

CYBERTEACH-the way forward for quality research!

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Education has no efficient mechanisms for translating its research into practice. Teacher education programs have not been successful in convincing the teaching profession of the importance of research (Masters, 1999) and continue to maintain superficial, binary arguments concerning the importance or not of qualitative and quantitative methodologies with little or no reference to alternative, appropriate research approaches. In proposing the need for a National Research Agenda, Masters suggests that educational researchers should have a clear sense of purpose; their research should be focused carefully in the first instance and synthesized usefully; and then, dissemination and exposition of popular findings should be improved. Taken at face value, this plan is laudable.

However, according to Shaker and Heilman (2004), in some parts of the USA, where such measures have been implemented, the results have not always been those that were anticipated and have been greeted with dismay, even rancour. Examples of unexpected consequences include limits placed on funding research projects that do not use government pre-approved, narrowly focused research methodologies; uncorroborated, political party supported, advocacy research studies published widely by the media and acclaimed by society that damage institutional reputations (such as government schools) before their findings can be investigated impartially; and, the trend to publish research findings on the internet in order to gain support for a researcher's viewpoint and seek public acceptance before scholarly discussion and exploration of the findings has taken place, aptly termed contributions to an 'electronic vanity press'(p.1453).

Further, they draw our attention to the changing nature of society's understanding of education that heavily influences its scholarship and sometimes, unfortunately, dilutes its usefulness. It can be manipulated to produce desired results for corporate economics or it may contribute greatly to advancement of the field. Insidiously, it may devalue teaching as a profession by generating deprecating images. Dumbed down and misleading mass media force ordinary people to blame education for their woes not economic mismanagement. 'Faux scholarship wears the trappings of legitimacy, but passes through none of the normal channels of scrutiny and peer review" (p1455).

Citing Zinn (1999), they question the supposed non partisan stance of some public servants involved in decision making which rests on the results of such dubious findings. Then, in an intriguing turnaround, Shaker & Heilman provide compelling advice that could lead to excellent research quality in education

“...use the highest quality studies...different research foci and different research paradigms each have something to offer. No single paradigm of research is capable of presenting a whole truth or offering silver bullets for school improvement...our aspiration should be the ‘growth’ of quality in educational research rather than a belief that we shall achieve ‘truth’ or a perfect objectivity.” (pp.1453, 1462).

Again, Masters provides several workable solutions to the ‘pursuit of excellence in research in education’ conundrum. They are worthy of serious consideration. He insists that research must be devoted to improved student learning and that researchers should be focused on creating knowledge to improve practice, while noting that classroom practitioners expect research to be of obvious practical benefit. It is important for researchers and practitioners to work together to improve local output. To permit these circumstances to occur, successful policies and practices should be made easily accessible to policy makers, teachers, school councils, parents, students and other researchers. Becoming more explicit about enticing classroom teachers into engaging in research, he suggests that the following factors must be promoted.

- All communications regarding research should be organized and processed in a timely manner.
- Extraction and communication of intellectually interesting pieces from research findings should be made available quickly to schools and their communities.
- Full explanation of the usefulness of particular research findings should be made easily accessible.
- Generation of two way communication concerning research in progress should be encouraged.
- Establishment of research partnerships with teachers in schools should be emphasized

He challenges leaders within Australian educational systems to take the initiative and make their research needs known. As Masters leads the Australian Council for Educational Research (and it could be perceived by detractors that he is trying to tout for business) it would be prudent for all concerned to heed Cuban’s (1997) advice and develop a list of priorities that are not tied to those of any particular government agency. In itself a challenging task when most Australian researchers in education rely on public resources to fund, fully or partially, the bulk of their projects.

Underlying each of these suggestions is the capacity to improve research in education through appropriate pacing and timely implementation of findings. Stoll, Fink and Earl (2003) have explained clearly that for teachers time is problematic, noting that there is not enough of it to do all the things that must be done in a school day. Certainly not enough time to read and reflect upon new research. Innovative methods and items of immediate practical use are sought and knowing this, governments often become too willing partners in the quick, slick implementation of programs that seem suitable but are inappropriate because they are not underpinned by authentic, theoretical foundations derived from exemplary research. Rapid, widespread disillusionment followed by abandonment occurs. Alternatively, researchers in education often experience frustration caused by the time lag between completion of their research projects and release of pertinent information to an inquisitive public and receptive teaching profession.

Noting these situations, Maddux & Cummings (2004) contend that theories concerning education should be tested in classrooms, then schools then system wide. Their recommendations include that

- all innovations should have their theory base explicated and should be linked to exemplary practice;
- curriculum in teacher education, at under and post graduate levels, should show how theories can be applied and how their attendant methods and procedures can be selected and modified;
- teacher education courses should integrate and not categorise theories and/or methods;
- teacher education courses should require students to study challenging theoretical literature and reports and students should be exposed to diverse qualitative and quantitative research methods including a working understanding of statistics and their applications;
- professional researchers should teach in classrooms from time to time, as reality checks, in order to help them emphasise educational theories consistent with modern school conditions; and
- teacher educators should model research effectiveness and regularly be required to write research reports and publish findings.

Lots of advice but, as Beare (2001) acknowledges, making it happen is the hardest part, although essential if educational research is going to powerfully influence future schooling. Informed use of emerging Electronic Information Technologies (EIT) has the capacity to support these aims and through its use, to improve educational research and increase its quality. However, it is necessary to audit the availability of electronic tools to researchers, including hardware and software, before the commencement of any project.

First, network infrastructures are critically important to the survival and future progress of organizations (Low & Aitken, 2001). High speed network technologies and client server application design techniques should be chosen with care to ensure that they provide excellent electronic support to the research environments for which they are intended. Data, information and knowledge are important commodities for organizations and their capture, storing and reuse should be monitored constantly. While advocates of EIT use enthuse that their effective utilization is critical to organisational success and sustainability (Hicks, Culley, Allen & Mullineux, 2002), Walker & White (2002) have introduced the concept of technorealism that encourages a balanced and rational if somewhat cautious approach to the introduction of new technologies and emphasises preliminary consideration of unintended consequences.

Current experiences with electronic programs, supporting large arrays of data, enabling researchers and educators to focus on using them to improve student learning outcomes indicate that minimum technical standards must be met for these goals to be achieved. As Ramnarine (2004) observes, the system chosen must be able to pull data from student demographics, enrolment and diverse schedules and combine these with Human Resource Management, finance and assessment updates. It must provide for daily collation of data and demonstrate functionality to allow data.doc capture points, while

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maintaining good, web based security; asserting further, that with appropriate rights, users can have access to national and statewide tests. Experience has shown that researchers and educators continue to make requests for immediate provision of current data demonstrating their preference for up to the minute, factual information. Aspects of this data must be able to be transferred to desktop and/or laptop facilities with ease so that teachers and/or researchers can determine if students have performed well on special initiatives, targeted instructional strategies and/or research projects. For example, it is usually the role of deputy principals to oversee or actually place new students within their schools. They need to know where to position students within the system and their teachers require starting points from which to differentiate the curriculum. Research data collated annually needs to indicate if their choices are validated and stable in the context of the school.

At its most basic level, accountability ensures that there are procedures in place to check that all items are recorded and actions tally. Use of EIT provides an advantage in this area. It has the capacity in real time to collect, assemble, manage and allow its users to make sense of large aggregations of data; that can be turned sequentially into information, knowledge and wisdom that results in perceptive, considered and appropriate actions. The crucial variables are scale (large), comprehensiveness (many collections) and speed (fast, immediate). EIT creates unparalleled analytic power. Fresh data permits the fine tuning of policy and improvement of practice. Diagnostic and accountability analyses are identical but the ordering of elements is different. As Doyle (2004) points out, in the former, a problem is diagnosed, data analysed, policy formulated and resources reallocated and is adamant that accountability systems must be built upon diagnostic frameworks. Bailey (2004) adds that they need to be combined with evidence based research in order to have an impact on student achievement, professional development and diverse educational outcomes.

Unfortunately, barriers to the use of electronic technologies persist. Many educational researchers and teachers in classrooms feel unprepared to meet the challenge of using and implementing EIT. Limited access to outdated soft and hard ware; inadequate personal skills, time constraints and minimal exposure to related professional development have been cited as major causes of lack of interest and/or knowledge concerning EIT. Several factors can change malaise to magnificence including development of shared vision, adequate organisational and/or research project funding support, access to up to date software and hardware, skilled educators who employ adult learning inspired teaching methods to provide ongoing professional development, and exemplary technical assistance (O'Bannon & Judge 2004). Newer methods of EIT usage should be introduced in site based contexts to allow researchers and /or teachers to develop understandings in realistic settings with authentic learning tasks. Training must be consistent and spread across reasonable time frames in order to engage participants in new learning and embed novel concepts, skills and practices. Teachers and researchers must feel comfortable with new technologies before using them in formal learning and working environments.

It is obvious that the use of EIT allows us to revisit and reshape assumptions concerning best practices in Teaching and Learning. It changes what, where, how, with whom and

why we learn (Dowling, 2003). Of critical importance, it changes our approaches to knowledge. It demonstrates explicitly that information of itself is not knowledge. Information recipients must analyse critically all material and make sense of it before it can be used in any meaningful ways. Due to the amount and complexity of information available, Willinsky (2005) suggests that a continuous, overall scan of what is available throughout the world leads to a more sophisticated, globalised approach to information acquisition and use that is the reality of the modern, networked world. An interesting viewpoint when coupled with the fact that many publications featuring innovative and detailed descriptions of academic research studies have been taken over by large publishing companies that maintain online 24/7, for a fee, this repository of knowledge.

Criticisms of the costs involved with resourcing and knowing how to use EIT diminish in credibility if EIT infrastructure and training are standardized. Leung's (2004) study has demonstrated that researchers in the field can participate in self paced courses online and then share their knowledge with others in their research teams through cross training sessions. Astutely, he advises the identification and use of inhouse superstars, in his case researcher colleagues, who have developed excellent EIT skills and are capable of transferring them to others in their teams. Through successful experience with EIT training in large scale settings, Schick (2004) urges organizations to customize online training to appeal to the audience- and asks the questions he considers should be of paramount importance to us. Is it entertaining, worthwhile and targeted appropriately to participants? Does the software contain usable, engaging online tools, including cartoons and animations?

While searching for resources and financial support to ensure the availability of EIT to researchers and their projects, Roach (2004) reminds us that the internet found its first and most appreciative home in institutions of higher education. Diverse research fields have been reshaped by supercomputing and entirely new areas of interest such as bioinformatics-biology and computing- have been developed. Lamenting, he adds, that despite using electronic equipment and placing much emphasis upon the Teaching and Learning aspects of electronic information technologies, we have not been quick to redesign research units to integrate the diverse, positive features of EIT. But if we look closely at the nature of enduring, although relatively new (less than ten years duration) partnerships between universities and EIT industries, it is common to note a joint pursuit of excellence concerning innovative research. Such research is underpinned by novel methods and tools that provoke the emergence of distinctively different and better practices in professions and organizations such as education, teaching and schools. In our modern society, Doyle (2004) exposes a major problem for educational researchers by noting that there is an inherent tension between the need to account for public expenditure and the difficulty of measuring academic performance in ways that make sense to diverse stakeholders, although Beare and Slaughter (1999) have warned bluntly, Education needs to regain the initiative from accountants and sponsor different orientations to the past in order to achieve wholeness, connectedness, health and balance within the profession.

Reassuringly for researchers, EIT are beginning to find support from a range of programs and organizations that are based within school districts, universities and/or large private companies willing to share their expertise including state of the art software at little or no cost.

For example, Project ImPACT (Implementing Partnerships Across the Curriculum with Technology www.web.utk.edu/-impact, University of Tennessee) uses Macromedia Breeze, www.macromedia.com/software/breeze, to develop modules in standard structures including opening, objective, instruction and practice that are shared with practitioner and researcher colleagues in the teaching profession across the state and beyond (Martinez, 2004). Learner Plus (Claxton, 1999) provides technology tools including spread sheets and statistical packages that are carefully graded from simple to more complex to ensure that the user feels comfortable and confident with the materials as they pursue self paced, incrementally more complex tasks. Gibbs & Philip (2005, p1.in press) comment upon the ‘loud buzz of interest from educators via chat groups, listservs, wikis ...’ concerning the efficacy of the newly released Australian LAMS (Learning Activity Management System) open source software. ‘It is a system for managing the flow or sequencing of activities and linking to content as required’. Their research indicates that educators appreciate the immediacy, accessibility and relatively short time frame needed to learn to operate the basic elements of the package (www.lamsinternational.com) and use them for their own purposes. Simple to use and integrate, the CYBERTEACH grid provides stability in maintaining rigorous attention to the generation and maintenance of excellence and quality in research while using these electronic tools.

| ELEMENT | FOCUS | OUTCOMES | EIT USE | FUNDING |
|-----------------------------|-------|----------|---------|---------|
| RESEARCH | | | | |
| KNOWLEDGE | | | | |
| POLICY | | | | |
| TEACHING AND LEARNING | | | | |
| CURRICULUM/CONTENT | | | | |
| EVALUATION | | | | |
| ACCOUNTABILITY REQUIREMENTS | | | | |

Table 1

Beare (2001) emphasises the importance of creating exemplary future schools through the amalgam of teachers' in depth knowledge, complex skills and formal, coherent, ongoing Professional Development that is provided by theory based and enquiry driven services. In turn, these rely on the evidence of quality research, exemplary practice, and informed enquiry that will generate specialization and the collaborations of professional teams of experts. Caldwell (2001) advises that cyber policies are necessary to ensure access and equity but is adamant that workplace transformations must occur to encompass the demands of globalization and increased professionalism within Education. Goldsworthy (2002) iterates the importance of learning through the lifespan but acknowledges that in today's world its success relies upon globalised leadership and networked knowledge.

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