Chapter II

Dialectic Argumentation for Promoting Dialogue in IT Education:

An Epistemological Framework for Considering the Social Impacts of IT

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Abstract

If a deep and meaningful understanding of Information Technology is to flourish, we need, as educators, to create an ethos in which students can express themselves in a risk-free environment. In order to promote higher-order thinking skills, we must move from the single-expert view to a more collaborative classroom. In information technology, there are controversies and different solutions to problems: Students need to be

helped to understand the arguments from different points of view, and to see how they relate to each other. The development of technological literacy, as well as life skills, will be accelerated through the use of argumentation skills such as debating, justifying an opinion, weighing up conflicting points of view and analyzing disagreements. These skills that are inextricably linked to problem-solving skills, may be assessed in dynamic and exciting ways, such as observation, interaction, group work and challenge. Arguments may be grounded on common knowledge, personal knowledge, testimony, plausibility and necessary truth. These philosophies are essential to understanding both the made world and the new electronic age.

Introduction

Jonas (2004) argues that Information Technology has come about as a result of the revolution in the passage from electrical to electronic technology. This, for him, "signifies a new level of abstraction in means and ends" (p. 27). Whilst he concedes that technologies and instruments designed to give us information, or aid cognition (such as tying a knot in a hanky as an *aide memoir*, or using a thermometer to gauge the temperature of some liquid) were around for some time prior to the concept of electronics, these devices did not, with the possible exception of the clock, generate information in an active sense. In the world we now inhabit, however, Information Technology actively shapes and directs our lives. Thus, information delivered through Information Technologies is socio-technological. This has consequences not only for education concerning Information Technology, but also for society in general.

In this chapter I would like to begin by problematizing the prevailing model of learning and teaching within the Information Technology curriculum. (This also resonates strongly with other domains such as technology and science education.) In schools, and also, I will argue, in further and higher education institutions, the Information Technology curriculum makes certain assumptions about the nature of the various Information Technologies in terms of "fitness for function," and that these functions are seen in some narrow instrumental context. By this I mean that Information Technologies are regarded very much as a means to serve specific ends. They assume an epistemology that is more concerned with the processes embedded within the methods of their produc-

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