Educating the Millennial Generation for evidence based information practice

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Abstract
Purpose – The purpose of this paper is to consider how library education can best incorporate the profession’s emerging interest in evidence-based practice (EBP) whilst ensuring that the educational experience is meaningful to the contemporary library student.

Design/methodology/approach – A learning and teaching model developed by the Queensland University of Technology will be presented as a case study on how the library education curriculum can be developed to incorporate a focus on EBP whilst catering to the unique learning style of the millennial student.

Findings – To effectively meet the needs of the millennial student, library educators must develop their curriculum to include a real world activities and perspective, be customisable and flexible, incorporate regular feedback, use technology, provide trusted guidance, include the opportunity for social and interactive learning, be visual and kinaesthetic, and include communication that is real, raw, relevant and relational.

Originality/value – This paper contributes to the current discussion on how EBP can be integrated effectively into the contemporary library curriculum in general, and meet the learning needs of the millennial student in particular.

Keywords Evidence-based practice, Learning methods, Teaching methods, Information profession, Library instruction

Paper type Case study

Introduction
Evidence-based practice (EBP) has recently emerged as a topic of discussion amongst professionals within the library and information industry. Simply stated, EBP is the process of using formal research skills and methods to assist in decision-making and establishing best practice. The emerging interest in EBP within the library context serves to remind the library profession that research skills and methods will ensure that the library industry remains current and relevant in a rapidly changing environment. In 2001 the Centre for Information Research was commissioned by the Chartered Institute of Library and Information Professionals (CILIP) to conduct an examination into the research landscape for library and information science. The examination concluded that research is “important for the LIS [library and information science] domain in a number of ways” (McNicol and Nankivell, 2001, p. 77). At the professional level, research can inform practice, assist in the future planning of the profession, and raise the profile of the discipline, and the library and information service. At the personal level, research can “broaden horizons and offer individuals development opportunities” (McNicol and Nankivell, 2001, p. 77). Only one year later,
Crumley and Koufogiannakis (2002) observed that “teaching research skills to all library school students is essential for the growth of EBL within the entire profession” (p. 69) and as such, they challenge current library education to “play a major role in encouraging new librarians to take an evidence based approach to their profession” (p. 69). A similar conclusion is reached in the publication on evidence-based practice for information professionals by Booth and Brice (2004). In this work the authors argue that “getting research into practice [...] requires relevant skills to be built into professional development and educational initiatives” (Brice et al., 2004, p. 282). They propose that “lobbying educational institutions to increase research and appraisal skills teaching in the curriculum” (Brice et al., 2004, p. 289) is one of several short-term priorities required to “sustain momentum and engage new activists” (Brice et al., 2004, p. 287) to the evidence-based phenomenon.

The immediate and pressing challenge for library and information science education is to take an active role in fostering the development of the new evidence based information professional, and consequently to more effectively achieve the goal of providing industry with information professionals who are well equipped and able to function in the ever-changing information environment of the twenty-first century. This paper will discuss the teaching and learning model that is being used at the Queensland University of Technology to meet this challenge. The paper also considers how library education at QUT is meeting a second challenge. Frand (2000) commented that:

... over the past three decades I have observed many new [...] attributes of student behaviour that I believe will have a profound impact on our educational institutions. For the past few years, only a small number of students with these attributes have entered our doors. However, over the next few years these students will become the majority, spreading like a tidal wave across higher education and demanding changes in the way we operate (p. 16).

What Frand is suggesting is that a whole new generation – the millennial generation – of learners is now entering higher education, challenging universities to do things differently. There is a growing body of evidence that indicates that the millennial learner has a completely new set of expectations and requirements to previous generations (Howe and Strauss, 2000; Oblinger and Oblinger, 2005). Frand (2000) contends that the “challenge will be for educators and higher education institutions to incorporate the information age mindset of today’s learners into our programs so as to create communities of lifelong learners”. The learning and teaching model presented here will therefore not only demonstrate how EBP is being incorporated into the QUT LIS curriculum, but also how the academic staff are striving to meet the unique learning needs of the new millennial generation of students.

The paper is divided into three parts. The first part considers the role of evidence-based practice within the library and information profession. A brief review of key literature in the area is provided. The second part discusses the current understanding of the millennial generation. The third part outlines the learning and teaching model developed by QUT to embed the skills, knowledge and understanding of evidence-based practice in the library curriculum but at the same time craft the learning environment to consider the unique learning needs of the current millennial generation of library students. The paper underscores the role library education can, and should, continue to play to establish an evidence-based culture within the profession. The paper concludes that if library education is to be truly successful in
developing today’s evidence-based library and information professional, then library educators must develop a better understanding of the new generation of library students.

Evidence-based practice and the library and information profession: a brief review of the literature

Evidence-based practice and evidence based librarianship: a few definitions

Evidence-based practice (EBP) has increasingly become a topic of discussion within the library and information literature. Evidence-based practice is founded in evidence-based medicine, which has been described as “an approach to decision making in which the clinician uses the best evidence available in consultation with a patient to decide upon the option which suits the patient best” (Gray, 2001, p. 17). More simply stated, evidence-based practice is based on the concept that “practice should be based on up-to-date, valid and reliable research” (Brice and Hill, 2004, p. 13).

In her inaugural speech in 1997, Rachael Anderson, then President of the Medical Library Association (MLA), suggested that librarians needed to develop their own version of evidence-based practice (Anderson, 1998). In that same year, the term “evidence-based librarianship” was first introduced into the library and information profession’s vocabulary by Eldredge (1997).

The first attempt to define evidence-based librarianship was provided by Andrew Booth. In 2000 he adapted a pre-existing definition of evidence-based practice. Booth notes that the definition has the “advantage of being coined by a librarian, Anne McKibbon from McMaster University” (Booth and Brice, 2004, p. 7).

Evidence based librarianship (EBL) is an approach to information science that promotes the collection, interpretation, and integration of valid, important and applicable user reported, librarian observed, and research derived evidence. The best available evidence moderated by user needs and preferences is applied to improve the quality of professional judgements (cited in Booth, 2002, p. 53).

In 2002 Jonathan Eldredge offered his definition of EBL:

Evidence based librarianships (EBL) seeks to improve library practice by utilising the best available evidence in conjunction with a pragmatic perspective developed from working experiences in librarianship. The best available evidence might be produced from either quantitative or qualitative research designs, depending upon the EBL question posed, although EBL encourages using more rigorous forms over less rigorous forms of evidence when making decisions (Eldredge, 2002, p. 72).

Crumley and Koufogiannakis (2002), noting that the current definitions of EBL were overly theoretical, offered a “practical definition for everyday referral” (p. 62). Evidence based librarianship was defined as:

... a means to improve the profession of librarianship by asking questions as well as finding, critically appraising and incorporating research evidence from library science (and other disciplines) into daily practice. It also involves encouraging librarians to conduct high quality qualitative and quantitative research (Crumley and Koufogiannakis, 2002, p. 62).

This last definition places a greater emphasis on “the improvement of professional practice together with the addition of the librarian as practitioner-researcher” (Booth, 2002, p. 54).
In reviewing existing definitions of evidence-based librarianship, Booth (2002) compiled the following list of “consensually based” defining characteristics of EBL:

- a context of day-to-day decision making;
- an emphasis on improving the quality of the professional practice;
- a pragmatic focus on the “best available evidence”;
- incorporation of the user perspective;
- acceptance of a broad range of quantitative and qualitative designs;
- access, either first-hand or second-hand, to the (process of) evidence-based practice and its products (Booth, 2002, p. 54).

Booth also notes one significant omission from the list, and by consequence, from existing definitions of EBL: “a preoccupation with obtaining best value services for available resources” (Booth, 2002, p. 54). Booth argues that this characteristic must be included as recognition of the “pragmatic real world thrust of EBL, coupled with its emphasis on decision making, requires that all decisions be taken in the context of finite resources” (Booth, 2002, p. 54).

**Evidence-based librarianship or evidence-based information practice?**

In 2003 Booth challenged why proponents from within the library profession were so enthusiastic in adopting the term “evidence-based librarianship”. Booth and Brice (2004) cite four sound reasons for the adoption of the preferred term “evidence-based information practice” (EBIP):


2. The term “evidence based information practice” places a stronger link between “evidence based practice” which will allow the library and information profession to tap into “the emphasis on multidisciplinarity” (Booth, 2002, p. 58) inherent in evidence-based practice. The library and information profession will benefit from the “kinship with related [evidence based] professions such as teaching and social work” (Booth, 2002, p. 58) and consequently will not miss out on new and interesting developments in other evidence based fields, such as information systems which is closely related to those of evidence based librarianship (Booth and Brice, 2004, p. 7).

3. “Evidence based information practice” acknowledges the wider context of information science (Booth and Brice, 2004, p. 8).

4. “Evidence based information practice” places the focus on the “commonality of issues and methods within the domain of information practice with those that have emerged from the origins of the generic paradigm. Evidence based information practice is evidence based practice within information as both its subject and its object” (Booth and Brice, 2004, p. 8).

Ultimately, however, Booth (2003) anticipates that even the term “evidence based information practice will [. . .] write itself out of existence” (p. 70). He proposes that:
...the long term future of evidence based information practice probably lies not in a single
minded focus on research-derived evidence but in a more encompassing approach that
embodies reflective practice (Booth, 2003, p. 70).

Booth indicates that the library and information professional of the future will be a
reflective practitioner (with reference to the work by Schön, 1983) “with the ability to
critically analyse [and] make informed judgements” (Booth, 2003, p. 70) by drawing on
a range of catalysts, with research evidence representing one opportunity. Booth
suggests “ultimately evidence based practice will contribute to a tool box from which
the reflective practitioner will occasionally draw” (Booth, 2003, p. 70).

This perception of the future is also favoured by Todd (2002):

... a profession without reflective practitioners [italics added] willing to learn about the
advances in research in the field is a blinkered profession, one that is disconnected from best
practice and best thinking, and one which, by default, often resorts to advocacy and position
as a bid for survival (p. 4).

Why is evidence-based information practice important?
The arguments for evidence-based information practice have been well discussed
within the LIS literature. Williamson et al. (2001) proposed that “research can play a
very valuable role in the practice of information professionals” (p. 12). Six reasons for
why research should play a part in professional practice were identified:

1. to assist in understanding the problems and issues which arise in the
   workplace;
2. to add to knowledge in the field and/or provide solutions to problems;
3. to maintain dynamic and appropriate services;
4. to meet requirements of accountability – research is important in the age of
   accountability as it can assist in policy formulation and provide data to justify
   present funding or increased funding;
5. to maintain and improve professional statutes; and
6. to provide a body of research findings and theory to inform practitioners
   (Williamson et al., 2001, p. 12).

Juznic and Urbanija (2003) observe that “research [. . .][helps] LIS professionals to learn
more about their work, perform better and offer a higher level of service to their
clientele and users [. . .] research findings provide further motivation, guidance, and
input to the successful services” (p. 325). This idea is supported by Lowe (cited in
Williamson et al., 2001) who contends that “research enables professionals to add value
to their work and work practices” (p. 12). Lowe extends the concept further by
proposing that the use of research in practice makes a clear distinction between
“professionals who maintain the status quo without question and those who strive to
develop their work practices through continual evaluation and investigation” (cited in
Williamson et al., 2001, p. 12). Harvey (2001) builds upon this idea by arguing that
“research and professional practice are inextricably linked” (p. xiii) and as such
“research skills are a prerequisite [italics added] for those who want to work
successfully in information environments” (p. xiii). He postulates that research skills
are an “essential set of tools which enable information workers to become information professionals” (p. xiii). According to Harvey (2001):

The work of information professionals is being transformed. The information services we offer, the information products we develop and sell, the information systems we design and implement, are undergoing rapid change. So, too, is the society in which we operate. We have a continual need to determine what is happening, how it is changing, how it will affect our places of work, how it will alter the services we offer. Change and its ramifications is the most important reason why research is necessary, and why it is here to stay. If you don’t know something about the tools of research and about how to use these tools, then you cannot be an effective information professional (Harvey, 2001, p. xii).

In 2001 the Special Libraries Association (SLA) released its revised Research Statement in which the role of evidence-based practice, within current library and information work, is strongly advocated. In a recent commentary on the research statement, the SLA Research Committee and Joanne Gard Marshall (2003) suggest that, as the health and future of any profession depends on the members’ ability to evaluate both themselves and their professional practice, the development of strategies to undertake evidence-based practice may well be a valuable opportunity to improve and refine our own professional activities.

In further support of these views, the SLA research statement itself notes that

These are challenging times for professional in all areas of practice. The consumer movement and the wide availability of information, including information that was formerly only accessible to professionals themselves, have led to a demand for increased professional competence and accountability. It is time for special librarians to recognize the potential value of formal and informal research in our field as the basis for evidence based practice. In the long term, such a knowledge base and its effective application will set information and library professionals apart in an increasingly competitive world of information service providers (SLA Research Committee and Marshall, 2003, p. 43).

Juznic and Urbanija (2003) stress the importance of research, particularly in our own discipline:

Research is needed to create new knowledge and thereby contribute to the growth of LIS as a profession or discipline. If research is absent, non existent or even scarce, there is no profession, but only an occupation grounded in techniques, routine and common sense (p. 325).

On a more pragmatic level, the emerging literature exploring evidence-based librarianship proposes that library and information professionals should “practice what they preach”. Koufogiannakis and Crumley (2002) observed that “in our profession we help our patrons make decisions by leading them to research evidence. It is vital that we follow the same model: we should consult our own literature when we have questions about best practices in our field” (p. 112). Ritchie (1999) also noted that, given our role as managers of the literature of research, library and information professionals are uniquely placed “to model the principles of evidence based practice, not only as they apply to other disciplines which we serve, but also as they apply to our own professional practice [...] ‘if you are not modelling what you are teaching you are teaching something else’” (Ritchie, 1999, para. 6).
What skills and knowledge are needed for evidence-based information practice?

At present there exists no detailed listing or discussion on the skills, knowledge and attitudes required by the successful evidence-based information professional. Booth and Brice (2004) state that “specifying generic skills required for the development of EBIP at all levels (individual, organizational and policy), and allowing for flexibility in augmenting these with additional specialist skills, would be a major step forward, both in formal and in continuing education” (2004, p. 285). It has been seven years since the term “evidence-based librarianship” was first introduced into the professional literature, and it has been five years since the first definition was provided. During this time, the ongoing dialogue within the profession has clearly established that “research can and does play a vital role in professional practice” (Harvey, 2001, p. viii), indeed, “it is more important than ever to build our knowledge base and to use evaluation research methods to constantly monitor and improve the quality of the services provided” (SLA Research Committee and Marshall, 2003, p. 40). In a recent publication Partridge and Hallam (2005) proposed a framework of skills and knowledge for EBIP. Taking a holistic perspective, the framework provides a listing of skills and knowledge under two broad areas of discipline knowledge and generic capabilities. Table I provides a listing of the skills and knowledge under each area. In compiling this framework, Partridge and Hallam (2005) support the view proposed by Booth, that to develop a EBIP requires the fostering of “reflective practitioners” who have the ability to “critically analyse [and] make informed judgements” (Booth, 2003, p. 70) drawing on a “toolbox” of skills and knowledge which will include not only discipline knowledge but also generic capabilities. A detailed discussion on the framework is available from Partridge and Hallam (2004, 2005).

Understanding the Millennial Generation: a brief review of the literature

Who are the Millennials?

Whilst there is some disagreement as to what period of years the Millennial generation spans, it is generally accepted that members of this generation were born between 1980 and 2000. Also known as Generation Y, Echo Boomers, the Nexters, the Nintendo

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<th>Discipline knowledge</th>
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Table I. Skills and knowledge required by the evidence-based information professional.
Generation and the Digital Generation, the “millennials are unlike any other youth generation in living memory” (Howe and Strauss, 2000, p. 4). It will be a “powerhouse generation” of “doers” and “achievers” (Goldgehn, 2004, p. 25). The Millennials are “more affluent, better educated and more technically adept and ethnically diverse” than previous generations (Paul, 2001). In addition, this new generation possesses a wide array of positive social habits that have previously never been associated with youth, including “a new focus on teamwork, achievement, modesty and good conduct” (p. 4).

In 2001 Zemke identified the core values and personality preferences of this generation as: “confidence, civic duty, achievement, sociability, morality, diversity, street smarts, optimism, collective action and tenacity” (Zemke, 2001, p. 47).

The Millennial generation places a strong emphasis on family and relationships. According to McCrindle (a Millennial himself), Millennials “want community: to be understood, accepted, respected and included” (McCrindle, 2003, p. 29). They seek a “happy relationship”, a “loving family” and they demonstrate a strong “loyalty to their friends” (p. 29). Millennials are “very society and community-oriented” and therefore “they work to make choices that align with community values and that are approved by their peer group” (Goldgehn, 2004, p. 28). Millennials will also readily “consult their parents and value their opinion, and acknowledge the parental influence on their own values and attitudes” (Taylor, 2003, p. 3). MTV research (Goldgehn, 2004) suggests that this generation does not see it as “us versus them” (children versus parents). Parents are viewed not as an “authoritative figures” but as “friends” with more of this generation choosing to live at home with their parents well into young adulthood (Taylor, 2003). Because of this social focus, Millennials also find “pleasure through teamwork and thus often involve themselves in sports programs”. In fact, Zemke (2001) suggests that this generation exudes “a collaborative ‘leave no one behind’ attitude”. The importance of teamwork and peers in the life of the Millennial generation was recently emphasized by Cole et al. (2002), who noted that “belonging to a group is so important for Gen Y that employers who overlook this trait may have little success in motivating these workers” (para. 17).

The Millennials are said to be pragmatic but optimistic about their life chances and what they can accomplish. McCrindle (2003) highlights their bigger picture perspective: “young people of this generation do not live to work – but rather then work to live. A job merely provides the income to do what they want to do. They are on a search for fun, for quality friendships, for a fulfilling purpose and for spiritual meaning” (p. 30). According to Goldgehn (2004), “Millennials place significant emphasis on ethics. And are a generation who love to be involved. They find great satisfaction in volunteering for numerous causes” (p. 27). They are “strong advocates of social responsibility and care about the world, the environment, poverty and global issues in general” (Miller, 2004, p. 2). Tulgan and Martin (2001) describe Millennials as a generation “paving the way to a more open, tolerant society” (p. 4).

This new Millennial Generation is also the most protected and cared-for generation. Zemke (2001) describes this generation as “doted on, sheltered, helmeted, organised and raised like hot house flowers” (p. 47). They are a generation used to structure and order in their lives. As Howe, quoted in Zemke (2001), points out, this is a generation where “their parents and teachers have always planned things out for them […] They’ve had very little unplanned free time and aren’t used to ambiguous situations” (p. 45). But McCrindle suggests that this generation is looking for trusted guidance, not
a “street directory”. That is, Millennials want support on deciding what directions to take and/or what path to follow. “They want real life role models and mentors who not only know the way, but also go the way and can show the way” (McCrindle, 2003, p. 30). However, they want to “achieve their own goals in their own way and at their own pace” (Ricigliano, 1999, p. 123).

The Millennials have grown up materially spoiled with an overabundance of technological gadgets both at school and at home. They are comfortable and confident in using technology, whatever its form or purpose. This is a generation accustomed to “sound bites, sensory overload, fast pacing and high impact images” (Ricigliano, 1999, p. 123). Frand (2000) suggests that due to growing up in the “globally connected, service- and information-intense, digitally based culture” (p. 16), this generation has developed an “information age mindset”. For this generation multitasking is a way of life – young people today are accustomed to “watching TV, talking on the phone, doing homework, eating and interacting with their parents all at the same time” (Frand, 2000, p. 18). “Importantly, they seem to require constant stimulation to thrive – a fact they are not too shy to make known” (Digilio and Lynn-Nelson, 2004, p. 16). Boredom, therefore, is the Millennial Generation’s worst fear.

The Millennial Generation and education

According to Tulgan and Martin (2001) the millennial generation has been significantly influenced by their parents, who value education, and as such, the Millennials “recognize that the key to their success lies in advanced learning” (p. 7). “This ‘education is cool’ generation views lifelong education as a fact of life” (Tulgan and Martin, 2001, p. 7). Goldgehn (2004) believes that “though members of generation Y feel very strongly about the importance of a college education, they view it differently than previous generations” (p. 28). Millennials are a “determined and motivated group that overwhelmingly believes that academic achievement is the ticket to acceleration in life. They see college as an opportunity for growth intellectually and spiritually” (Goldgehn, 2004, p. 29).

Millennials also see themselves as “consumers of education and want customization and choice in their educational offerings” (Holliday and Li, 2004, p. 357). Litten and Lindsay (2001) conclude that today’s students are typically very comfortable with technology, have shorter attention spans, a low threshold for boredom, resist memorization and busy work and prefer action to observation. Oblinger and Oblinger (2005) suggest that rather than being told things, “Net Geners would rather construct their own learning, assembling information, tools and frameworks from a variety of sources” (p. 2.12). They are active and visual learners who enjoy learning though social interaction and as such “the social nature of Net Geners, as well as their desire for experiential learning, implies that interaction is an important technique for colleges and universities to employ” (Oblinger and Oblinger, 2005, p. 2.13). Whilst this generation enjoys, and is good at working in groups, they also crave personal attention (Ricigliano, 1999). This generation “wants constant feedback but does not want to be closely scrutinized” (Ricigliano, 1999, p. 124). The Millennial student “enjoys being mentored by older generations” (Billings and Kowalski, 2004, p. 104).

The Millennial Generation “can deal with lots of information but prefer it packaged in short, focused segments. They want to know why but expect quick and direct answers” (Ricigliano, 1999, p. 124). Their ability to multitask enables them to move
quickly from one activity to another, sometimes performing them simultaneously (Oblinger and Oblinger, 2005, p. 2.6). Martin (2005) observes that “technology has shaped the way this digital generation learns and the way they process information [...] But [Millennials] don’t want to merely use it. They want to create with it – from their own web sites to teaching their teachers how to use technology in the curriculum. They’re continually customizing how they gather and share information” (p. 41). Oblinger and Oblinger (2005), however, note that this younger generation of learners “keep technology in perspective”, with teachers being seen as “vital to the learning process” and that “computers can never replace humans” (p. 2.3). Billings and Kowalski (2004) also point out the generation needs “augmented reality” – real work environments similar to the work setting such as simulations and virtual reality” (p. 104).

When communicating with Millennials, McCrindle (2003) indicates that the “traditional talk and chalk won’t work” (p. 30). He identifies four key elements in communicating with Millennials:

1. be real;
2. be raw;
3. be relevant; and
4. be relational.

In order to be real, communication (both the communicator and the message) must be credible. McCrindle (2003) suggests that this “generation can sniff a phoney from a long distance” (p. 30). Being raw requires spontaneous, interactive and open communication. Millennials don’t want “a rehearsed talk or a manufactured spiel” (p. 30). Having both relevant content and delivery define the concept of being relevant. And finally, McCrindle (2003) suggests that establishing a relationship is vital to this generation. He observes that “communicating to generation Y requires openness, vulnerability, genuine interest in those we are trying to teach and, above all else, understanding. The more relaxed the environment, and the more socially conducive to discussions, the better will be the quality of the learning” (p. 31).

Kipnis and Childs (2004) identified the key characteristics of Generation X and Y students that are useful in developing library training sessions. They concluded that the Generation Y students:

- want to be recognized as individuals;
- want a voice in class decisions;
- want to establish a rapport with instructors;
- value group interactions;
- view class time as a social and educational experience;
- need a non-judgemental sounding board;
- do not like being passive recipients of information;
- must be engaged to retain information;
- want a variety of learning experiences;
- are used to being entertained;
need course work that must be relevant to the real world;
want to learn marketable skills; and
want information to be current.

Educating the Millennial library student for evidence-based practice: a Queensland University of Technology (QUT) case study

The Master of Information Management

The Master of Information Management (MIM) is a course offered by the School of Information Systems within the Faculty of Information Technology. The Master’s program was introduced in 2005, building on a Graduate Diploma in Library and Information Studies (GDLIS), with the curriculum informed by teaching and learning research activities to identify the core discipline knowledge and generic capabilities required by LIS professionals (Partridge and Hallam, 2004). The Master’s course, comprising ten core academic units and two elective units, is completed in one and a half years full-time or three years part-time. The MIM seeks to “provide graduates with the skills to find employment in a range of diverse information roles” (Queensland University of Technology, 2005). On completion of the course, students will be eligible for professional membership of the Australian Library and Information Association (ALIA).

While the MIM is an example of a tertiary education course that aims to prepare graduates for employment, the academic staff are mindful of the enormous range of employment opportunities available to “information professionals”. The landscape is extensive, from the broad levels of academic libraries, public libraries, State and National libraries, through to the narrower levels of special libraries and information centres, such as law libraries, health and medical centres, music libraries, etc. Opportunities also exist beyond this more traditional library context, with career avenues available within knowledge management, records management, internet and intranet development and so on. In 2005 there were 49 students enrolled in the course, 32 part-time and 17 full-time. It is interesting to note the changing nature of the student body. From 2002 to 2004 the LIS students were each invited at the beginning of year to complete an incoming student survey (Hallam and Partridge, 2005). The proportion of students aged between 19 and 25 jumped from 37 percent in 2002 to 48 percent in 2004. Clearly, more and more students in the QUT LIS program are coming from the Millennial generation.

Embedding evidence-based information practice into the MIM

The MIM does not provide a subject dedicated solely to the development of academic research skills. This was a deliberate decision on the behalf of the MIM teaching team. The primary aim of the MIM is the preparation and education of future library and information practitioners rather than academic researchers per se. Therefore the MIM, like many other LIS education programmes in Australia, is a coursework-only program. Whilst QUT does provide both a Master’s by Research and a PhD program, and students are actively encouraged to pursue these avenues at some point in their career, QUT is very much aware that academic research is not a path that the majority of MIM graduates wish to traverse. Consequently, the MIM has a primary focus on fostering practical skills in evidence-based practice or research in practice. To this end the research skills have been embedded in the context of the discipline knowledge, with
the desired knowledge and skills acquired in a scaffolded approach to learning. This means that the students are not expected to develop the necessary EBP skills in one semester or indeed in one unit, but instead are given the opportunity to progressively develop their skills and knowledge across the duration of the three-semester program. A full discussion on how research skills or EBP has been embedded within the entire MIM curriculum is available from Partridge and Hallam (2005). One unit, however, has a pivotal role in this development process. ITN276 Information Services is a core unit offered in the second semester of the MIM program. In this unit students are first introduced to the research skills and to the broad area of EBP. This paper will use the unit ITN276 as a case study to illustrate how EBP has been incorporated into the curriculum in such a way as to accommodate the specific learning needs of the millennial LIS student.

**ITN276 Information Services**

ITN276 is a core unit undertaken in Semester 2 of the MIM program. The unit introduces students to the key issues involved in developing and managing a contemporary and innovative information service. In particular students are provided with the opportunity to become familiar with the methods and tools used in the selection and acquisition of information resources and the development, management and evaluation, of information programs to meet the specific needs of a community or client group. The key learning objective is to develop new graduates who are enthusiastic and confident about the dynamic and exciting world of information work.

**The ITN276 curriculum**

The ITN276 programme has been designed and developed as a positive, non-threatening learning context through which the future library and information professionals may acquire "the conceptual structures and thinking processes" (Toohey, 1999, p. 55) needed for success as reflective practitioners in the LIS profession. In practical terms this means incorporating the two key areas of student development, discipline knowledge and generic capabilities, into the curriculum. Table II highlights the key discipline areas and generic capabilities that form the focus for the unit (informed by the research by Partridge and Hallam, 2004).

One of the principal challenges for the ITN276 teaching team was to determine how to seamlessly integrate these two dimensions of learning within the 13-week semester, to ensure that each dimension received the appropriate balance of time, resources and focus. This 13-week program is structured as three main blocks in terms of both content and classroom activities, with a general overview provided in Week 1:

- Block 1 – Weeks 2-4 – Workshops: the foundation stones for student learning in the unit;
- Block 2 – Weeks 5-8 – Formative activities: time for students to plan and receive feedback on their major group project; and
- Block 3 – Weeks 9-13 – Seminars: the opportunity for students to interact with a guest speaker and to independently explore and learn about the issues and challenges in developing and delivering contemporary information services.

Four items of assessment are used to focus and facilitate student learning (see Table III). The assessment activities have been developed to "assess students in a way
that addresses their capacity to handle situations in the future that they have not previously encountered” (Bowden and Marton, 1998, p. 167). Assignment 4 is the primary learning activity for the semester, designed to make ITN276 a pivotal unit in the fostering of EBP in the MIM. In this assessment item students learn about research skills in an authentic way through a group project, which requires the students to gather sound evidence that will allow for a critical evaluation of an existing information service. The academic staff believe that graduates of the course will have to perform similar tasks once they are working in industry.

Learning and teaching approach for the Millennial student
With a significant number of MIM students representing the Millennial generation, the approach to teaching and learning in ITN276 has been developed with the unique learning preferences of the Millennial student in mind. Drawing on the current literature exploring generational learning styles Table IV presents the learning and teaching strategies employed with the unit.

The teaching team believes that the learning and teaching strategies that have been developed for the unit ITN276 encourage students to be interested in their own role as learners and therefore to engage more effectively with the learning process. The focus given to use strategies which respond to and encourage the Millennial Generation’s own learning style preferences results in the students’ recognition that the assessment
items are not summative testing of their curriculum knowledge, but are learning activities in their own right. The ongoing opportunity for constructive feedback enables the student to relate to the academic staff as facilitators of and partners in this learning process. The relationship that develops with both the academic staff and with industry practitioners both within and beyond the classroom helps the students to see themselves in their future role as information professionals. This process in itself contributes to meeting the stated objective of the unit, to develop new graduates who are enthusiastic and confident about the dynamic and exciting world of information work.

**Conclusion**
The current format of the unit ITN276 has evolved over a number of years, resulting from the academic staff’s interest in trialling innovative approaches to learning in

<table>
<thead>
<tr>
<th>Assessment item</th>
<th>Discipline knowledge and generic capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment 1: Reflective discussion</td>
<td>Communication</td>
</tr>
<tr>
<td>To be conducted: Individual</td>
<td>Self management</td>
</tr>
<tr>
<td>Weighting: 15 percent</td>
<td></td>
</tr>
<tr>
<td>Summary: Students are required to</td>
<td></td>
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<tr>
<td>write a personal reflection on</td>
<td></td>
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<tr>
<td>the development of knowledge and</td>
<td></td>
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<tr>
<td>skills attained through a one-day</td>
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<tr>
<td>workshop (“Workplace Skills and the</td>
<td></td>
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<tr>
<td>Information Professional”)</td>
<td></td>
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<tr>
<td>Assessment 2: Discussion Paper</td>
<td>Collection management and development</td>
</tr>
<tr>
<td>To be conducted: Individual</td>
<td>Information services</td>
</tr>
<tr>
<td>Weighting: 30 percent</td>
<td>Communication</td>
</tr>
<tr>
<td>Summary: Students are asked to write</td>
<td>Self-management</td>
</tr>
<tr>
<td>a discussion paper on an issue</td>
<td>Information literacy</td>
</tr>
<tr>
<td>relevant to the unit. A collection of</td>
<td></td>
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<tr>
<td>possible themes is provided for</td>
<td></td>
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<tr>
<td>students to select from including</td>
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<tr>
<td>selection and acquisition of</td>
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<tr>
<td>information resources, information</td>
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<tr>
<td>access, freedom of information,</td>
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<tr>
<td>electronic resources, preservation</td>
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<tr>
<td>and conservation</td>
<td></td>
</tr>
<tr>
<td>Assignment 3: Seminar Presentation</td>
<td>Collection management and development</td>
</tr>
<tr>
<td>To be conducted: Individual</td>
<td>Information services</td>
</tr>
<tr>
<td>Weighting: 15 percent</td>
<td>Communication</td>
</tr>
<tr>
<td>Summary: Each student is asked to</td>
<td></td>
</tr>
<tr>
<td>share with the class what they have</td>
<td></td>
</tr>
<tr>
<td>learnt from their discussion paper</td>
<td></td>
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<tr>
<td>with a 15-minute oral presentation</td>
<td></td>
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<tr>
<td>Assignment 4: Information Service</td>
<td>Collection management and development</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Information services</td>
</tr>
<tr>
<td>To be conducted: Small groups of</td>
<td>Communication</td>
</tr>
<tr>
<td>three or four</td>
<td></td>
</tr>
<tr>
<td>Weighting: 40 percent</td>
<td>Teamwork</td>
</tr>
<tr>
<td>Summary: Students are required in</td>
<td>Communication</td>
</tr>
<tr>
<td>teams to critically and reflectively</td>
<td>Project management</td>
</tr>
<tr>
<td>evaluate an existing information</td>
<td>Critical thinking</td>
</tr>
<tr>
<td>service of their own choosing.</td>
<td>Self-management</td>
</tr>
<tr>
<td>Students are asked to apply the</td>
<td></td>
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<tr>
<td>principles of evidence-based</td>
<td></td>
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<tr>
<td>practice in their evaluation.</td>
<td></td>
</tr>
<tr>
<td>A 7,000-word report is to be</td>
<td></td>
</tr>
<tr>
<td>completed and submitted in hard copy</td>
<td></td>
</tr>
</tbody>
</table>

**Table III.**
ITN276 Assessment items
<table>
<thead>
<tr>
<th>Learning and Teaching Strategy</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Millennial Generation’s learning style preference</strong></td>
<td>ITN276 learning and teaching strategy</td>
</tr>
<tr>
<td>Real world activities and perspective</td>
<td>The traditional lecture has been replaced by a workshop approach to learning that simulates Continuing Professional Development (CPD) sessions in industry. The rationale is openly discussed with students at the beginning of the semester to reinforce the idea that when they graduate within a year they won’t be students attending lectures but industry professionals keeping current via CPD events. The major team assignment is an evaluation of a real life information service – students can select their own information service to review and are required to “go out into industry” to complete the project. Students are encouraged to view their work as having real-world impact – i.e. work by students in previous semester resulted in changes to the services being reviewed – and in one instance extra funding for the service was obtained!</td>
</tr>
<tr>
<td>Customisable, flexible learning that allows the student to construct their own understanding</td>
<td>All assessment items allow the students to customise their own learning experience. In the group assignment where students are encouraged to determine the specific context of the information service they wish to review. This enables the students to tailor their study to specific areas of interest or possible career paths choosing to focus primarily, for example, on public libraries or law libraries, or to select specific issues confronting information services which they find particularly interesting and to examine these in greater depth. Students are given only broad guidelines and parameters to work within and students are encouraged to be in control of their learning by determining the process and manner of functioning in their work team</td>
</tr>
<tr>
<td>Regular feedback</td>
<td>Regular feedback is provided to students. Formative assessment is a core part of the unit’s approach to learning. Students receive individual (i.e. written comments on assignment) as well as class feedback (i.e. written notes added to the unit’s Online Teaching Site (OLT) after the assignments have been marked). The major group assignment includes a Project Brief (interim report) and a Project Forum (feedback session with the unit teaching staff) so students have the opportunity to receive the feedback they need in a new area of learning</td>
</tr>
<tr>
<td>Use of technology</td>
<td>The Online Learning and Teaching (OLT) website was established to act as the key support material for the unit. It provides students with access to information resources that would assist them in their learning within the unit, including recommended readings, useful resources on topics including teamwork, project management, research methods plus general unit information including the unit outline and the assessment guide. The site also provides students with the opportunity to participate in an online discussion forum through which they can communicate freely with others without restriction of time and distance. The project groups can establish their own virtual team space if they wish – this space allows them to have a central depository for all team documents plus a team e-mail account. Students are also provided the opportunity to use QUT TeamWorker to help monitor the management of their project team. QUT TeamWoker is an online tool developed at QUT to help students learn about teamwork processes</td>
</tr>
</tbody>
</table>

**Table IV.**
ITN276 learning and teaching strategies for the Millennial student

*(continued)*
Table IV.

<table>
<thead>
<tr>
<th>Millennial Generation’s learning style preference</th>
<th>ITN276 learning and teaching strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trusted guidance not “street directory”</td>
<td>Drawing guest speakers into the academic program is an integral ingredient in the learning environment. It is through the direct involvement of practitioners that students grasp the amazing diversity of information work with its many challenges and the range of possible approaches to solve those challenges. Guest speakers frequently become further involved by taking on the role of mentor to students in the QUT Student Mentor Program. The industry practitioners and employers who allow the student groups in the major assignment to evaluate existing information services provide a unique form of “trusted guidance” to the students. Being “out in industry with real life practitioners” provides the opportunity for students to begin to think critically about the skills and knowledge they are developing from the perspective of not just a student but as a working professional</td>
</tr>
<tr>
<td>Social and interactive learning with the opportunity to develop relationships; preference for team work</td>
<td>Students are encouraged to view their time and experience in ITN276 as a “community of learning”. The workshops in Block 1 are set up to include a 30-minute networking break with light refreshments where students can get to know each other and the teaching staff. To establish a less formal and more collegial atmosphere, music is played before sessions and during breaks. The workshops also involve small group work and open class discussion to allow students to get comfortable with each other. In addition, the major assignment in the unit is team-based. A team approach to teaching the unit has been adopted so that students to have access to different professional views and personalities, as well as to ensure a great level of individual support and rapport</td>
</tr>
<tr>
<td>Visual or kinaesthetic learning; fear of boredom; short attention span</td>
<td>The workshops have been designed to incorporate a strong focus on active learning techniques, including in-class activity sheets, role plays, small group work with butcher paper and pens, prizes such as chocolates and class competitions. Every effort is made to ensure that the pace of the sessions is upbeat, active and fun! Students are provided with the opportunity to discover the information and to develop their own understanding of concepts</td>
</tr>
<tr>
<td>Communication – real, raw, relevant and relational</td>
<td>The “chalk and talk” approach to teaching has been replaced by a student-centred workshop strategy. The teaching team actively seeks to establish transparency in all aspects of the unit – there is no desire to “trick the students with a hidden agenda”. Criterion Reference Assessment is used to communicate clearly to the students the marking criteria for assessment. The detailed assessment guide, unit outline and weekly schedule is provided to all students at the commencement of the semester. All information about the unit is made easily available on the unit’s OLT site. The teaching team openly encourages the students to speak with them about any questions or concerns they have at any time – in or out of class. Additionally, while the teaching team prepares for each workshop to ensure structure in the overall session, there is also scope for a significant degree of spontaneity and flexibility: the session can evolve based upon the interests and knowledge that the students bring to the class</td>
</tr>
</tbody>
</table>
higher education, their genuine interest in student learning outcomes and a passion for the LIS profession as a whole (Partridge and Hallam, 2003, 2004; Hallam and Partridge, 2003, 2004). The contribution made by students over the past few years in providing their own feedback on the new initiatives presented to them is acknowledged and valued, along with positive feedback from the employers of QUT LIS graduates about the enthusiasm and confidence of these new information professionals. Graduates are keen to continue to develop their interest in research into practice within their own careers and to contribute directly to the body of professional knowledge, with a number of conference papers and journal articles published.

The model discussed in this paper, developed and implemented by QUT, is, however, just one example of how EBIP might be embedded within an LIS curriculum. Importantly, this model acknowledges and responds to the unique learning preference of the modern-day LIS student – the Millennials. The model is still in an early stage, and as such, is by no means a finalised and fully developed approach. It must further be noted that the current student cohort is not comprised solely of Millennials, but also includes older students such as Generation X – and even Baby Boomers. This means that the learning and teaching models need to be inherently flexible to accommodate the different learning styles of very diverse students. By way of “practising what is preached”, QUT LIS educators actively engage in their own evidence-based teaching by continually questioning, reviewing and examining what they do, gathering evidence from a range of stakeholders such as students, recent graduates and industry practitioners to ensure the further development and refinement of their teaching and learning models. It is hoped that this paper will contribute to the professional debate about the education of library and information professionals in the twenty-first century and specifically to promote the view that the most effective learning environment is one that is holistic and student-centred in nature.

References


**Further reading**


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