case studies. This stage is starting the process in these cases, but it cannot be said to have a clear beginning and ending phase, as it is, in most cases, present during the whole process. One important part of this stage is for the teacher to evaluate the groups pre-understanding. Margaret's students have been working with the subject before, so she starts out with retelling and summing up what the students are supposed to be familiar with already. The focus is on non-linguistic modalities such as charts and movies. Margaret wants to minimize the semantic burden of the students. The visual aids are used frequently in the beginning but their presence are supposed to be reduced as the process progresses. Margaret is working with the students' everyday knowledge of sexual reproduction and her teaching is grounded in verbal rehearsal, visual representations, movies and some text work. The meaning potential moves, according to Macken-Horarik, primarily between spoken language and written texts that lies in between the everyday and the specialized knowledge (Macken-Horarik, 1996:265). The students do not work individually at this stage. Margret is focusing on targeted work where students can work together with each other and use both each other and the teacher as support.

Deconstruction and Joint Construction

The borders between the two stages deconstruction and joint construction are not clear in the analysed case studies and are therefore described together. The most important feature of both phases is that the teacher and students elaborate with language together. Common for the case studies are that teachers together with the class discuss specific words and concepts. The metalanguage plays an important role. It is also important (as is for the genre pedagogic cycle overall) for the teacher to try to reduce his or hers prominent role in the classroom at this stage. The

students should be responsible for the content and the teacher's role is to develop the language. The dialogue in the classroom is of great importance.

Individual and group construction

The construction phase is based on the former, where the students' knowledge, way of thinking and metalinguistic awareness has been built up so that they are able to write a text, individually or together with peers. The individual writing seems to be easier for students to assimilate when they are more experienced with the genre pedagogic method. Bill's and Margaret's students are working with individual and group construction more often and also earlier in the process than Stella's students, who are less experienced. The individual writing is often preceded by writing in groups. Writing could be a parallel working process, and not necessarily the last step or final task. Margaret's writing tasks are, for instance, smaller in extent, so her students can write several texts during the process.

As in the other stages, the teacher's scaffolding is more present in the beginning, but this role will diminish and could then possibly be taken over by other students. Margaret starts out with an instructive role and she is guiding students with the aid of instructions clearly divided into small components. In the beginning, she does not expect students to write something original, but at the final phase the students will write texts that correspond to the genre in question. Also Bill's students are writing frequently and often together in small groups. The final writing task is demanding since it is forcing the students not only to write in an unfamiliar genre but also to write about an unknown subject. This is not how Bill usually constructs the written assignments. As Macken-Horarik states: "it is difficult to concentrate on language 'as an object' at the same time as using it 'as the instrument' of learning something new" (Macken-Horarik, 1996:259).

DESIGN PATTERNS FOR DIALOGUES ABOUT TEXTS

Above, we have been trying to define and understand the benefits and problems that teachers, and their students, had when applying genre pedagogy in their classroom practices. Based on this analysis, below we will work with a conceptual design of VLEs and tools for VLEs. We wil use design to aim for a change of the situation, to use a designed digital learning environment in order to manifest good practices from the Results section above, and in line with the theoretical foundations of genre pedagogy. Our design process does not involve a specific VLE such as Moodle or Sakai; instead we aim for the development of design concepts useful for any VLE. We have chosen to describe the design concepts as patterns and their explicit connections to theory and classroom practices. For every pattern an example in form

of a simple sketch has been chosen in order illustrate the use of the design concept. In the field of Technology-enhanced learning (TEL), the work of Winters & Mor (2009) and Goodyear & Retalis (2010) on design patterns are highly relevant for our work. They describe the problem for the TEL-community to share different innovations and technological solutions with each other. There is a lack of knowledge carriers for researchers and practitioners, and design patterns could be one solution to this problem.

Pattern: Building field using electronic brainstorming

The building field phase should not be excluded from the process. It is characterized by joint efforts, students and teacher taking an active part. One main purpose is to support the students' processes of going from everyday to specific knowledge domains.

In this stage, useful activities may be searching for information to find sources that are trustworthy, as well as social bookmarking (of multimodal learning materials). Other alternatives for the building field phase could be to put introduction videos and similar learning materials into the VLE.

The building field phase also includes identifying a group's pre-understanding (to build from), and our proposal is to connect the everyday domain with the new topic and genre using collaborative brainstorming tools in the VLE. The idea is to connect to the everyday domain by brainstorming about the students' current understanding of the topic, using students' own knowledge to increase motivation for learning how to write (Figure 2).

Pattern: Building field using electronic brainstorming

Problem: In current VLEs, the tools for brainstorming is limited (to our knowledge), both when it comes to brainstorming synchronously, and to the use of different modalities and use of representations.

Context: The current pattern is useful in the Building field stage of the genre teaching-cycle, and when some of the learning activities should take part in a virtual learning environment.

Solution: Develop electronic collaborative brainstorming tools in the VLE as one part of the building field phase. Involve the teacher if possible, the students can borrow the language of the teacher, and bring in at least three students in order to reach collaborative effects of the brainstorming.

Figure 2. Pattern: Building field using electronic brainstorming

So-called electronic brainstorming (Figure 3) is an quite active research area (cf. Liikkanen, Kuikkaniemi, Lievonen & Ojala, 2011), indicating its usefulness.

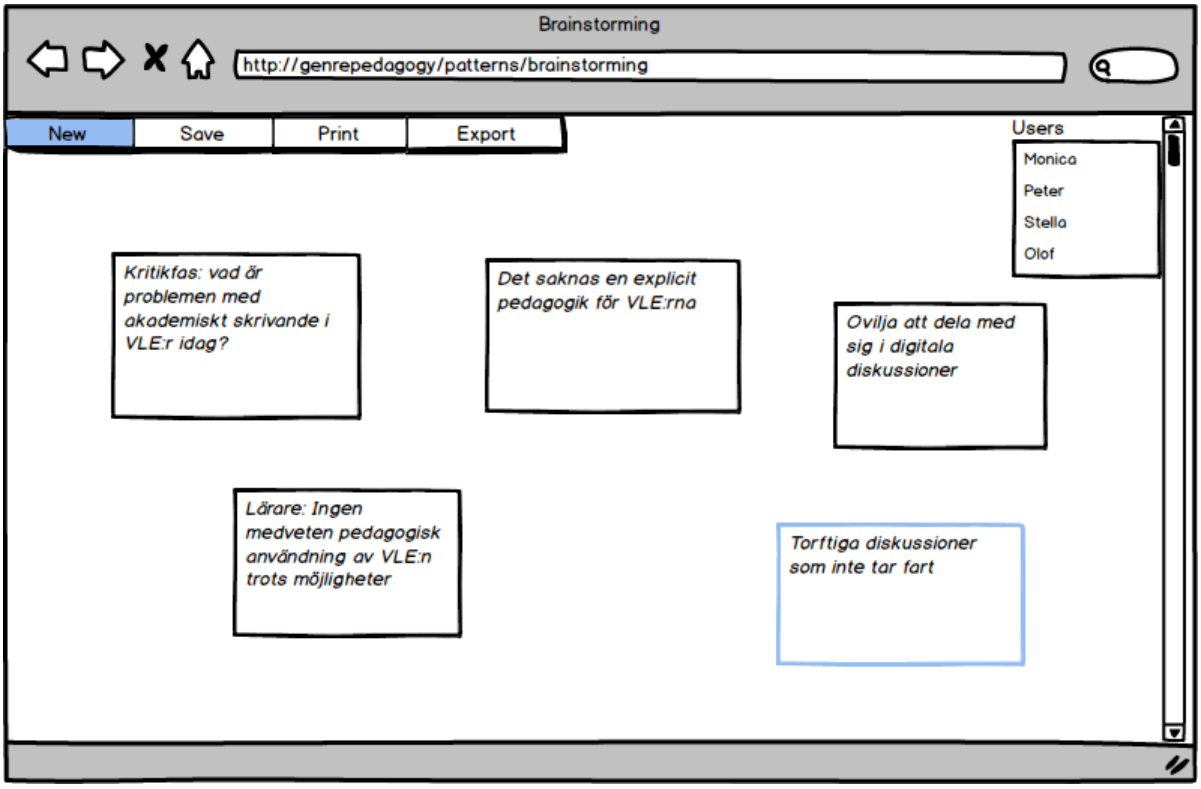

Figure 3. A sketch of a brainstorming tool.

Pattern: Deconstruction of text using description of micro genres in the VLE

According to genre pedagogy, a text contains several micro genres such as narrative, recount, description, statement and so forth. One design concept applicable for the deconstruction of texts is to use tools that support the analysis of micro genres with significant linguistic aspects according to SFL, relevant to use for both students and teacher (who may not be familiar with linguistic analysis at all).

A corpus of model texts could be designed as an open access repository. The model texts could be used as they are; a more ambitious approach would be model texts annotated with for instance causal connectors and different types of verbs. Interesting work in line with this is presented by Tribble & Wingate (2013). However, we will not develop this possible pattern further here, but we indicate its relevance when developing patterns for using the concept of micro genres. The descriptions of the micro genres need real textual evidence to be clear and meaningful, and the model texts need to be annotated with the micro genres in order to be useful for teachers and students.

Pattern: Deconstruction of text using description of micro genres in the VLE

Problem: According to genre pedagogy, a text contains several micro genres, and how they are structured is not easy to comprehend. In the process of identifying the micro genres of a more complex text, new texts could be deconstructed. From an interaction design perspective, it is a problem of having the right information at hand when carrying out a task in the learning environment.

Context: The stage of deconstruction of texts when students raise their metalinguistic awareness of how certain micro genres are structured.

Solution: Bring the information about the structure of different micro genres into the virtual learning environment.

Figure 4. Pattern: Deconstruction of text using description of micro genres in the VLE

The description of micro genre is here seen as a more traditional learning material as presented below (which is similar to a book page). The difference from a book is that the description of the micro genres (Figure 5) could easily be integrated where the actual writing takes place (the solution in Figure 4), when the student works with the writing assignment in the writing environment of the VLE.

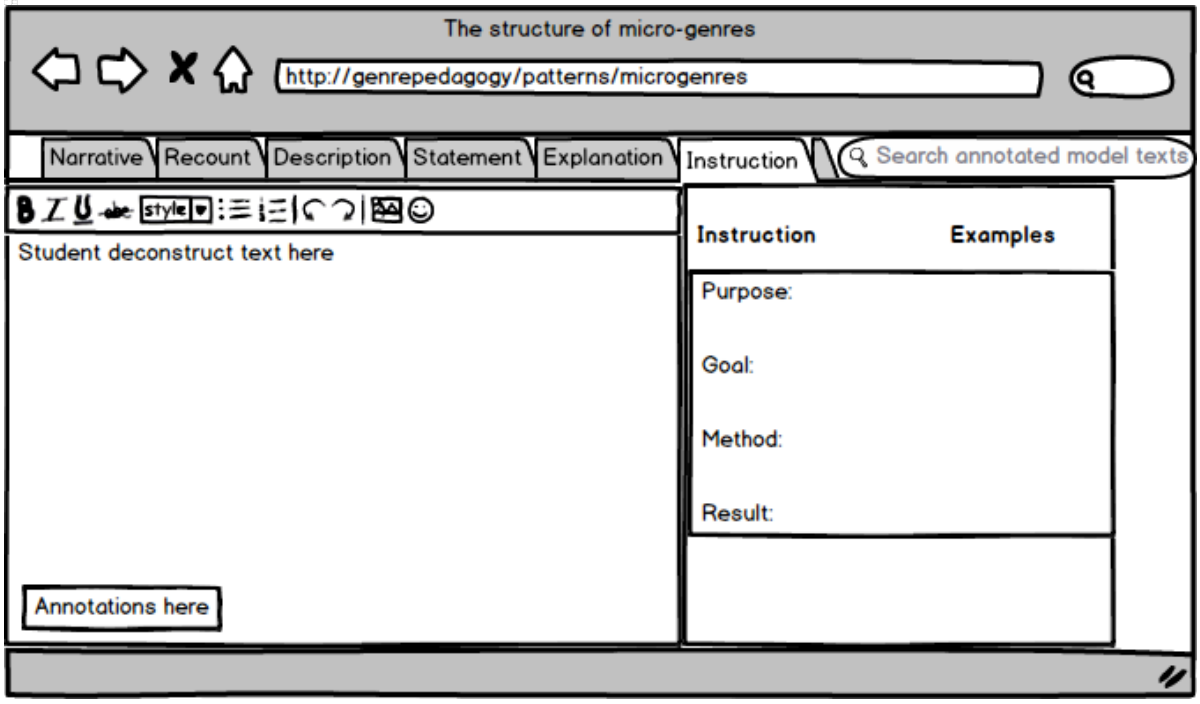

Figure 5. A sketch of a tool for working with the structures of different micro-genres. Inspired by Holmberg (2009), and Knapp & Watkins (2005).

Pattern: Joint construction of text using tools for synchronous collaborative writing

The VLE gives support to help with the logistics of co-constructing a text. Good examples of this are different wiki implementations and tools for collaborative writing

such as Google Drive. Interactive boards and similar tools may also be involved here depending on how much the teaching is blended with classrooms sessions and collaborative work in the VLE. In those environments it is easy for teacher and students to jointly construct a text. Our main design proposal for co-construction of new texts is to use a wiki already in the VLE (Figure 6), such as the wiki in Moodle or Sakai.

Pattern: Joint construction of text using tools for synchronous collaborative writing

Problem: The problem is pedagogically about joint construction of new text using a collaborative writing environment, where small groups need to work synchronously and distributed on the construction of text and to use the micro genres and new concepts.

Context: In the teaching-learning cycle where the teacher want the students to jointy write a more complex text in a new knowledge domain.

Solution: Develop a virtual learning environment allowing for collaborative synchronous writing.

Figure 6. Pattern: Joint construction of text using tools for synchronous collaborative writing

Figure 7 exemplifies the pattern of an environment for co-construction of texts. However, it is important that the wiki allows synchronous writing for the process of co-constructing text.

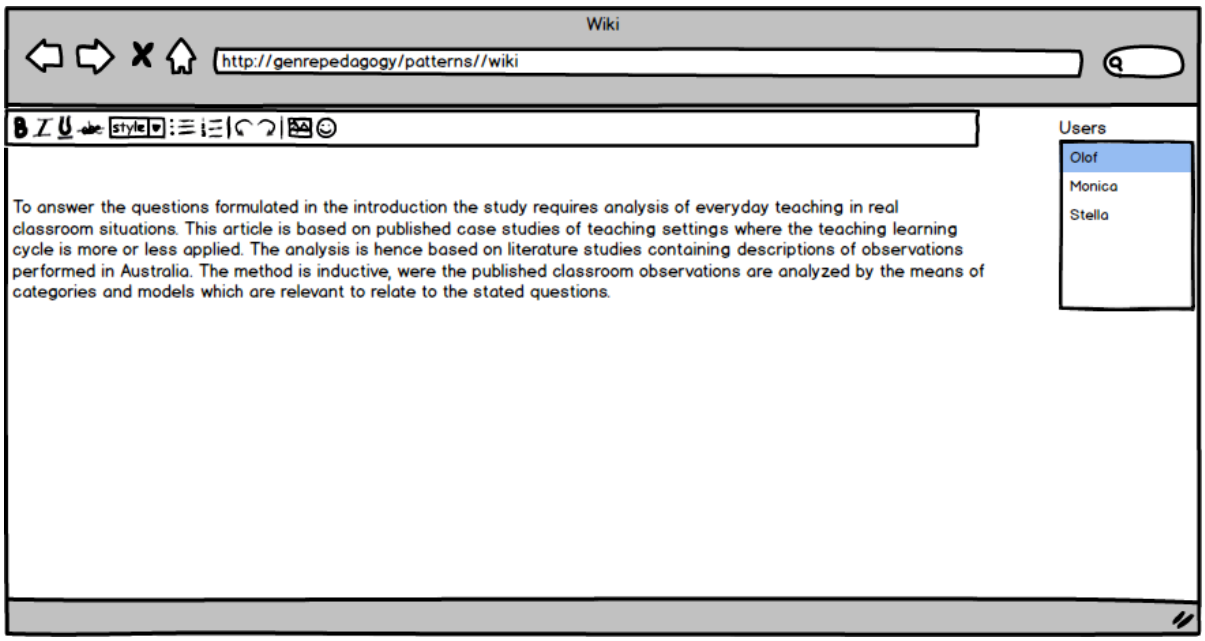

Figure 7. A sketch of a synchronous wiki for co-construction of texts.

Pattern: Automatic highlighting of linguistic features for independent construction of text

The individual construction of text is the most independent moment of the cycle. The design concept proposed here focuses on aids for the student when analysing the text she is writing (Figure 8). Good enough results using automatic word class analysers and some experiments using such technology in classroom settings have been carried out by Karlström & Lundin (2013). They developed tasks inspired by genre pedagogy in an academic writing course for students with Swedish as a second language.

Pattern: Automatic highlighting of linguistic features for independent construction of text

Problem: Independent writing, moving from the language of the everyday domain to the specialised domain, requires support.

Context: Independent writing is the fourth stage of the teaching-learning cycle of genre pedagogy. In this phase the students are supposed to use the newly learnt textual and linguistic features in a text of their own, with limited scaffolding from the teacher.

Solution: : Use tools highlighting linguistic aspects of a text in an environment in which students can both write and read text.

Figure 8. Pattern: Automatic highlighting of linguistic features for independent construction of text

Highlighting structure by the colouring of word classes in the Grim prototype (Knutsson, Pargman, Eklundh & Westlund, 2007) was an aid in the process of nominalisations, here exemplified by the sketch in Figure 9. Other solutions might focus for instance technical terms, modality markers, idiomatic expressions and abstract categories other than nominalisations.

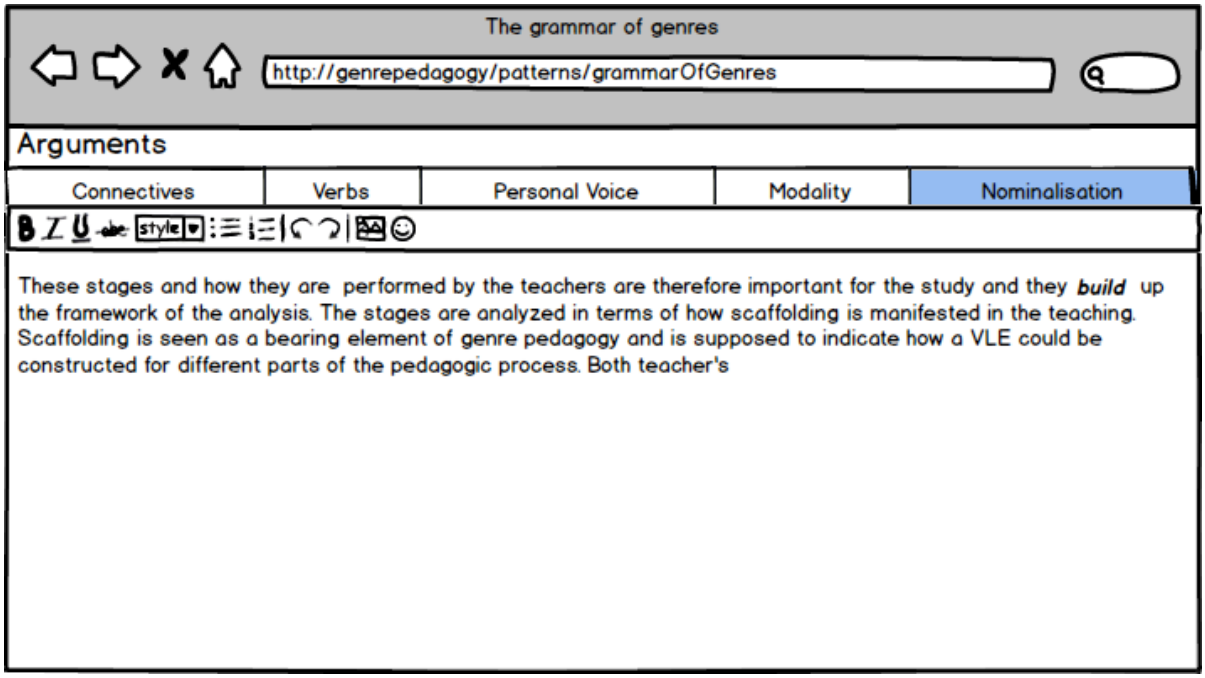

Figure 9. Active verbs are automatically highlighted in this "sketch" using a word class analyser. The example shows the word *build* highlighted. The main purpose of this is to work with grammatical metaphors, in this case nominalisations.

This pattern must be seen as the most mature of the four proposed patterns, in the sense that it has been empirically studied by Karlström & Lundin (2013), using the writing environment presented in Knutsson et al. (2007). However, all four patterns are based on existing software solutions, but not together in the same VLE, and without the framing of genre pedagogy.

DISCUSSION

In the analysed case studies, genre pedagogy has showed to be a method which does not necessarily follow a strict scheme or pattern. The different stages could be implemented at various times during the process. The connection to Vygotskian tradition is clear. The teacher's scaffolding is above all an important part of the initial stages. It is important to support the students to the more specialized and reflexive domains of knowledge. As the process progresses and when the students manage on their own, the teacher's support should diminish. Moreover, scaffolding is less manifest when teaching more experienced students.

During the building field stage, the teacher starts out with dialogue about student's everyday experience in relation to new knowledge. The everyday knowledge domain is the starting point, but during the process the teacher should increase the challenge for the students and promote movement to higher domains of knowledge. During the construction and joint construction stages, the teacher will expand the everyday

language of students to a higher degree of abstraction. The teacher should use the students' suggestions for writing a text, but model and expand them when necessary.

Which are the main benefits to use design patterns when presenting our findings? Patterns make things concrete, as pointed out by Alexander et al. (1977), and that makes our design concepts possible to criticize. Our patterns do not contribute to the field of interaction design per se; instead the presented patterns are relevant for technology-enhanced learning. Without the pedagogical part of the patterns they more or less exist already, not only as patterns but also as software. Nor are the patterns to be considered purely as pedagogical patterns. The interaction design solution is a necessary part of the patterns, in order to be useful for designers and developers of virtual learning environments. The pedagogy has consequences when the designer choses between possible solutions of a "problem".

We have shown that the implementation of genre pedagogy is dynamic. The four different stages could be used one at a time, without explicit connections, and follow-up lessons. This makes the design of VLEs easier, because a framework for steering the teaching learning cycle is not necessary promoting the usefulness of genre pedagogy. Existing VLEs and other tools could be applied to support the use of genre pedagogy, and its different stages. We have presented four design patterns in order to illustrate our view on how existing VLEs have to be integrated with other tools in order to support genre pedagogy, and we claim that this is a starting point for a pattern language for genre pedagogy and VLE design.

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