Volume 12, Number 1, June 2007

Multiple Intelligence Theory: Fact or Fiction?

Beth L. Vealé, M.Ed., R.T. (R)(QM)
Lynette Watts, M.S.R.S., R.T. (R)

Abstract
Multiple Intelligence (MI) Theory is one that has been debated for as long as educational theories have been around. Many teachers feel strongly that MI theory should be used in the classroom as a foundation for teaching all ages and grade levels. Critics of the theory feel that there is little or no evidence that MI theory is a valid theory for lack of data-driven research. Radiologic science educators need to be aware of the advantages and disadvantages of MI theory when constructing courses to insure effective instruction. This paper examines both sides of the issue with research from the proponents and disclaimers of the theory and concludes that not much qualitative research exists to back up the MI theory.

Diagnostic Image Fusion in Radiation Therapy

R. David McNally, M.S., M.H.S.A.
Jeffrey S. Legg, R.T. (R), Ph.D.

Abstract
Radiation therapy relies on the information obtained from diagnostic images of CT, MR, and PET for positioning and alignment accuracy. Physicians historically used one image set for treatment planning and a separate image set to visualize tumor location, growth progression, and metabolic function. They then had to overlay the two image sets in order to mentally visualize tumor and normal tissue differentiation, which could lead to treatment errors. Consequently the ability to align, co-register, and fuse together two independent image sets was developed. Image fusion allows physicians to monitor anatomical information and metabolic function simultaneously thereby reducing risk for errors and improving accuracy and patient safety in radiation therapy. Studies show that fused images of PET and CT versus CT alone have lead to overall gross tumor volume changes in 56% of cases. Image fusion resulted in more accurate outlining of tumor volumes showing potential to reduce geographical misses (missing target), improving local control, decreasing observer variability, and minimizing side effects. A goal for image fusion is to increase total dose to the tumor thereby improving treatment outcomes and patient's overall quality of life after cancer treatments. The purpose of this report is to review current scholarly literature on image fusion technology and the importance of diagnostic images for use in delivering radiation treatments.