

# Improving Networked Learning in Higher Education: Language Functions and Design Patterns

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## **DEDICATION**

I dedicate this thesis to my parents, Bizhen Hou and YifuYang who first gave me life in Guangzhou, China and whose presence still blesses my life in Sydney, Australia.

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## DEFINITION OF TERMINOLOGY

It is necessary to provide a brief explanation to clarify the usage of terms in the study. For some (e.g. students and learners) there is no distinction between their meanings and thus they are sometimes used interchangeably, consistent with the literature and context being discussed. However, it is important to provide clear definitions for other terms. The grouping of terms below is organised under research domain rather than in alphabetical order.

### **The terms: teachers and students**

The terms *teachers* and *students* are used wherever possible. However, teachers are sometimes also denoted by the terms tutors, lecturers, educators or designers. They all mean people who have direct and comprehensive professional responsibility for the learning of others in the higher education context. In similar vein, students are also referred to occasionally as learners or participants.

### **The terms: learning, flexible learning, learning environment, networked learning and educational design**

The following terminology is based on Goodyear (2000) and Schoenfeld (1999).

***Learning:*** Denotes coming to understand concepts and issues and developing increased capacities to do what one wants or needs to do (Schoenfeld, 1999, p. 6).

***Learning environment:*** (1) the physical setting in which a learner or community of learners carry out their work, including all the tools, documents and other artefacts to be found in that setting; (2) the physical setting, but also the social/cultural setting for such work (Goodyear, 2000, p. 6).

***Online learning:*** This is an older term than *networked learning*. In a general sense it refers to the use of asynchronous text-based communications methods. However, it has lost some of its clarity in recent years. Also, it doesn't necessarily imply that a particular educational value is placed on the relationship between learners and teachers (Goodyear 2000)

***Networked learning:*** Learning in which information and communication technology (ICT from this point onwards) is used to promote connections:

between one learner and other learners, between learners and tutors; and between a learning community and its learning resources (Goodyear, 2000, p. 9). In the data analysis, sometimes online learning is used in the context in which discussion is focused on online texts or on online discussion and communication. However, in general, *networked learning* is a preferred term because it focuses more sharply on activities that are more orientated towards interaction, collaboration and co-construction in learning.

**Educational design:** a systematic approach to planning learning tasks, learning environments, and educational forms (Goodyear, 2000, p. 6). In other words, educational design is a set of principles and practices involved in constructing representations of how to support learning in particular cases (Goodyear, 2005).

### **Systemic Functional Linguistics (SFL)**

As explained by Eggins in her work, *An Introduction to Systemic Functional Linguistics* (1994), SFL approaches language as a semiotic system of meaning-making resources. It has a key interest in '*the analysis of authentic products of social interaction (texts), considered in relation to the cultural and social context in which they are negotiated*' (p. 1). She further explicates that '*SFL has four theoretical claims about language: that language use is functional; that its function is to make meanings; that these meanings are influenced by the social and cultural context in which they are exchanged; and that the process of using language is a semiotic process, a process of making meanings by choosing*' (p. 2).

### **The three metafunctions in SFL**

The three metafunctions in SFL are the ideational, interpersonal and textual (Christie and Unsworth, 2000).

**Ideational meanings** represent the experience and events in the real world. This includes the '*participants (can be people or object), the process and the relevant circumstance of place and time*' that involved in the event (Christie and Unsworth 2000, p. 5).

**Interpersonal meanings** represent the '*nature of the social relationships among the participants*' (p. 5).

*Textual meanings* represent the way in which *information (in a text) is organised* (p. 6).

When language is used, the three metafunctions are interwoven with each other and function simultaneously in communication between humans.

A fuller discussion of SFL and its three metafunctions is set out in the Literature Review in Chapter 2.

### **The term: text**

‘A *text is a semantic unit: a unit not of form but of meaning*’ (Halliday and Hasan 1976, p. 1-2). In other words, a *text* is a unit of a complete linguistic interaction which may be spoken or written (Eggins, 1994). In this study, the term *text* refers to written work, for example a written learning task specification or a written discussion posting.

### **Discourse analysis**

The discourse analysis approach used in this study is based on Martin’s discourse semantics model (1992) and applied within the SFL framework as formulated by Halliday (1994), Halliday and Hasan (1976) and Martin (1992). A detailed discourse analysis focuses on depth rather than breadth in order to provide insights into the integration of multiple resources across the whole text (Hood, 2004b; Martin and Rose, 2003; White, 1998). It examines how language is used as a resource for meaning-making. Discourse analysis is also oriented from the three metafunctional perspectives set out above, and includes detailed deconstruction of an individual text used in a particular social or cultural context. In this study it is concerned with texts used within the context of networked teaching and learning.

### **Discourse community**

As defined by Swales (1990) ‘*a discourse community consists of a group of people who link up in order to pursue objectives that are prior to those of socialization and solidarity, even if these latter should consequently occur. In a discourse community, the communicative needs of the goal tend to predominate in the development and maintenance of its discursal characteristics*’ (p. 24).

Swales further elaborates on the six defining characteristics that identify a discourse community. These are:

1. *A discourse community has a broadly agreed set of common public goals*
2. *It has mechanisms of intercommunication among its members*
3. *It uses its participatory mechanisms primarily to provide information and feedback*
4. *It utilizes and hence possesses one or more genres in the communicative furtherance of its aims*
5. *In addition to owning genres, a discourse community has acquired some specific terminology that is shared by community members.*
6. *A discourse community has a threshold level of members with a suitable degree of relevant content and discursal expertise (1990, p. 24-27).*

## ABSTRACT

The thesis of this study is that two seemingly disparate research disciplines can be coalesced to develop an effective pedagogical framework for educational design in the context of networked learning. That contention is grounded in, and inspired by, the rapid developments in educational technologies which have greatly changed the landscape in teaching and learning in higher education over the last decade. The study attempts to add to the corpus of contemporary learning theory which sees students not merely as passive recipients of knowledge, but as active participants in the learning process, having much greater control over their selection of technological learning tools, learning resources and learning methodologies. This is very much in line with the shift from the traditional focus on content design and knowledge transmission towards a more student-centred design for knowledge co-construction, a development which demands the type of new thinking about the design of learning tasks and learning resources contained in this study. Also set out are new lines of action for the fashioning of a collaborative learning environment, for community interaction and the sharing of knowledge, and for promoting good teaching and learning practice.

The central argument of the study is that such pedagogical goals may be attained by juxtaposing the theories of Systemic Functional Linguistics (hereafter SFL) and pattern languages. These have not, thus far, been used in combination. SFL is a well established theory in the study of language, and is used in this thesis to help analyse and classify discourses produced and shared by teachers and students in networked learning. Pattern languages have their origin in architecture. Design patterns can be used as a means of representing and sharing important and specific empirical research results and design experiences. This new knowledge can be used to support and improve the quality of educational design.

The study has two central components. The first uses the SFL theoretical framework to demonstrate how text is used as a key medium in networked learning. In other words, it is argued in this section that the quality of texts has a direct impact on the quality of learning and learning outcomes. The quality of text is assessed by means of a detailed discourse analysis of selected texts. This process involves deconstructing, identifying and capturing the linguistic resources and language strategies used in the

texts. The detailed discourse analysis also illustrates and reveals how language is used in the construction of knowledge and the promotion of collaboration in teaching and learning.

The second component centres on the argument that SFL provides valuable language knowledge which can be represented by using Alexander's design patterns. New knowledge encoded in these design patterns can be used by teachers and designers as reusable and shared resources to help them improve their design work.

The empirical research was carried out in three phases. The first involved a) the identification of text patterns of discourses used in networked learning based on detailed discourse analysis; b) Interviewing experienced academic staff to identify their perspectives on good online teaching practices and success factors. The second phase involved using the data which emerged from these interviews and discourse analysis to model illustrative patterns. (Here, *illustrative* means that due to the scope of the study, it is only possible to develop a limited number of patterns to illustrate the methods used for pattern development. It is not the intention to develop a full repository of design patterns in this study). In the third (validation) phase the patterns were reviewed by two groups of academic staff, with the aim of improving these patterns. Improved patterns were then tested on a group of educational design students for their usefulness and application. It is concluded from this research that it is possible to develop design patterns which ensure the best use of linguistic resources in both the teaching and learning process.

Finally, it is argued that the combination of SFL and pattern languages provides a promising theoretical framework for the complex and demanding task of educational design. Future research could make use of such a framework to explore a fuller application of the pattern- based approach for the representation of new knowledge for educational design. Suggested additional research directions include finding new ways of capturing a new pedagogical approach to mobile learning and blended learning. Also, a promising direction could be the use of SFL Appraisal theory (Martin, 2000) for the investigation on how students construct interpersonal relationships (appraise peer work) in online joint projects.

In the conclusion, it is contended that through its exploration of new ground in the use of SFL and pattern language theory in the construction of education design patterns, the study makes a significant contribution to knowledge in the field of networked learning.