Teacher Education Students’ Research Training and E-Research: Current Perspectives and Potential for Development

Carlos González, P. Universidad Católica de Chile, Vicuña Mackenna 4860. Santiago. Chile, cgonzalu@uc.cl

Abstract: Research training is part of most teacher education programs. Teachers are required to be reflective practitioners able to conduct small scale investigations. With the emergence of e-research in education, it is important to investigate how research training should incorporate these tools and approaches. Preliminary results from a study on student teachers’ experience of research training and e-research are presented. Implications for designing research units of study which incorporate e-research tools and approaches are discussed.

Background
Teachers are expected to be critical practitioners who engage in researching their own teaching practice and who are, at the same time, critical research consumers (Cain, Holmes, Larrett, & Mattock, 2007; Berger, Boles, & Troen, 2005). Because of this expectation, most teacher education programs incorporate research training units of study. These units are mostly carried out following social science research traditions. One important recent development in this disciplinary area is the emergence of e-research tools and approaches. Originally developed within science, e-research in social inquiry has been mapped in three broad areas: research organization (for example: e-mail, instant messaging, video conferencing); research processes (for example: survey instrument design, web-based data collection, processing & analysis, visual presentations, dynamic presentations, web archiving, services for outsourcing data collection, analysis & archiving); and scholarly communication (for example: authoring & referencing, blog construction, monitoring & posting, wiki) (Jankowski, 2009; Halfpenny & Procter, 2010). More specifically in education, Markauskaite (2010; 2011) states that e-research has the potential to overcome traditional educational research problems (such as heterogeneity of research traditions and methods, lack of a collaborative research culture, and narrow research dissemination, which limits its impact in policy and practice) through deploying rich data and computation intensive research methods; developing networks which integrate e-research environments for collaborative distributed inquiry; and developing integrated datasets and resources directed to user centred dissemination platforms. One action for deploying e-research potential is “education for e-research” (Markauskaite, 2009). This implies that education students should learn about e-research tools and approaches (data mining, collaboration, visualisation, etc.). However, this author recognises that this hardly happens. Therefore, it is important to investigate how are these tools and approaches, if any, are being incorporated into students’ research training. An initial exploration of this matter through the experience of a group of student teachers enrolled in a research seminar is the focus of this paper.

Method
This study follows a phenomenographic approach. It allows qualitative descriptions of how people experience phenomena in different ways (Marton & Booth, 1997). The sample was purposefully aimed to recruit students from ‘Research Seminar’, which is a compulsory unit of study in a secondary school teacher education program at one Chilean University. 20 students participated in the study as interviewees and, in addition, 50 students answered usable open-ended questionnaires. In both cases the following questions were employed: a) what did you learn about research in this unit of study? And b) how did you approach the use of digital research tools available (bibliographic databases, referencing software, analysis software (SPSS, NVIVO) and collaborative writing tool (wiki))? Three qualitatively different experiences of research training and e-research have preliminarily emerged from this analysis. These are presented in the next section.

Results
Category 1: Fragmented ideas about what research is and surface approaches to e-research
In this category research is conceived of as a set of isolated procedures and practices. There is not a holistic perception where all stages and associated activities are seen as an integrated process with a clear goal. Furthermore, no connection is made between learning to conduct research and their future teaching practice. E-research tools were employed in a superficial manner or not employed at all. Some uses were associated with trying to conduct analysis using statistical or qualitative software or trying to find relevant papers in
bibliographic databases. However, the use of these tools was seen as disintegrated from the whole process and as an external imposition to meet unit requirements. Many students did not use of available digital research tools.

**Category 2: Advanced ideas about what research is and surface approaches to e-research**

In this category, research is conceived of as an integrated process related to appropriate approaches and techniques. Research is seen as a process to solve or improve situations in schools. It is also seen as a process for creating new knowledge, which may be useful for them, but also for other teachers. In this sense, they see research outcomes not only focused in their immediate environment but also as knowledge to support others’ practice. In this category, students see a clear link between research training and professional practice. However, e-research tools were employed in a surface manner or not employed at all. Similar to category 1, students tried to use some of the available tools but did not see them as an integrated part of the research project.

**Category 3: Advanced ideas about what research is and deep approaches to e-research**

As in category 2, research is seen as an integrated process related to solving problems or improving school situations, with clear links with professional practice. What is different from previous categories is how students approached available digital research tools. They were employed in an integrated way in all stages of the research process. This means they were used to conduct the literature review (bibliographic databases and referencing software), for analysis (through relevant analysis software), and to support collaborative writing (through wiki). In addition, more traditional uses such as e-mail and instant messaging were also employed.

**Discussion and conclusion**

One important finding of this study is that most students employed e-research tools in a surface manner. This was the case even for the group of students who achieved advanced ideas about research and its importance for teacher professional practice. Even students presenting deep approaches to digital research tools resembled what Markauskaite (2011) describes as ‘adds ons’. This means e-research seen as a complement to different stages of the research process rather than an integrated use with the potential of changing the manner research is carried out and disseminated. These results suggest low development, in the context this investigation was carried out, in incorporating sophisticated e-research tools and approaches in teacher education. It implies more reflection and development in this matter is needed for realising e-research potential. In the future, e-research should be embedded in research training. Students should not only learn the available digital research tools, but much should also be done toward fostering a collaborative culture within schools of education for future teachers to be able to participate in knowledge building processes using e-research. This may, eventually, help to overcome current educational research problems related to lack of relevance for practice and researchers’ isolation.

**References**


**Acknowledgments**

This research is funded by the FONDECYT 11100280 project.