Large-Scale Computer Aided Education: Pedagogical Enhancements rather than Non-essential Ornamentation

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Information Communications Technology can and has put an undue burden on the classroom teacher, sometimes nullifying the benefits it sought to convey. Much of that burden can be relocated to a central location, optimized with equipment and staff to mangage it effectively. The authors relate their own experiences in the classroom and in operating large-scale computing systems providing effective interactive computer-aided education to distributed learners. Having designed and developed systems that simultaneously serve more than 1,500 on-line users and controllers in six different time zones, they adduce data to support their thesis that a thin-client approach to an interactive computing classroom adjunct to the teacher is feasible, deliverable, affordable, reasonable and advisable. Their propositions are that the proposed system must deliver a virtual master teacher to assist in every classroom; a relief for and not a burden upon teachers; an optimal pace for each child unconstrained by the classroom progress rate; and a uniform excellence in education, especially math and science. They hold that discipline must be enforced during system development to provide pedagogically relevant capabilities rather than technical diversions included for amusement. Recent experiences with new GPU-enhanced Linux clusters will be presented and implication for future work advanced.