**Web quest Additional Information**

For more information about how faculty, administrators, and institutions from around the world are assessing and evaluating technology and student learning, see NC State University’s Web site, Assessing the Impact of Technology- Rich Spaces on Student Learning (http://www2.acs.ncsu .edu/UPA/assmt/litre/index.html), which provides links to a wealth of resources designed to facilitate understanding of the role of assessment and evaluation in technology and student learning:

• The online searchable bibliography contains citations for publications relevant to assessing the impact of technology on student learning. While the focus is on work published since 2000 that has been conducted in higher education, some applicable K–12 research is also included.

Inclusionary Quantitative Research Design, On-line education, Use of Technology, Indirect Assessment, Performance feedback,

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| **Citation** | |
| Barak, M. & Dori, Y. J. (2004). Enhancing undergraduate students' chemistry understanding through project-based learning in an IT environment. Science Education, 89,(1), 117-139. | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=105) | The investigators studied how the use of computers to construct molecular models affected students' understanding of chemistry. Results demonstrate that students who utilized the computer to complete throughout the course retained a better understanding of the principles and concepts of chemistry. |

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| **Citation** | |
| Brewer, C. A. (2004). Near real-time assessment of student learning and understanding in biology courses. Bioscience, 54, 11, 1034-1039. | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=104) | Investigates the impact that personal response systems and web-based assessment has on student learning in biology. Results indicate that these types of technology enhance students' comprehension of the material presented in biology. |

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| **Citation** | |
| Chen, P. and McGrath, D. (2003). Moments of joy: Student engagement and conceptual learning in the design of hypermedia documents. Journal of Research on Technology in Education, 35(3), 402-22. | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=82) | Investigates the effects of hypermedia on students' organization of information and other outcomes. |

**Citation**

 Collier, Catherine and Morse, Frances K. Requiring Independent Learners to Collaborate: Redesign of an Online Course. Journal of Interactive Online Learning, 1(1), Summer 2002. Synopsis

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| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=44) | Quantitative study on effects of using data to transform on-line course and create accountability for collaborative assignments. |
| **Citation** | |
| Comunale, C.L., Sexton, T.R., Pedagano-Voss, D.J. (2002). The effectiveness of course web sites in higher education: An exploratory study. Journal of Educational Technology Systems, 30(2), 171-190. | |

Synopsis [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=5) The article assesses the usefulness of incorporating a web site into a course as to supplement face-to-face lecture. Students reported the web site positively affected their learning and appreciated the usefulness of a variety of features (course notes, grades, discussion board).

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| Draper, S.W. & Brown, M.I. (2004). Increasing interactivity in lectures using an electronic voting system. Journal of Computer Assisted Learning, 20, 81-94. | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=103) | Analyzes the integration of a personal response system in classes across a number of disciplines to identify implications for interactive engagement and just-in-time teaching. |

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| **Citation** | |
| Foertsch, J., Moses, G., Strikwerda, J. & Litzkow, M. (2002). Reversing the lecture/homework paradigm using eTeach web-based streaming video software. | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=111) | Evaluates the impact on students of using eTEACH on-line computer application to reverse the homework/lecture paradigm of a large lecture course in computer science for engineers. Students viewed lectures on own time via the Internet and class time was used for group problem-solving exercises. |

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| **Citation** | |
| Greer, L. & Heaney, P. J. Real-time analysis of student comprehension: an assessment of electronic student response technology in an introductory earth science course,” Journal of Geoscience Education, 52 (4), 2004. | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=122) | Authors conducted a multi-faceted assessment of the use of student response technology (SRT) in an earth science course that included quantitative and qualitative perception data from students enrolled in the course and faculty/administrator visitors to our classroom. |

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| **Citation** | |
| Kulik, J.A. (2003). Effects of using instructional technology in colleges and universities: what controlled evaluation studies say. Center for Science, Technology, and Economic Development. SRI International: Arlington, VA. Available online: http://sri.com/policy/csted/reports/sandt/it/Kulik\_IT\_in\_colleges\_and\_universities.pdf | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=84) | Analyzes quantitative research on effectiveness of instructional technology on student learning in higher education. Main focus on controlled evaluation studies. |

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| **Citation** | |
| Laird, T. F. N. and Kuh, G. D. (2004). Student experiences with information technology and their relationship with other aspects of student engagement. Paper presented at the Annual Meeting of the Association for Institutional Research, Boston, MA. | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=91) | The paper uses data from the National Survey of Student Engagement to identify relationships between technology use and other types of engagement commonly found among students. |

Qualitative but supports the investigation between f2f and online

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| **Citation** | |
| Meyer, K. A. (2003). Face-to-Face versus threaded discussions: The role of time and higher-order thinking. Journal of Asynchronous Learning Networks, 7(3). | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=26) | Online (threaded) discussions provided students with additional time to reflect; however, both contexts had value from the students' perspective. |

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| **Citation** | |
| Peat, M. & Franklin, S. (2003). Has student learning been improved by the use of online and offline formative assessment opportunities? Australian Journal of Educational Technology, 19,(1), 87-99. | |
| **Synopsis** | |
| [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=42) | Investigating what contributions formative assessment activities have towards final grades |

**Citation**   Webb, E., Jones, A., Barker, P., & van Schaik, P. (2004). Using e-learning dialogues in higher education, 41,(1), 93-103. Synopsis [Detail](http://www.fis.ncsu.edu/upa/bibliography/moredetail.asp?ID=102) This provides an empirical examination of the impact of asynchronous discussion forums to support on-line dialogue in two undergraduate classes.