

# Chapter 9

## Applied Informal Problem– Solving through Self– Discovery Online: An Approach

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### ABSTRACT

*People often refer to the World Wide Web (WWW) and the Internet to conduct ad hoc and informal problem-solving. Their success in their endeavors has depended on a wide range of information access and crowd-sourcing; deeper analysis of problems; and growing self-efficacy through acclimating into certain problem-solving groups (with attendant new identities) and the “takeaway” learning by abstracting the problem-solving process. This chapter suggests that a greater awareness of site and online resource designers about the steps of problem-solving may enhance the building of self-discovery learning affordances for every phase of the informal problem-solving process.*

### INTRODUCTION

*“Inquiry and technology-enhanced learning are a good marriage.” – W.R. van Joolingen and Z.C. Zacharia (2009) in Chapter 2: “Developments in Inquiry Learning” in Technology-Enhanced Learning*

People around the world regularly access the World Wide Web (WWW) and Internet for support on a range of challenges. Some of their issues are simple ones—a quick check on a fact or a simple

process. The users are asking close-ended questions with clear-cut answers. They want to know how to prepare a particular dish; use a particular tool; achieve a particular task; or solve a basic problem. These are common challenges in the so-called fast-growing DIY (do-it-yourself)-sphere.

Many bring more complex and high-magnitude problems to the Web. These involve more complex strategies and tools and information; these may take much longer time horizons to solve and many more resources and interventions to address. These challenges may involve potentially highly serious or dire effects. Some challenges may not be solvable. Some questions asked may not be

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answerable. These users want to know how to handle more sizeable challenges—such as in handling financial, health, legal, or personal issues, for example. And still others pursue complex problems that require coordination among a wide number of individuals—such as issues in addressing environmental challenges, public health, economic disparities, and broad-based social justice issues. If the scope of problems may be conceptualized as a continuum from those requiring simple and fleeting solutions to complex ones (requiring deep and nonconventional exploration and long-term or even continuous attention), some ultimate mediated achievements may involve interdependent problem-solving of large-scale non-obvious problems through crowd-sourcing and collaborative virtual work. Those kinds of collaborations may ultimately contribute to the larger politics and environment. For many, the actual solution to the problem may be partially or fully achieved online. At every moment, there are many millions who are turning to the WWW and Internet for informal problem-solving.

Said another way, if A. Maslow's hierarchy of needs may be applied, people go online to deal with foundational physiological needs, safety; love and belonging, self-esteem, and self-actualization (in ascending order from lower-order to higher-order needs). Physiological needs may include the need for food, water, and sleep. In terms of safety, people need employment, access to resources, connections with family and friends, access to health, and access to property. In terms of love and belonging, people need social relationships and important primary intimate relationships. In terms of esteem, people need a sense of achievement and a respect for and from others. At the pinnacle of this pyramid is self-actualization, which consists of "morality, creativity, spontaneity, problem solving, lack of prejudice, acceptance of facts" ("Maslow's hierarchy of needs," Oct. 16, 2010). The WWW and Internet have become such an

integrated part of people's lives that they often turn to these resources for needs at every level of Maslow's hierarchy of needs pyramid.

Even from the earliest days of the WWW, Tim Berners-Lee [creator of the hypertext transfer protocol or "http" with Robert Cailliau, a student at the European Organization for Nuclear Research (CERN)] envisioned a Web through which people of the world could come together to solve shared problems. In the ensuing decades since the Web's origins in 1989 - 1990, plenty of functionalities have enhanced the Web as a problem-solving tool.

The self-discovery element of the Web has not been as fully developed as possible for informal (and complex) problem-solving needs. Enormous amounts of physical information have been preserved in digital form and made available, and there are supportive communities and networks of learning. However, these elements are often cobbled together only by individual users.

There is a benefit for framing some parts of the Web and Internet as problem-solving spaces for a range of concerns—in order to enhance user self-discovery learning in the following ways:

1. Framing particular challenges as problem(s)-solution(s);
2. Offering a range of user tools to address defined problem-solving steps, and
3. Acclimating users into different communities to enhance their problem-solving knowledge and skills

Informal problem-solvers may benefit from more methodical and reasoned approaches in understanding their unique situations instead of proceeding in an instinctual, emotion, or ad hoc fashion. This "use case" of informal problem solving suggests particular benefits in terms of online designs.

A review of the literature on problem-based learning online will set the context for this chapter.

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