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**Chapter X**

# **Evolving Learning in the Stuff Swamp**

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## **ABSTRACT**

*This chapter describes the theory, background and some uses of CoFIND (Collaborative Filter in N Dimensions), a Web-based database of learning resources which is created by and for learners. CoFIND is designed to exploit principles of evolution and self-organisation to create an emergent structure to learning resources. Through the manipulation of learner-supplied metadata such as classifications and ratings, this structure shapes itself to the needs of the learners who create it, providing something akin to guidance traditionally supplied by a teacher. The chapter starts with a discussion of the weaknesses of existing means for groups of learners to discover learning resources including search engines, directories, seals of approval, and collaborative filters. It considers a range of methods by which self-organisation is achieved in natural systems (notably evolution and stigmergy) and which underpin the CoFIND system. CoFIND is described and examples are given of some of its uses. The authors discuss some issues which arise, especially its cold-start problem, influences of surrounding systems and the role of motivation. The chapter concludes with a discussion of potential future directions for CoFIND and identifies some other aspects of learning environments which may benefit from such a self-organising system.*

## INTRODUCTION

In this chapter we will be discussing a range of issues which surround the problems of adult learners searching for reliable and useful information on the Internet. Our approach is firmly evolutionary. Although some existing approaches such as collaborative filtering use broadly evolutionary mechanisms (inasmuch as they are based on the survival of the fittest) to assist this process, they provide inadequate speciation to provide for differing learning needs. We describe and explain the theory behind a self-organising adaptive system (CoFIND, a Collaborative Filter In N Dimensions) which we have been developing to allow groups of learners to learn by collaboratively generating and giving structure to lists of learning resources.

## BACKGROUND

### Finding Stuff

“First, what’s there is stuff: partly information, partly pure nonsense—and it’s not always easy to distinguish the two. Second, it’s not a superhighway, it’s a swamp, albeit a swamp with many remarkable hillocks of well-organized, first-rate data and information” (Crawford, 1999).

If you know what you are looking for, finding relevant stuff on the Internet is (as a rule) pretty easy. Finding good stuff is not so easy. If you do not know what you are looking for, finding stuff is very hard. By definition, learners have at best a hazy idea of what they are looking for. This makes it especially hard for learners to successfully discover and assimilate knowledge on the Internet unaided. They are likely to pursue many false leads, miss important points and find difficulty in integrating new knowledge into a coherent and meaningful structure. This is not to suggest that it is impossible, merely that there are easier ways to learn most things.

### Teachers

Generally speaking, we find it easier to learn with the aid of an instructor or teacher. “Learning something with the aid of an instructor should, if instruction is effective, be less dangerous or risky or painful than learning on one’s own” (Bruner, 1966).

A key role for the teacher is to travel the path before the student, to find the most useful ways to go and match those routes to the needs of learners or groups of learners. The teacher (usually a subject expert) distills, classifies and sequences information to provide it in a format which is (hopefully) easily digestible to those with a specific set of learning needs.

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