Dissertation writing with automated citation and bibliographic tools: A case of post-graduate culture shock

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Abstract
Online technologies for document creation and publishing continue to re-shape the way in which post-graduate candidates manage their dissertation research and writing. In particular, automated referencing and bibliographic programs are now essential tools of dissertation writing that continue to develop in power, flexibility and integration with word processing programs. But many post-graduate and doctoral candidates arrive unprepared for the culture shock of online, automated referencing and bibliographic tools since their previous undergraduate exposure to citation and bibliographic principles is often solely in a manual context. Automated tools now expose them to a much richer set of citation possibilities, bibliographic organisation and search engine capabilities not possible in manual principles or processes. This paper reports on the experiences of a group of post-graduate students in learning the principles, procedures and capabilities of an online, automated referencing and bibliographic tool and proficiency in its use. An analysis of the group's preconceptions, attitudes and responses suggests several factors that influence learning process efficiency.

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A Case of Post-Graduate Culture Shock
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Abstract: Online technologies for document creation and publishing continue to re-shape the way in which post-graduate candidates manage their dissertation research and writing. In particular, automated referencing and bibliographic programs are now essential tools of dissertation writing that continue to develop in power, flexibility and integration with Word processing programs. But many post-graduate and doctoral candidates arrive unprepared for the culture shock of online, automated referencing and bibliographic tools since their previous under-graduate exposure to citation and bibliographic principles is often solely in a manual context. Automated tools now expose them to a much richer set of citation possibilities, bibliographic organisation and search engine capabilities not possible in manual principles or processes. This paper reports on the experiences of a group of post-graduate students in learning the principles, procedures and capabilities of an online, automated referencing and bibliographic tool and proficiency in its use. An analysis of the group’s preconceptions, attitudes and responses suggests several factors that influence learning process efficiency.

Keywords: Automated Citation, Dissertation Writing, Online Bibliographic Tools, Post-graduate dissertations, Referencing Tools

Introduction
This paper reports on a participant-observations study on the relationship between behavioral factors and learning effectiveness in IL programs that deal with the person-machine interface of computerized bibliography and citation managers. The study event was one of a series of continuing workshops on the functions and use of ‘Endnote’ given to 15 post-graduate research candidates. The study collected verbalized data from participants about their perceptions of (i) the attitudinal factors affecting their initial approach to learning on-line CBM skills and (ii) two issues in the learning process that condition behavioral response to the learning process. The paper reports on some challenging insights offered by these conversations.

Technology is transforming the information literacy skills required of post-graduate research candidates and the structure, content and delivery of IL courses and programs. This is particularly evident in the case of citation and bibliography tasks that candidates face in drafting and finalizing their research reports. In response, librarians and Faculty at most universities are conscious of the need for improvement in the delivery and effectiveness of courses on automated citation and bibliographic managers (hereafter CBMs). Instruction in Online CBMs is an integral part of post-graduate IL programs at many universities in both physical and social science disciplines.

Collaboration, flexibility and process are key concepts in the new approach to IL learning. Renewed interest and call for the development of collaboration between librarians and Faculty in the presentation of information literacy programs and special purpose workshop on particular aspects such as automated citation managers. McPherson’s proposals for a multi-disciplinary framework for teaching under-graduate IL are indicative of the recent interest in inter-disciplinary approaches to understanding the formative factors in IL learning and structuring the learning processes.

Flexibility is needed to respond to the growing inter-nationalization of post-graduate candidates and the unique difficulties in learning IL skills for research students for whom English is a second language. Both Fang and Chen suggest that conceptualising approaches to citation behaviour must consider cultural imperatives in their application to IL programs. Hockey and McSwiney report on the success of a IL program for international students targeting the acquisition of IL skills to work both independently and collaboratively to retrieve and evaluate academic information: both essential aspects of information literacy and lifelong learning.

Despite this multi-disciplinary progress, evaluation of IL course effectiveness remains heavily biased towards quantitative, scaling metrics based on respondent answers to set questions. An inherent limitation of this approach is the emphasis on ‘objective’ measurement at the expense of more qualitative behavioral factors such as perceptions, experiences and...
attitudes that are significant in shaping learning responses and learning effectiveness. The need for qualitative evaluation is especially relevant to pedagogic approaches that encourage on-going, self-determined learning processes rather than instruction as a singular event in which the learner adopts a passive, receptive role.

The role of behavioral factors and their impact upon the outcomes of learning processes are well documented in the literature, particularly in the person-computer relationship context. All learning situations are internalized for each individual together with the emotional response that then accompanies that 'mind's eye picture'. Through this process, emotional and imagination perceptions of learning situations may condition both an individual's willingness to learn and learning effectiveness. This paper addresses those factors directly and specifically. The individual's learning response is then conditioned by that internalization or 'mind's eye picture'.

In this context, two gaps in the literature emerge. First, a lack of pre-test surveys to discover the level of knowledge skills and familiarity that research candidates have pre-acquired. Course development focuses on the learning object rather than the state of the learner. Second, a lack of qualitative enquiry into the pre-conceptions, attitudes and learning experiences of participants in introductory programs or workshops. Scaled response surveys tend to emphasize the technical, mechanical aspects of teaching at the expense of qualitative, behavioral learning experiences of participants. The preconceptions formed in participants' minds about the nature of CBMs, their degree of user friendliness, required learning curves and other behavioral interface issues may strongly influence attitude towards the learning process and workshop participation and determine the perceived ease or difficulty of acquiring skills to effectively use CBMs.

This paper reports the first steps in a longitudinal study aimed at the reactions, attitudes and perceptions of a group of cross science-social science participants in a workshop on introduction to an on-line citation manager – Endnote. The research purpose of this first step is to contribute to the identification of major attitudinal concepts and their main interrelations over a number of workshops. The overall purpose is the distillation of significant behavioral factors (perceived experience and attitudes) associated with effective learning practices for future workshop sessions and design. Even though the analysis attempted here should be viewed as preliminary, it leads to several provocative conclusions. The most significant of these concern the interrelationship between behavioral factors and learning effectiveness in information literacy programs for postgraduate researchers at universities. The next section outlines the more common functions of on-line CBMs.

Citation Managers

This section briefly overviews the main functions of CBMs and introduces Endnote – the citation manager focus for the workshop. The choice of online citation managers is now large. Several integrate with general document processing software such as Word – for instance EndNote Plus, Library Master, IBID, Papyrus, Personal Bibliographic Software's ProCite, Get-A-Ref and Reference Manager. Others are specific to special purpose document preparation software such as Bibtex with the Latex software for preparation of mathematical papers.

While the set of functions performed by particular software may vary, Fraser defines the core tasks as follows:

1. Manually cataloging of bibliographic references in a personal library for the student's research;
2. Automated collection and organisation of references from bibliographic databases and library catalogues;
3. Search and retrieval of bibliographic subsets from catalogues or on-line databases;
4. Integration with word-processing software to automatically insert and format citations and bibliographies;
5. Formatting references in required bibliographic styles.

To retain appeal to a wide research audience, CMs must also have extensive customising capability to fit with personal needs of individual researchers. Choice domains include customising reference types, fields within reference types, citation formats within the text and bibliography including developing personal output styles.

The workshop focused on EndNote – a general use Citation Manager that interfaces with most popular document software packages (eg. Microsoft Word) to offer a 'cite while you write' capability, and automatic updating of bibliography as drafts progress. Endnote integrates the

"... three key bibliographical tasks within the one package: the searching of remote bibliographical databases on the Internet; the organisation of references in a database, and the creation of bibliographies. EndNote can be fully integrated with Word and other Windows word-processing software. Documents can be scanned and shorthand citations expanded and complete bibliographies created. EndNote libraries cre-
Workshops

This section explains the format, structure and four phases of the CBM workshops. The workshops are a collaborative effort between library staff at the University of Wollongong Central Library and the program coordinator in the Finance School. The workshop is one and a half hours in duration held in a Library seminar room with computer banks and computer-based large front screen for facilitator use.

Workshops commence with a discussion between facilitators and participants about:

- previous research report writing experience and format
- attendance at IL courses or programs
- previous experience with on-line CBMs
- the potential functions of CBMs
- precious computer experience
- their feelings about undertaking a workshop

The second phase is an on-line introduction to Endnote covering access, structure and interface. The phase is dominated by a hands on practice session to (i) set up an Endnote library on their computers; (ii) locate journal items in a bibliography (ABI/Inform) using ProCite through the library website; (iii) mark and retrieve selected items directly into the created library; (iv) then use Endnote’s ‘Cite while U Write’ function to place references from the library in a document (Word) and observe the referencing and bibliographic results. Participants are then introduced to the concepts of input and output styles and the mechanics of choosing input styles for two other data-base managers and then practice citing selected writings using two different styles.

The librarian delivers the on-line session, while using a large screen to explain and discuss each step with participants. Meanwhile, the Faculty coordinator provides individual assistance during the workshop.

The third phase is a discussion session where participants verbalize their perceptions, reactions and attitudes in the second phase. They are encouraged to talk freely about their reactions. The facilitators do not lead this discussion other than to elicit detail or encourage individuals to share experiences.

In the final phase, participants locate, mark, retrieve and cite 5 references which are given to them. They are encouraged to work collectively and individually to practice these skills. The students are then shown the on-line help and on-line tutorials available in Endnote and encouraged to use these for further exploration and learning.

A de-briefing discussion session is held with participants at the next program session to gauge post-reactions and to follow up on whether they then progressed to self-learning either through the on-line Endnote tutorials or practicing skills in actual draft writing.

Method

Analysis of the oral data provided by the participants is an ongoing project over continuing workshops guided by the principles of qualitative data analysis – ethnographic, coding and conceptualizing. The major concepts and themes and their inter-relationships will be defined and explored using the NUDIST qualitative data analysis package. The software will be used to develop a qualitative coding template around emerging themes and categories that will allow participant viewpoints to be given consideration as significant factors driving effective learning structures.

This approach is apposite to quantitatively orientated respondent survey approaches that reduce responses to measured rankings on scaled items. Kaplan and Maxwell (1988) argue that the goal of understanding a phenomenon from the point of view of the observer and its particular social and institutional context is largely lost when oral or textual data are quantified. The connection between the surface form of expression and underlying meaning may be far too complex to give metric quantification any reliable content. The emerging themes and coding will help identify commonalities and contrasts in attitudes and perceptions to the learning process and encapsulate relational aspects from the participants’ structures of meaning rather than from instructor dominated contexts.

The ethnographic method used here is driven by the proposition that learning is an individual context dependent process that is formed through the behavioral responses of participants and their experiences during process. Of course, any qualitative assessment of verbalized data through the agent of the researcher

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1 The effectiveness of collaborative teaching partnerships is often conditional. R. Ivey, "Information Literacy: How Do Librarians and Academics Work in Partnership to Deliver Effective Learning Programs," Australian Academic and Research Libraries 34, no. 2 (2003). found that partnership program effectiveness depends on a shared understanding of IL development processes and appropriate program staffing. Effective communication and positive working relationships were also essential conditions.
will depend on their epistemology and ontology. All the researcher can do is to acknowledge the subjectivity of the narrative. This subjectivity and the situational context of any analysis are acknowledged.

Preconceptions about Automated Citation Managers

With four exceptions, participants had few well formed concepts about the use, nature or functions of citation managers. Only four participants had prior exposure to on-line Citation managers; although ten students knew the library conducted on-line tutorials on their use. Their preconceptions could be described as ambivalent and nascent. Typically, comments indicated conceptual familiarity with CBMs but ignorance of their functionality or the potential benefits they offered the researcher. Two of the four participants with previous exposure to Endnote, had experienced significant problems with the on-line learning process. One participant commented ‘it’s ok if you don’t make a mistake, but getting back is hard. I had to keep going back to the beginning again’.

Two features characterize these conversations. First, there is a surprising lack of formal training in information literacy skills in under-graduate course programs. Six participants who had undertaken such courses explained that these were Library centered – they were given instruction on-line databases, database query and library cataloguing but not on integration of these library skills with essay, assignment and thesis writing. When questioned on this issue, participants replied as follows:

Comment 1. ‘Ok, so I’ve found the journal article; what do I do with it now?’

Comment 2. ‘I still don’t know when I’m supposed to quote an article or just mention the author and why’.

Comment 3. ‘I’ve never planned a search session; I just go and start searching the library catalogue’.

These and similar responses indicated a lack of connection in information literacy courses between instruction about use of library resources to locate material and the subsequent use of that material in essays, assignments and reports. A gap appears between library skills and research and thesis reporting skills.

A second feature is a lack of knowledge about automated CBMs and a general hesitancy to learn how to use them. For instance, all participants had used document processing and spreadsheet software in their research. Many used mathematical or statistical programs such as SAS, SPSS or Mathematica. There was a notable ambivalence about first encoun-
ters which initially affected their willingness to learn about the software.

This observation raises a provocative insight. The assumption that computer literacy in functional or application area is transferable to another area may be flawed. The ability to use Word processing and spreadsheet software does not imply either an innate attraction to learning other computer application skills or the transference of learnt computer skills to new software domains.

The Learning Process

Participants are asked to talk about their feelings and perceptions about the learning process both during and after the occurrence. Two factors emerge from participant discussions as potentially strong determinants of attitudes and emotional response to the learning process. The first is the need for instruction processes that are simple, linear, and well specified. The second is the way mistakes and errors are handled.

On the first issue, participants tended to internalize the CBM workshop as a unique learning domain unconnected to instruction in other computer based utilities even though they are familiar with the graphic windows interface, key-board use and other ancillary computer use skills. (E.g. Comments to the effect that ‘this stuff is so different to just using Word’; or indicating that ‘there’s so much to learn and you get hit with it straight off. It’s a bit overwhelming’.

Even with this skills base, participants said they quickly became confused if; (i) the purpose of what they were doing was vague and/or (ii) if the steps to achieve that purpose were not broken down into simple, repeatable steps. The level of perceived confusion and exasperation seems to escalate exponentially if subsequent tasks and steps are either ill-defined, complicated or not logical.

The second factor of recovery from mistakes was probably one of the most universally agreed factors among participants contributing to negative perceptions, emotions and responses in the learning process. Inevitably, mistakes will be made as part of a constructive learning process. Participants expected this to occur. Mistakes allow actions to be corrected and correct sequences followed to achieve a result. Participants report that mistakes, while annoying, are not necessarily perceived as negative unless they become large in number.

They also reported that lack of guidance in mistake recovery was a very significant negative factor in their attitudes and behavioral responses. Precise instruction about what to do to recover from mistakes accompanied by illustration of how to recover is instrumental in raising confidence, counteracting
frustration, anger and pessimism about proceeding. This positive effect applied even if they had to go back a few steps or start again. But they reported that lack of assistance in decoding errors or lack of documentation on how to recover from mistakes created frustration and even anger. The behavioral effect could be long-lasting cumulative if it happened often enough.

For instance, the Endnote on-line documentation is written from an experienced user perspective, so error or mistake recovery is singularly lacking in the material. In fact, there is no section on error or mistake recovery. Two participants who had undertaken the on-line tutorials said they had given up in frustration due to the time consuming nature of mistake recovery and not knowing what had gone wrong or how to correct their mistakes.

**Implications for CBM Instruction Programs.**

Conversations with workshop participants and behavioral observation during the learning process suggest that behavioral factors do have a significant conditioning effect on the learning effectiveness of such programs. Positive or negative perception, internalization and emotional response to the workshop process appeared to influence participant’s willingness to participate and inculcation of skills. The study offers several insights into current assumptions and traditional structures of IL courses.

First, the assumption that an individual’s computer literacy skills are transferable across applications is questionable and cannot be assumed. Second, Computer literacy does not necessarily imply a willingness or keenness to learn skills in other computer based applications. While a post-graduate candidate may accept that gaining such skills are necessary, they may be quite reticent about engaging in the learning process.

Many IL and CBM courses or programs are designed by professional library staff with long association expertise in their use. However, comments in this study indicate that the neophyte’s perspective needs respect and inclusion; otherwise instruction design, while technically competent, may be flawed. Far more attention is required for those main vehicles of human learning – mistakes and errors. Pre-testing programs on pilot audiences may avoid the frustration, anger and negative perceptions associated with lack of information about error recovery.

In summary, attention needs to be paid to minimizing any negative pre-conceptions that may create behavioral barriers for the learner of citation management skills. Mastering the principles and skills of on-line information literacy techniques present the post-graduate student with a steep learning curve that requires them to engage two complex areas – computer/software manipulation on the one hand and Information Literacy on the other. The participants’ perspective must underlie all aspects of course design and delivery. Both Instructional course design and delivery must design and instruction program delivery will be substantially influenced by the recognition that can make the learning process seem daunting to the new user. These potentially negative perceptions can be further aggravated by ignoring the learner’s perspective in course design can build substantial behavioral barriers for the learner to overcome.

**References**


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