Learning styles and student attitudes toward various aspects of network-based instruction[1]

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Abstract

In order to determine student attitudes toward various aspects of network-based instruction 234 individuals voluntarily participated in research to ascertain their tendencies that will likely facilitate, or interfere with, interacting and learning from this innovative technology. Participants were requested to respond anonymously to 60 items of a survey, designed to assess their attitudes toward distinct facets of network-based instruction, as well as two separate forms developed to ascertain their learning and cognitive styles. Student responses to survey items, and measures of learning and cognitive styles, were analyzed using a number of multivariate and univariate statistical techniques. Students with assimilating and accommodating learning styles demonstrated significantly more agreeable attitudes toward varied aspects of network-based instruction than students with converging and diverging learning styles. These findings partially supported the general hypothesis. Recommendations are made to appropriate sponsors, academic administrators, faculty members, and instructional developers, interested in realizing on-line learning. Published by Elsevier Science Ltd.

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1. Introduction

1.1. Internet technology

Distance learning (Keegan, 1996) typically implies instruction via nontraditional means, i.e. courses via correspondence, radio, television, satellite, and, more recently, Internet with its associated software, hardware, multimedia, digital links,

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and supplementary audio and videotapes or CD-ROMs. Also, it implies on-campus classes, seminars, and workshops where the instructor is not physically present, and communicates with students at several sites simultaneously via electronic media (http://www.pages.prodigy.com/PAUM88A/).

Two types of distance education are frequently mentioned: (1) "Synchronous instruction requires the simultaneous participation of all students and instructors... interaction is done in 'real time'," e.g. video teletraining, computer conferencing; and (2) "Asynchronous instruction does not require the simultaneous participation of all students and instructors. Students do not need to be gathered together in the same location at the same time", e.g. electronic mail, Internet-based courses (some of these can be synchronous using innovative technology) (http://www.fwl.org/edtech/distance/html).

The 'Internet' is a physical collection of interconnected computers: a network of networks for transferring data among computers and providing on-line services to users on a global scale, using phone lines, coaxial cables, data links, wireless communications, switching devices, and other conduits (PC Novice, 1996).

Internet-based information and communication technologies are changing how instruction and assessment are being conducted in innovative schools, colleges, and universities throughout the world. Training and testing are experiencing a noticeable transition "from the traditional centralized, local, classroom-teacher focused approach, to a de-centralized, global, network based, student focused one" (http://www.altgrp.com/Vision.html). With the widespread use of personal computers in the classroom, on the job, and at the home, and the connectivity to the Internet increasing exponentially, many individuals have immediate access on their desktop to remote educational resources, and even instruction itself.

Consequently, education and training do not have to be confined to classrooms and campuses, and students and teachers do not have to be present at the same place and time for instruction. Teaching can occur on local or global networks, and distributing educational materials can occur electronically, or on CD-ROMs, thus capitalizing on multimedia formats. These yield several advantages, specifically: (1) access to a potential worldwide student body; (2) provide better teaching materials prepared by experts; (3) update rapidly course materials; (4) enable instant access to these resources for students and teachers; and (5) tailor instruction for self study (http://www.altgrp.com/Vision.html).

The Internet can provide video, but not as rapidly as videotape, television, or CD-ROM. It can support personal communication in real time, but not as efficiently as telephone or video conferencing. It can display textual and graphic materials, but not as easily as books and magazines. The Internet appears to have two primary advantages when compared to other educational media: (1) it enables the combined use of other media in an interactive manner to connect remote people inexpensively; and (2) it is not only an instructional delivery vehicle, but also a content provider enabling access to what is arguably the largest and most diverse resource for information, which can be incorporated into instructional design and development. The Internet has several aspects that appear to give it a number of other advantages for distance education, specially: it can (1) transmit text, graphics, audio, video, and