Scientific treatise

Teaching and Learning in the Digital Age

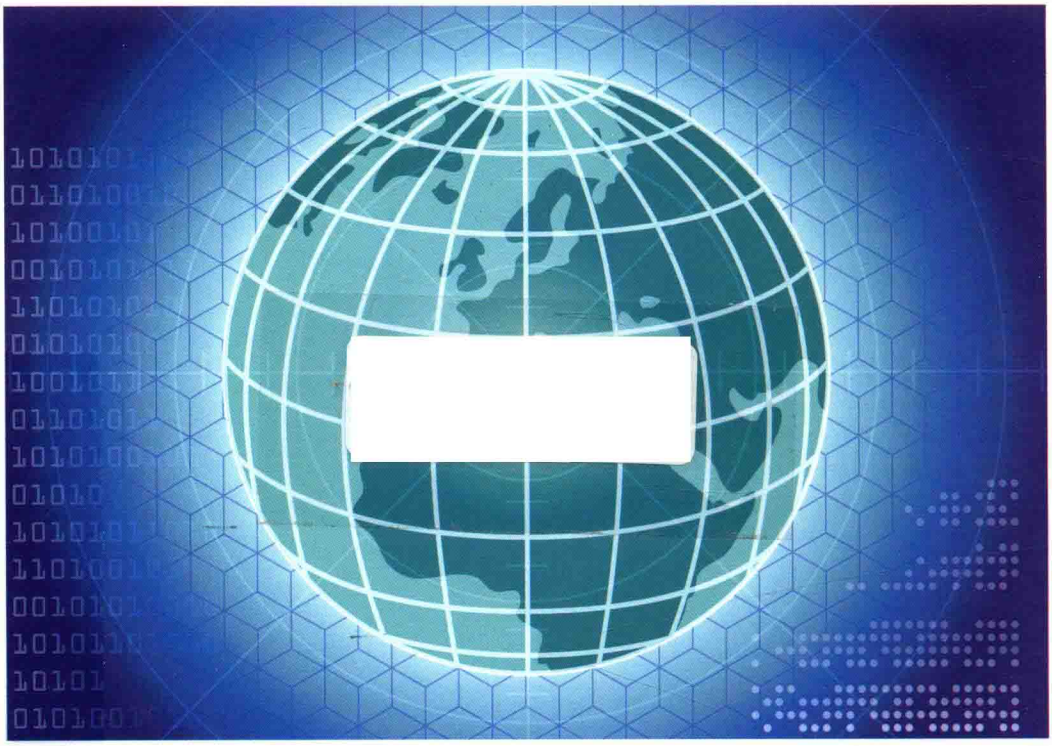
— Experiential Approaches to E-learning Design in Norway and China

数字化时代下的教与学

——中挪两国对于数字化学习设计的经验方法

Edited by Helge Hoivik Jiao Baocong Fang Haiguang Wang Xiaochun

【挪】黑格·郝维克 焦宝聪 方海光 王晓春 编著



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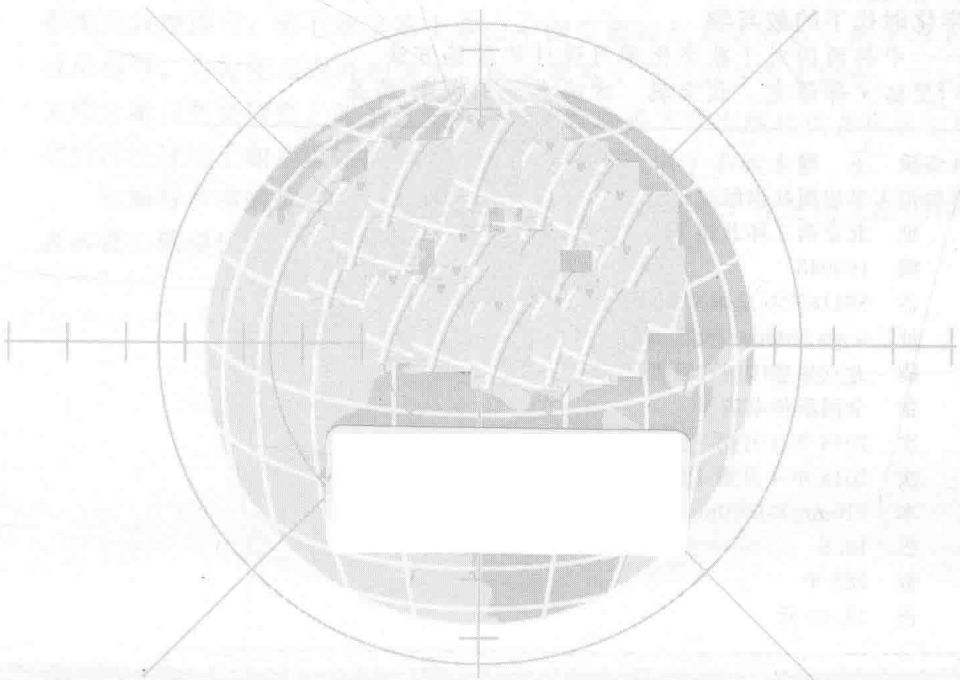

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前 言

我们已经进入了移动学习的时代，快速发展的信息技术为学校的教育提供了有力的支持，包括教材的电子化、教与学的网络学习环境、支持学习者学习的大量软件与移动学习终端等。如何利用快速发展的信息技术支持教育教学，是教育技术学科研究的重要任务。本书正是从这个视角，介绍了挪威奥斯陆大学和中国北京的 E-Learning 实践者为此开展的大量的研究与实践的探索。本书是中国和挪威学者多年学术合作交流的产物。中国的读者可以通过本书了解国外特别是北欧地区有关信息技术支持教育教学的情况；国外的读者则可以通过本书了解中国有关信息技术支持教育教学的情况。

第一章至第六章由挪威 Oslo and Akershus University College 的黑格·郝维克教授撰写，第七章至第十章由中国首都师范大学的数字化学习实验室成员撰写。为方便国内外的读者，前六章英文部分附有中文摘要，后四章中文部分附有英文摘要。此书首先由中国首都师范大学出版社负责出版纸质版，之后再经过加工和多媒体内容拓展，在挪威出版电子书版本。

在编写本书的过程中我们参考了大量的中外文献，在此向文献的作者们表示衷心感谢！

【挪】黑格·郝维克　焦宝聪

2014 年 12 月

FOREWORD

The educational establishment has hitherto been built and structured on a communication pattern at the core of the technologies of print-the Gutenberg Galaxy as it developed in Europe and its equivalent in China, that combines the spoken word with printed and handwritten resources.

These printed artifacts were circumscribed by social structures and processes for creation, curation, dissemination and use. Books and magazines are thus better seen as the gravitational core of a socio-material field rather than as discrete entities.

The current digitization of text is a pacesetter for retooling the workplace in the "industries of signs", for replacing skills on a broad scale and for developing new formal and informal social relationships.

Step by step the various types of education texts are transformed by digitization. The textbooks become e-books, the journal paper is released in digital open access mode and the formal and organizational procedures are described or embedded in Learning Management Systems. With the recent development of Massive Open Online Courses (MOOCs) the lectures, assignments and even exams are also digitized. An e-book is fundamentally a serialized web site. That goes for a MOOC as well. In a wider sense a MOOC may therefore logically be seen as an arrival of an entirely new class of textbook structure.

In addition to technological developments, a strong driver of this process is the cost of the mainly manual modes of academic operation. Core inhibitors to change are century-old traditions embedded in brick-and-mortar institutions, the impossibility of enforcing industrial-type organization on knowledge work and an elitist and scholastic bent in the academic concept of self. The field is thus in need of a new Grammar of Schooling that reflects technologically and socially driven participation modes that better address educational needs and cost considerations. The educational institution is challenged to develop a new logic of production in its educational mission.

The current text is inspired by this perspective. It is authored by a group of e-learning academics and practitioners in Oslo, Norway and Beijing, China, who trace and reflect upon their experiences with new technologies in their respective educational settings.

The book is divided in two main parts, one for each country. The chapters are published in English or Chinese with abstracts in the other language.

Chapters 1 – 6 were written by Professor Helge Hoivik at Oslo and Akershus University College of Norway; chapters 7 – 10 were authored by the Digital Learning Laboratory of Capital Normal University.

The text is initially published as a paper volume by the Capital Normal University Press in China. After the paper version is available, it will subsequently be reworked and expanded with multimedia content and made available as an e-book in the ePub format in Norway.

Professor Helge Hoivik
Professor Jiao Baocong
December 2014

目 录

第一章　知识经济中的教育

摘　要

本章以“生活世界”概念的界定入手，随后对知识经济、话语介导循环模型及其修复环节、教学原则等内容进行了详细的阐述。

在当下数字化氛围的影响下，有组织的全球性教育正从“生活世界”中分离出来。当我们聚焦于数字化学习时，也应对信息技术的深度挖掘、学术知识中复杂结构的呈现、超越制度束缚后的创造与传播甚至跨越社会与地域的界限等方面有所关注。此时的教与学将从学校制度化、追求特定合理性的禁锢中释放出来，学术性知识将不再晦涩难懂，高等教育资源也将在日常生活中变得不可或缺而又触手可得。

对话语介导循环模型，其核心逻辑在于内部与外部符号化内容的交互活动，模型中的两大循环皆由提取、列纲、分类及修复四大环节组成，分别强调其内隐性和外显性。无论是个人还是社会层面，话语介导循环会被一遍又一遍的反复，旨在组织与建构正规体制化教育框架时，为基于打印的教育与数字化教育之间架起桥梁。本章采用 Jay Bolter 对修复概念的陈述，认为修复就是借助一种媒体类型的呈现方式，将带有反馈行为的文本按照另一个要求继续进行传递。在本章中，数字化处理作为上述话语介导循环模型中的“修复”环节。

当前社会通常被称为知识经济型社会，知识型经济意味着增长，同时体现着言语循环活动的重要性。价值的创造不是一个线性叠加符号信息的过程，而需要将冗余、过时的内容剔除后进行结构化的重塑。本章还提及了“智力资本”概念，站在抽象的高度，与具象价值表现的金融、产业资本相比，“智力资本”是人的一种综合能力，一种能够创造价值或效用的能力，也是智力和知识相互融合而带来效益的资本。这种资本可以被创设、维系及流通。

在大规模生产中，产品的成本随着数量的增加而增长，与此同时，边缘成本却处于降低趋势。在如今的知识型经济社会中，若能保证基础设施使用时的稳定性，即使再多复制一本书、多录制一支曲子，其生产过程中也不会

产生支出，这也正是知识经济核心部分的边缘成本趋近于零的原因。本章利用正态分布图形象地解释了“所得回报由贡献来衡量”这种现象。当消除了复制部分近全部的成本后，经济的分布走向也将趋向于对产品数量及服务类型的表述。本章还以帕累托曲线形象地解释了“赢者全拿”原则。

教育被隔离在教育机构内，学习者也从“生活世界”的实践中被剥离出来，导致学习者很难记忆、掌握知识。基于此，就更需要有经验的老师来设计教学过程，引导学习者进行知识的获取。设计已逐渐成为知识经济中的社会产品，E-learning 的设计或普遍的数字化学习设计或许已被视为对媒体制度化标准的重塑和扩充。

教与学的主要目的在于对知识与实践领域中内容的掌握，掌握程度可以划分为概念熟知、实际运用、描述评估三个级别。本章罗列出 1987 年时整个教育技术领域内有关教学原则的描述，包括：鼓励师生之间产生密切联系；开展生生之间的互惠合作；敦促学习者进行主动学习；给予学习者实时反馈；强调完成任务时间观；创设交流情境；尊重学习者天赋和学习方式的多样性。随后又将 2013 年杜蒙特在经济合作与发展组织(OECD)中提出的教师应认识到学习者是教与学中的核心参与者，鼓励他们积极参与，使其在了解自身的活动中发展为学习者；建构社会化学习环境，鼓励以团队方式组织的合作性学习；塑造专家型学习人才；应对学习者的个体差异有敏锐的洞察；推进“横向连通性”跨领域知识的一体化学习等八项教学原则的阐述现已在被国际研究证实其有效性后称为“第二十一世纪效力”。

Chapter 1 Education in the Knowledge Economy

One can hardly imagine a traditional university or classroom without books, maps, posters, notebooks and blackboards. The educational establishment has been built and structured on communication that combines the spoken word with printed and handwritten resources.

This world, however, belongs to the age of print, to the "Gutenberg Galaxy" as described by Marshall McLuhan (McLuhan, 1962), one that has been markedly changed by digitalization. Understanding this change requires us to accept that the world of organized education is divorced from the natural and spontaneous interaction of daily life. It is separated from the "life world", a concept developed in philosophy and social science by several authors of modernity including Edmund Husserl (1859 - 1938) and Jürgen Habermas (1929 -). The "life world" (from "Lebenswelt" in German) was used by Husserl as his philosophical point of departure and describes that which is self-evident, spontaneous and present at-hand and that can be experienced by a person with their family and friends, in nature and neighborhoods. Habermas has integrated this concept into his understanding of communicative action, the "life world" designated here as being the shared reference that allows us to talk and to learn to talk meaningfully together. All other forms of communication are based on this foundation.

This "life world" exists beyond the walls of education's Ivory Towers. Learning and teaching is bounded by and confined within institutionalizations and the specific rationality of a school or university. It is enclosed within genres and concept structures that seem foreign beyond this framework.

We should keep this distinction in mind when looking at the digitalization of education, at E-learning. Perhaps the most important and the most liberating application of this distinction is found in information technologies allowing the very deep and complex structures of academic knowledge representation, creation and dissemination to transcend this institutional confinement and even

social and geographical borders. Academic and scholastic knowledge is poised for this movement towards the "outside" and higher education is on the brink of becoming an integral and readily available resource in daily life.

We will not, however, pursue such musings further here.

The potential long-term development of education lies beyond the scope of this book. I instead assume the traditional institutionalized and instrumental logic of knowledge handling for educational purposes to be a given.

Mediated Circles of Discourse

The focus of our approach is therefore on how the processes of learning and teaching can be structured and organized within the formal institutionalized frameworks of education and we look at the important changes that are taking place as education leaves the world of print whilst remaining within the traditional institutional borders. We will use a simple circular model of discourse to establish a conceptual perspective and bridge between print-based and digital education.

The circle contains many areas or loci and activities such as classification, condensing and retrieval.

Abstracting (condensing) implies that an agent summarizes or synthesizes another's text. Concepts and topics can be outlined or pre-arranged before and through the writing process and manual or automatic ordering and classifications can also be used. These are important in maintaining larger individual, institutional and global collections, examples including the PC "desktop" and folder system and the repositories of the World Wide Web. They are also crucial to the efficient discovery and retrieval of materials from these repositories. The main logic of this is, however, more general and is based on the reciprocal activities of externalizing and internalizing symbolic content. The model gives a simple birds-eye view of academic and scholastic discourse.

We refer to the first main locus in the circle of mediated discourse as internalization. This is illustrated in Figure 1.1 by writing, but may be equally well represented by drawing, painting, singing, presenting and acting. The second activity, externalization, is represented by reading. This can also be equally well replaced, this time by listening, watching, observing and touching as in Braille reading.

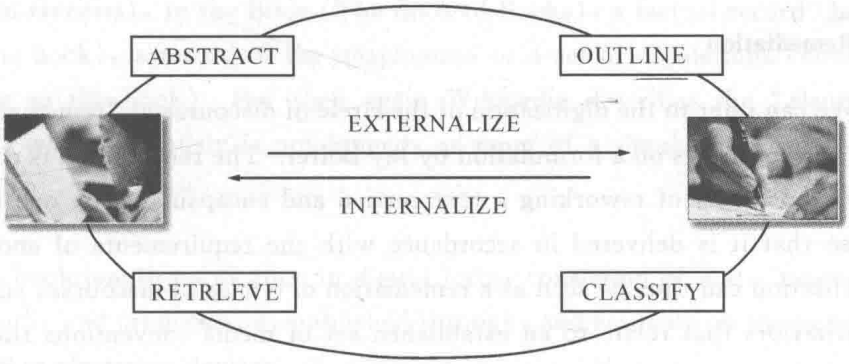

Figure 1.1 Circle of Mediated Discourse

Between these two main loci are found other intermediate steps of pre and post processing. These include outlining and other types of pre-writing that precede and are incorporated into the true act of writing, abstracting and summarizing being examples of meta-writing. Metadata is fed into systems for organizing and retrieving materials before being read. What we read is summarized and abstracted before we write our own exposes.

Here it is clear that we consider formal learning, as described above, as being a value-creating process. It consists of the manifold exchanges of symbolic content, of discourse, in which written and otherwise mediated expressions circulate between social agents (Blackmore, 1999). Related performances are seen as engagements within these mediated circles of discourse and consist of expressive (constructive) and impressive (adaptive) elements. Participants take turns to appropriate symbolic content produced by others, but also provide their own input, which can consist of mere reproduction or imitation. Reproduced text can be rephrased, augmented and extended versions of the original, leading to either simple or extended textual reproduction. Changed wording and composition may, in some cases, also appear to be simplifications and even vulgarizations.

Circles of discourse come into being and are replicated, over and over again, at the individual level and (for all practical purposes) infinitely at the societal level. They in addition have other facets of importance such as their span, their technical and expressive formats, their expressivity and information content, their level of reformation and the velocity or speed of circulation. We will return to some of these dimensions in later chapters.

Remediation

We can refer to the digitization of the circle of discourse as "remediation". This concept draws on a formulation by Jay Bolter. The remediation is considered to be the act of reworking a text carried and encapsulated by one media type so that it is delivered in accordance with the requirements of another. Digitalization can thus be seen as a remediation of circles of discourse, content and behaviors that relate to an established set of media conventions through these being reworked and reinvented (Bolter, 1991; Bolter and Grusin, 2000; Bolter, 2001). The form and the content of previous modes are reworked, improved, reinvented and realigned in the technical, the social and linguistic/conceptual sense. They are brought together for purposes other than the original creator intended. Brian Lamb uses the example of a vocal performance of one artist over the guitar riff of another to describe such kinds of remix or repurposing and which he refers to as "mashups". He suggests that we may think of:

> A classroom portal that presents automatically updated syndicated resources from the campus library, news sources, student events, weblogs, and podcasts and that was built quickly using free tools... Each... may be described as a mashup. As the term suggests, mashups involve the reuse, or remixing, of works, of art, of content, and / or of data for purposes that usually were not intended or even imagined by the original creators... (Lamb, 2007)

Let us use the concept of books as an example. There is no absolute or transcendental definition of this term. Wikipedia defines a "book" as follows:

> A book is a set of written, printed, illustrated, or blank sheets, made of ink, paper, parchment, or other materials, usually fastened together to hinge at one side. A single sheet within a book is called a leaf, and each side of a leaf is called a page.
>
> But the term may also refer to a main division of a literary work (The