

# USING COGNITIVE MAPS TO PROMOTE SELF-MANAGED LEARNING IN ONLINE COMMUNITIES OF INQUIRY

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## ABSTRACT

As online learners become more diverse and less well-prepared individually, particular help is required when transitioning into new, online learning environments, requiring engagement in collaborative, community-based educational activities. Cognitive maps provide one tool for tutors to support individuals in navigating the unfamiliar maze of online education and promote self-managed learning. Such maps, developed and offered at induction by the teaching team and linked to throughout the course, describe the territory that learners may wish to explore, signpost possible activities providing landmark knowledge, and encourage the development of cognitive and interpersonal abilities required for online learning. The contents of such maps may include the location of key sources, study guides, and provision of advice to beginners on how to handle the profusion of online material. They may feature a tutor-developed diagrammatic representation of the course, showing links between the different themes, and signposts to appropriate resources for further study and support. Tutors may also encourage learners to refine their own cognitive maps by adding further links to useful sources and materials which they have identified. Such enriched maps could be shared with the community for feedback, allowing for the comparison and contrasting of learners' journeys during their online studies. Working in groups, learners may, for instance, develop their maps to include accounts of group work.

## KEYWORDS

Cognitive maps; communities of inquiry; self-managed learning

## 1. INTRODUCTION

Continuing interest in online higher education has led to a rapid growth in its number of programmes and learners (Allen & Seaman, 2013). Some now assert that it has become the “. . . preferred or ‘new normal’ mode of study throughout the world” (Brown, 2015, p. 1). Many of these online offerings, taking a collaborative, community-based approach to learning, may be informed by the Community of Inquiry Framework (CoIF), which is arguably the most prominent, detailed and cited model of online learning. The CoIF's purpose, Garrison declares (2011), is the development of a quality, educational experience, within an online community, where learners engage in collaborative educational activities and conversations.

There has, however, been an ambivalent response to these innovative developments, with some questioning if learners are ready and prepared, for the transition from the more traditional, didactic face-to-face learning experiences to learner-centered online activity (Akyol, 2013). Thus many learners expect to take a “lone wolf” approach to their online studies and as one of the learners from Baxter's study (2012) in the UK explains:

*I thought I'd be on my own, then I realised that for some assignments I would actually be working with other students, sort of like in a group. That was so different to what I thought this would be.*

Learners in Taiwan, for instance, appeared to exhibit high levels of readiness in computer/internet self-efficacy and motivation for learning and communicating online, but had lower levels in self-directed and self-managed learning - essential attributes for successful online learners (Hung et al. 2010). Our emergent work focuses on the development and provision by tutors of cognitive maps, assisting learners in the planning of their joint studies designed to promote self-managed learning in community-based, collaborative learning environments.

## 2. COGNITIVE MAPS SUPPORTING SELF-MANAGED ONLINE LEARNING

The concept of cognitive maps, introduced by Tolman (1958), was based upon his work with rats, investigating how they navigate a maze. Cognitive maps in education can be one valuable resource for human learners who are transitioning into unfamiliar learning landscapes. Access to, and use of, a well-designed cognitive map can help learners navigate the maze of such landscapes to good purpose, by providing “landmark knowledge” supporting and nurturing their learning (Li et al. 2013). Such maps will not only show where learners can make their start towards desired progress, but can also indicate the routes they can use - depending on what is, and is not, important to each individual learner and their community. The contents can be of many different forms and types, and could indicate:

- The location of key sources – seminal papers in the subject area, recent literature surveys providing an overview of publications, concepts, issues and findings, regulations if applicable, and even definitions of key terms.
- Recommended guides – to the basics such as searching in this field, tools of inquiry and how to use them, the approach to be followed in effective online learning and collaboration, and the issues, especially affective ones, likely to emerge in group learning.
- Relevant work in progress; key personalities in the field.
- The level of source material; too deep may be more than the learners seek or can cope with; too shallow is best avoided.
- Advice to beginners on how to handle the profusion of online material, in the unfamiliar digital form, and how to establish their own landmarks, as described for example by Li et al (2013).

## 3. COGNITIVE MAPS AND ONLINE COMMUNITIES

A cognitive map helps online learners to identify and record where they have reached at any point in time, where they could go next, and generally how they might profitably progress in this maze of the new learning environment, in pursuit of their desired learning (Garrison and Akyol, 2013). Such maps usually developed and offered at induction by the teaching team, describe the territory that learners may wish to explore, signpost possible activities providing landmark knowledge, and encourage the development of cognitive and interpersonal abilities required for online learning. Cognitive maps will identify the location of materials to assist with the development of much needed learner abilities, particularly in the cognate area. They may feature a tutor-developed diagrammatic representation of the course, showing links between the different themes and signposts to appropriate resources for further study and support. Comprehensive cognitive maps should assist learners in going beyond themselves and well into their Zone of Proximal Development (Nicholl, 1998).

An important element of cognitive maps will be pointers towards guidance for those new to the online environment, regarding working online and working collaboratively. Maps may identify, locate and even commend short videos of learners discussing why they became active and collaborative participants in a community, rather than feeling isolated individuals in pursuit of their own individual knowledge acquisition.

Examples of individual and group work could be pinpointed to enable learners to appreciate the differences in the level and type of work they could develop. The aim of this area of a cognitive map should be to broaden and deepen learners’ conceptualisations of their imminent online learning, and to assist them in engaging effectively.

Learner discomfort in online discussions is well-documented; for many learners, the very nature of ‘posting’ to an online space housing thoughts that will be read critically by unknown peers and tutors is alien, threatening and impersonal. This often-unexpected demand of online learning becomes even more daunting for the learner when the communication tools provided by the institution are cumbersome and difficult compared to the more familiar social network tools such as Facebook. Cognitive maps may suggest guides about the purpose of online discussions, with hints and tips about using the tools, exemplars of different types of postings, and the location of videos that demonstrate how to use these tools and links to support services within the institution.

Cognitive maps may also usefully identify sources of helpful guidance on how students can manage their emotional responses in the online learning environment. It is important for tutors and learners to recognise the affect for its vital role in developing, though sometimes hampering, online learning. Whilst some learners have positive response to online offerings, including joy, enthusiasm and excitement, all too often learners report feelings of fear, anxiety, alienation, guilt and stress (Zembylas et al. 2008). Learners may need to develop coping mechanisms such as increased awareness of the different avenues available for support. Cognitive maps can link to different available help services that learners can use throughout their studies. Xu, Du, & Fan (2013) conclude that the tutor will “. . . want to promote a culture of help-seeking, encouraging students to learn how to ask for assistance from multiple sources (for example, the instructor, peers and friends) through multiple channels (for example, email, web chat, and video conferencing) when they confront personally challenging tasks and perceive the need for help.” (p.7).

#### **4. THE TUTOR AND THE COGNITIVE MAP**

Once a map has been prepared and made available, the tutor should concentrate on having learners and the community use the map, use it well, and to good effect. In the introductory weeks of a programme of study, tutors will typically encourage learners to make self-managed use of their cognitive map by linking introductory activities, for example in the ice-breaker activities in the online discussions, to the map. Later tutors will promote specific links when reminding learners of the landmark knowledge available from the cognitive map. From time to time, tutors may advise individual learners how to use other such maps to guide and shape periods of study away from the group.

#### **5. LEARNERS CONTRIBUTIONS TO DEVELOPMENT OF COGNITIVE MAPS**

Whilst teaching teams will have developed a cognitive map in the planning stages of setting up their online communities, tutors should also encourage learners to refine their own individualised cognitive maps by adding further links to useful sources and materials which they have identified. Such enriched maps could be shared within the groups or the wider community for feedback, allowing for the comparison and contrasting of learners' journeys during their online studies. Working in groups, learners may, for instance, develop their maps to include accounts of their group work. Such maps, with their accounts of learning journeys, may also be gathered for tutor feedback and used, with learner agreement, for future iterations of the module. Maps developed during one course may also be used by learners to navigate their own further online studies and support continuing professional development.

#### **6. CONCLUSION**

The purpose of cognitive maps is to meet the navigational needs of self-directed online learners. As communities of online learners become more diverse and often less well-prepared individual learners, particular help will be required by learners in transitioning to, and through, online learning. Cognitive maps provide one tool for tutors developing and maintaining online learning communities to support individuals in navigating the unfamiliar maze of online learning seeking to promote and nurture deep learning.

Confronted with the immense assembly of virtual resources available on Internet and beyond, today's self-directed learner can feel as forlorn as someone to whom the doors of an immense international library have generously been thrown wide open. The naïve online learner knows for certain that what they require is in there - somewhere on the array of crammed shelves. They need helpful suggestions and pointers, framed with their current area of interest in mind, to help them in deciding which shelf they should go to, what item should have their first attention, and then, how to progress. A cognitive map, distinct from a course guide which would of course be mapped within it, should provide learners with suggestions, coupled with enough

information about highlighted items to inform their decision-making as they journey through the new online learning environs.

We submit that every course team developing online collaborative, community-based learning should give careful attention to formulating and providing an effective cognitive map for use by their self-managed learners. Their tutors should monitor its effectiveness in use, and use individualised maps to record accounts of their learners' journeys, and diversions, so that the next edition of the map can be enhanced for future learners.

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