Student peers' views on their involvement as trainers in peer-based information literacy training

Abstract

This research seeks to contribute to understanding of peer-based models of information literacy training, through gathering insights from peer trainers (champions) in a scheme designed to promote the use of a national health and social care information portal, Evidence Search (ES), amongst university students in mainly in the health professions. Specifically, this article focuses on the benefits and learning that the peer trainers derive from their involvement in the scheme. This article reports on focus groups conducted with student champions. Findings suggest that champions believe that they have learnt a lot about information searching and evaluation from their engagement as champions, as well as developing their teaching, planning and organisational skills. They now reported using Evidence Search as a first port-of-call for information for an assignment, although they still used Google. Students' choice of queries for their training session was influenced by their recent experience with study units or placements. In addition, many acted as advocates, making recommendations to friends (for study) or colleagues (in practice settings). Questionnaire data showed that champions regarded Evidence Search as credible, trustworthy and reliable, and that their approach to searching for and evaluating information is that of an expert.

1. Introduction

Information literacy has been viewed as particularly important in medicine and the health professions, where it acts as a foundation for evidence-based medicine (EBM). The drive towards evidence-based medicine is grounded in the need to link theoretical medical research and the actual care of patients (Sackett et al., 1996); in practice, health care professionals need to use both their clinical expertise and the best available external evidence to produce a correct diagnosis and administer the appropriate treatment to the patient (Greenhalgh, 2010). The increasing expectation that medical practice and clinical decision-making should be grounded on the latest research has raised expectations that medics and other health professionals need to develop a good level of information literacy. Such information literacy should ideally be developed during the medical school years (Carr et al., 2011). During patient consultations, both health care students and practising physicians and nurses need to access patient-specific information in a timely way to ensure the delivery of high-quality health care (Bates, 2001; Clarke et al., 2013).

Although students now typically enter the university system as digital natives, this does not mean that they have the skills to find and evaluate the information they need for their studies and to underpin EBM (Mofford & Steinberg, 2006, Tuttle et al., 2009). Accordingly, many

students in medical and health care disciplines, as well as in other disciplines are offered the opportunity to engage in information literacy training delivered by subject and other university librarians. However, there is evidence that such training meets with limited success. Various commentators and researchers have suggested that one of the problems of such training lies in convincing students of its relevance to their studies and subsequent careers. This can lead to poor attendance at sessions (Dorsch et al., 2004; Gross & Latham, 2007, 2012; Smith et al., 2013) and poor retention of search and evaluation skills (Cullen et al., 2011; Jacobsen & Andenaes, 2011). Perceptions of relevance and usefulness might be improved through better coordination between library and academic staff (Flaspohler et al., 2007), more sessions (Dorsch et al., 2004 Farrell et al., 2013), and/or delivery that is better integrated into the curriculum (Jacobsen & Andenaes, 2011; McKinney et al., 2011).

In the light of the limited effectiveness of traditional information literacy training approaches, this article takes the opportunity to investigate an alternative approach using peer-based delivery. Peers have first hand experience of the curriculum, assignments, and student learning processes, and are thus in a good position to tailor the training and thereby to enhance perceptions of its relevance. Whilst there have been few studies on peer-based information literacy training, the wider evidence from studies of peer teaching and learning suggests that it has benefits for both the student tutor and the student peers (Bolton et al., 2009; Verity et al., 2007). More specifically, there is evidence that peer teaching can promote peer tutors' own learning and confidence and students' learning and consolidation of topics (Thomson et al., 2014). Accordingly, this article focuses on peer trainers' views of their experience of engagement in delivering information literacy training, and any benefits and learning that occur through their involvement as peer trainers. More specifically, the aim of this study is to generate insights into the experience of being a peer information literacy trainer.

The remainder of the article is structured as follows. First, a literature review summarises prior literature on information literacy training. Then, the focus group methodology is outlined. This is followed by a report of findings. Finally, discussion and conclusions summarises the findings and relates them to previous research, and offers recommendations for research and practice.

2. Literature review

There has been considerable concern about the information literacy skills of those described as 'digital natives' or 'Google geeks'. Studies show that, despite having sophisticated internet skills, young people and students still experience difficulty in locating, evaluating and using online information for study and other purposes (Bailey et al., 2007; Gray et al., 2005; Schroeder, 2010) and are often over-reliant on Google for locating sources (McKinney et al., 2011, Rowlands et al., 2008). In addition, Kim & Sin (2011) suggest that in choosing sources students prioritise accessibility over accuracy and reliability. In response to this, there has been discussion and research, relating to information literacy training. Unfortunately, much of this research suggests that information literacy training has limited impact. Some researchers suggest that a key problem are the constraints imposed by one-shot library

instruction (e.g. Farrell et al., 2013; Walker & Pearce, 2014). Some recent studies have explored the effect of different pedagogical approaches to one-shot sessions, including interactive learning (Loo, 2013; Hsieh et al., 2014), concerns regarding longer term retention persist (Hsieh et al., 2014). Inquiry-based learning (IBL) is a learning approach that embeds information literacy, has potential for greater impact since it involves a longer engagement and immediate relevance to student learning and achievement (McKinney et al., 2011). Similarly, relevance can be embedded through an emphasis on evidence-based practice in, for example, the context of education in medicine and healthcare (Jacobsen & Andenaes, 2011; Jake et al., 2012). Specifically, Simons et al. (2012) suggest that effective information literacy training should be embedded in the curriculum and clinical environment to facilitate patient care and lifelong learning. Throughout this exploration of different approaches, the notion of engagement is central (Walker & Pearce, 2014), and there has been increasing interest in the development of systematic approaches to integrating information literacy training into academic curricula (Moselen and Wang, 2014; Mullins, 2014).

There have been a few prior studies that have explored the value of using peer support or learning in the development of information literacy. These demonstrate some of the advantages of using peers; peers have targeted knowledge from their recent student experiences, are seen as more approachable (Bolton et al., 2009), and are preferred sources to support searching activities (Verity et al., 2007). Hellbring and Wiberg (2013) suggest that peer tutors bring the following to their role: subject knowledge, awareness of study needs, and skills in solving assignments. In addition, peer tutoring provides learning opportunities for the peer trainers, often enhancing both their information and teaching skills (Halliday & Nordgren, 2005; Topping, 1996).

In summary, whilst information literacy training is well-embedded in the practice of university libraries, previous research suggests there is scope for further innovation in this area, and more specifically that models that capitalise on students' subject knowledge, awareness of study needs, and engagement with assignments may be of particular interest. Hence, this article reports on an evaluation of one such scheme, and does so by focussing on the peer trainers' perspective.

3. Case context for study

The study is conducted in the context of the NICE Evidence Search Student Champion Scheme. NICE, the National Institute for Health and Care Excellence, is a provider of national guidance and advice to improve health and social care. Established in 1999, in 2013 it became a Non Departmental Public Body, accountable to its sponsor department, the UK Department of Health, yet operationally independent of government. As such it engages in a number of activities that provide the platform for enhancing evidence-based practice across the medical and health professions; both the portal, Evidence Search, and the information literacy training scheme, the Student Champion Scheme are amongst those activities.

The NICE Evidence Search Student Champion Scheme (SCS) is a peer based information literacy training scheme, operating in a specific and unique context (http://www.nice.org.uk/Get-Involved/Student-Champions). The Scheme's aim is to train healthcare students in the use of NICE Evidence Search. The two initial target disciplines were Medicine and Pharmacy. Evidence Search (ES) is a web-based portal that provides free open access to selected and authoritative health and social care evidence-based information Its aim is to help students, specialists, clinicians, managers and all health providers make better and quicker evidence-based decisions. Information accessible via NICE ES includes clinical and public health guidance, government policy, patient and drug information, systematic reviews, primary research and informally published material (i.e. grey literature).

In the initial stage of their participation in the Student Champion Scheme, student champions attend a group training day that is designed to give them a good understanding of Evidence Search and help them to confidently facilitate peer-group training. They are also provided with a tool kit to assist them in running training sessions with their peers. Next, champions are expected to promote and deliver at least one learning session on Evidence Search to a minimum of eight students in their home university. In this process they are supported by a librarian or academic in their own university (a facilitator), and often work with another student champion. Finally, after they have delivered their training to peers, student champions are invited to attend a study day focusing on NICE, which provides an opportunity to meet with students from other universities and other disciplines. The study day covers: what NICE does; who works with NICE; the process for developing NICE Guidance; how NICE services/products can help them with their studies, continuing education and their future practice, and how to keep in touch with NICE.

4. Methodology

The key objectives of this study were:
1. To learn about the students' experience of their involvement with the scheme.

2. To profile the search and information evaluation behaviour of champions and their attitude to NICE Evidence Search.

Six focus groups, involving 42 champions, were conducted at a NICE training day, at which champions from a number of different universities were gathered together to exchange experience and learn more about NICE. Focus groups were selected as the research method, because they provided the opportunity to involve a large number of student champions, and to engage them in an open but structured discussion about their experiences. Each focus group had seven members; all focus groups were facilitated by a fully briefed and experienced facilitator. From data gathered in the questionnaire (see below) the gender distribution was 25 (59.5%) females, 10 (23.8%) male, and 7 (16.7%) undeclared. The majority of participants were from medical schools, 38 (90.5%), with 3 (7.1%) from pharmacy schools and 1 (2.4%) from a dentistry school.

The focus groups were structured with the aid of a protocol, which asked students to discuss the following questions:

1. What is the most important thing that you have learnt from your involvement with SCS?
2. If you were searching for information for an assignment, would ES be your first port-of-call?
3. Have you recommended ES to friends or colleagues? If so, who, when and why?

The protocols (student and facilitator) were piloted with NICE staff, revised and approved. Question 1 used a flip chart and post-it note activity to encourage students to share what they had learnt from the scheme: teaching skills, or information skills, a mix of the two, or something else altogether. All focus groups were recorded and each facilitator made notes of the key points emerging in their group. Focus group conversations were transcribed, and analysed using thematic analysis.

Immediately following the focus groups, a short, tick-box questionnaire was distributed to students. This included twenty-seven five-point Likert-style statements and covering: 1) frequency of use of certain search features of ES: 2) evaluation of the information retrieved; and, 3) general attitudes to ES. The questionnaire design was informed by discussions with NICE staff and by previous research (Rowley & Johnson, 2013; Rowley et al., 2013). Data from the questionnaire was entered into SPSS for descriptive and analytical analysis.

5 Findings
5.1 Focus group

Question 1: What is the most important thing that you have learnt from your involvement with the Student Champion Scheme?

This question is designed to offer insights into the main benefits from the champion's experience as a peer-trainer. Participants were invited to answer question 1 by writing their response on a post-it note and placing it on a pre-prepared Venn diagram drawn on a flipchart sheet. The two main choices were 'Learning to teach' and 'Learning about information'; in addition, they could put their post-it notes between the two main choices or in neither of them.

The vast majority of comments (35 post-it notes, representing 75% of all answers) fell in the 'Learning about information' category, with three notes in the 'Learning to teach' area, eight into the intersection of the two areas, and, one outside either of the circles. Discussion revealed an underlying reason for this distribution - champions already had some experience of teaching as part of their study curriculum:

As part of our course we are required to teach all the time anyway so I feel like, as far as this is concerned, that this has not added that much to my teaching. (FG 4)

However, champions did suggest that being a champion did extend their teaching skills, by, for example offering the opportunity to transfer teaching skills from previous experiences, and extending their experience of teaching contexts, to include, for example, developing and planning a cascade session, teaching with computers, and working with co-facilitators.

Discussion on 'Learning about information', suggested that the training that they received, together with their engagement with passing their knowledge on to others, both increased their awareness of ES, as well as convinced them of the value of using the right information

in study, clinical and other practice settings. They also became more experienced as searchers, and advocates for ES, and to some extent evidence-based practice. The following quotes illustrate enhanced awareness of ES. Some had not heard of ES before:

The existence of NICE Evidence! The information available/resources. How it works/how to navigate. (FG 1)

About NICE Evidence Search, I didn't realise it existed. We had been taught about the searches such as Medline, Ovid, Scopus but not about NICE Evidence Search. (FG 2)

Others gained a better understanding and appreciation of its features:

How to filter results effectively. How to gain the most appropriate results from search terms. (FG 3)

Deeper awareness of NICE Evidence Search and resources available. Learnt about NICE itself and what guidance/resources it provides. (FG 5)

Using NICE Evidence as a search tool for multiple types of information: care pathways, accredited guidelines, current research, setting alerts for new info. (FG 1)

Several champions commented on the value and application of the information:

Learning how to use an accredited website for evidence based research – really useful as a student and in the future. (FG 6)

Contains evidence based information and all-important resources that I will need. This helps me doing assignments, coursework, etc. (FG 4)

Importance and usefulness of a reliable information source in clinical practice. (FG 2)

Some comments revealed a more discerning attitude towards good, reliable online health resources:

The importance of accredited up to date information. So we know which results are most accurate and relevant. (FG 2)

The importance of the systematic review and appraisal of evidence and that gives always the best sort of evidence to me to answer clinical questions. (FG 5)

Question 2: Can we confirm whether, if you were searching for information for an assignment, Evidence Search would be your first port-of-call?

The purpose of this question is to investigate whether being a champion affects their information behaviour in terms of the sources that they use. Most champions agreed that ES would be their first port-of-call when working on an assignment, although they might still use Google for other types of searches:

I go to Google first, just to get a general idea. If I want something reliable then I would go to NICE. (FG 2)

For something like for an assignment then I would use Evidence Search, but if I was doing something myself, something personal I might just Google it. (FG 4)

For an assignment? I would say yes, of course. For the references it is going to be a good source, reliable. For a quick reference, a quick info, I would probably still Google it, but for an assignment, yes, definitely. (FG 6)

On the other hand, it is important to acknowledge that champions soon become expert enough to understand the limitations of a specific source, and in the case of ES were commenting on the lack of an advanced search option, such as the drop down advanced search option available in PubMed, and their perception of the absence of a Boolean search. In fact, AND and OR are embedded in the system, with AND being the default.

I think Evidence Search could do with an advanced search button…. Because right now you can only do the essentials, but I'd use it more if I could go deeper. (FG 1)

They reported often having to use ES alongside other databases because of this issue.

Also, several students mentioned the need to check quickly for a condition or a term while on the ward, where access to computers might prove difficult. The solution to this problem would be the development of a version of ES that is compatible with tablets and smartphones:

It would give a quick access. You don't always have the time to sit at the computer, definitely not when you're on the ward! (FG 6)

Question 3: Have any of you recommended NICE Evidence Search to friends or colleagues? If so, who, when and why?

This question is designed to explore the extent to which champions act as advocates in addition to their role as trainers. Indeed, many of the student champions have recommended ES to fellow students and/or hospital/ward staff:

I have been in contact with some friends from other universities that are not part of the Scheme and I'll try to do some sessions there, because I think they would be interested. (FG 4)

Some friends were looking for guidelines on something, I can't remember what now, so…I sent them to NICE. (FG 6)

I told other students. And, when they saw it they said 'oh, I wish I had known about this earlier'. (FG 1)

I told doctors on the ward, nurses and many of them have never heard about it before. So there has been some discussion and I know that in the future they'll probably use it too. It's word of mouth, isn't it? (FG 4)

I told some nurses at the hospital who were trying to go to Google and I said to them about NICE Evidence Search. (FG 6)

To my housemate, who is a pharmacist, she had a coursework piece and she did not know how to find the information, so I said, go on that…and as well there's the BNF. (FG 3)

In summary, having been convinced of the value of ES, and developed their own confidence in its use, champions incline towards advocacy in the form of word-of-mouth recommendations.

5.2 Focus group questionnaire

The questionnaire was designed with the purpose of better understanding students' approach to ES, including searching and evaluation.

	Code	Statement	Mean (Tot)	s.d.	Mean (M)	Mean (F)
Search	S1	NICE Evidence Search is my first port-of-call	3.95	0.61	3.93	3.96
	S2	I make a list of search terms before I start my search	*2.45*	0.87	*2.47*	*2.44*
	S3	I determine new search terms during the search process	4.05	0.71	4.20	3.96
	S4	I use the search filters	4.21	0.79	3.80	4.44
	S5	If I find little information, I adjust the question	4.31	0.76	**4.33**	4.30
	S6	If I find too many search results, I narrow my search	**4.38**	0.86	4.07	**4.56**
	S7	I use My Evidence so that I can find information again later	2.74	1.08	2.80	2.70
Evaluation	E1	I scan through the information found for relevant items	**4.59**	0.49	**4.60**	**4.59**
	E2	I consider the types of information sources	4.48	0.62	4.53	4.44
	E3	I select information that brings new thoughts to mind	*3.81*	0.69	*3.80*	*3.81*
	E4	I select information that is easy to access	4.33	0.74	4.27	4.37
	E5	I determine whether the information consists of facts or opinions	4.21	0.90	4.27	4.19
	E6	I determine whether I can understand the information	4.29	0.79	4.27	4.30
	E7	I examine the style and readability of the information	4.21	0.85	*3.80*	4.44
	E8	I use more than one source to answer my question	4.48	0.62	4.40	4.52
Attitude	A1	Reliable	4.83	0.37	4.73	4.89
	A2	Comprehensive	*4.12*	0.78	*3.87*	*4.26*
	A3	Credible	**4.90**	0.29	**4.87**	**4.93**
	A4	Convenient and accessible	4.40	0.65	4.40	4.41
	A5	Easy to use	4.19	0.69	4.00	4.30
	A6	Useful	4.57	0.58	4.53	4.59
	A7	Understandable	4.45	0.58	4.40	4.48
	A8	Trustworthy	4.86	0.35	**4.87**	4.85

Table 1. Student Champion Search and Evaluation Skills, and Attitudes towards Evidence Search
Note: in bold are the total highest means for each group of statements and for males and females and in bold underlined is the highest mean overall. In italic are the total lowest means for each group of statements and for males and females and in italic underlined is the lowest mean overall.

Descriptive statistics are summarised in Table 1. In terms of searching for information (statements S1 to S7), student champions tend to perform comprehensive searches, with most means in this category being around 4 or more (overall group mean = 3.73). The use of My Evidence is limited (mean = 2.74), as is making a list of the search terms beforehand (mean = 2.45). The use of the resource filters is very high (mean = 4.21), but such use seems to be more of a prerogative with female champions (mean = 4.44), than with male champions (mean = 3.80). An independent-samples t-test performed on this statement has confirmed that there is, in fact, a statistically significant difference in the mean use of filters scores for males (mean = 3.80, s.d. = 0.941) and females (mean = 4.44, s.d. = 0.641; $t(40)$[1] = -2.64, p = 0.012 two-tailed).

Stepwise multiple regression[2] was used to determine what attitude factors would influence the choice of NICE Evidence Search as the first port-of-call for a study assignment (S1) (Table 2). Preliminary analyses were conducted to ensure that there was no violation of the assumptions of normality, linearity, multi-co-linearity and homoscedasticity[3]. Of all Attitude factors taken into account, only 'convenient and accessible' and 'trustworthy' were statistically significant and, therefore, contributing to the choice of ES as the first port-of-call. These two control measures account for 52% of the variance explained by the model, with 'convenient and accessible' recording a much higher beta value[4] (beta = 0.632, p < 0.001) than 'trustworthy' (beta = 0.252, p = 0.030).

For the evaluation of the information retrieved through ES, the overall mean for statements (E1 to E8) increases to 4.30, with 'I scan through the information found for relevant items' scoring the highest mean of 4.59. The only item to score below 4 is 'I select information that

---

[1] "t" is a test statistic used to check whether a regression coefficient beta is significantly different from zero. *Sig.* (also expressed as "p" in the text) gives a measure of the statistical significance of each independent variable to the equation. This value must be smaller than 0.05.

[2] *Stepwise multiple regression* can provide statistically stronger results than standard regression. In stepwise regression, independent variables are entered into the regression equation one at a time; at each step, the independent variable that contributes the most to the prediction equation (in terms of increasing the multiple correlation R) is entered first. This process continues until additional variables make statistically significant contributions to the regression equation.

[3] *Multicollinearity* is defined as a situation in which two or more independent (predictor) variables are too closely linearly related. This can misleadingly inflate the coefficient estimates of the predictors. *Homoscedasticity* is the assumption that the variance (the measure of how spread out a distribution is) around the regression line is the same for all values of the independent variable.

[4] The *standardised coefficient beta* gives the measure of how much each independent variable included in the model contributes to the prediction of the dependent variable. The higher the number, the higher and more relevant the contribution.

brings new thoughts to mind', with a mean of 3.81, and showing no difference between males and females.

In this group, the item 'I examine the style and readability of the information' is the only one, together with the use of filters discussed above, to show a difference between the means of males' and females' scores, with the former paying much less attention to the style of the retrieved material than the latter. An independent-sample t-test performed on this item has confirmed a statistically significant difference in mean scores between males (mean = 3.80, s.d. = 0.941) and females (mean = 4.44, s.d. = 0.751; t (40) = -2.43, p = 0.02 two-tailed).

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.696[a]	.484	.471	.453
2	.737[b]	.543	.520	.432

a. Predictors: (Constant), Convenient and accessible

b. Predictors: (Constant), Convenient and accessible, Trustworthy

c. Dependent Variable: NICE Evidence Search is my first port of call

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.081	.474		2.282	.028
	Convenient and accessible	.652	.106	.696	6.125	.000
2	(Constant)	-.806	.953		-.846	.403
	Convenient and accessible	.592	.105	.632	5.655	.000
	Trustworthy	.442	.197	.252	2.250	.030

Table 2. Summary of stepwise multiple regression analysis to evaluate what Attitude factors can influence the use of NICE Evidence Search as the first port-of-call during a study assignment.

Finally, the last set of items (A1 to A8) concerns the student champions' general attitude towards NICE Evidence Search. The results show that all items included in this group are extremely relevant for the students, with an overall mean of 4.54 and no item scoring below 4. The whole Attitude group has a very good internal consistency, with a Cronbach's Alpha coefficient of 0.797, well above the threshold of 0.7 suggested by DeVellis (2003); this indicates that such items explain the students' attitude in a complete and thorough manner.

It emerges that the student champions consider ES to be credible (mean = 4.90), trustworthy (mean = 4.86) and reliable (mean = 4.83). The champions' attitude towards other aspects of the resource, which relate more to its usability, is clearly less positive; in fact, comprehensive (mean = 4.12), easy to use (mean = 4.19) and convenient and accessible (mean = 4.40) show the lowest scores of the group in general and both for males and females.

6. Discussion and Conclusions

This research focuses on the benefits that accrue from a peer-led model of information literacy training, the NICE Evidence Search Student Champion Scheme. In particular, the research examines and offers insights from the peers' perspective, through asking them about the benefits and learning that they accrue through their involvement in the scheme and assessing their attitudes towards Evidence Search, the information resource on which they have been delivering the training, and their subsequent information behaviour.

The research finds that at a general level champions develop their skills in both teaching and information through their activities as peer trainers. Some also comment on developing and practising their organisational skills. This is consistent with other studies in different contexts, which assert that peer tutoring provides learning opportunities for peers, including the enhancement of both their information and teaching skills (Halliday & Nordgren, 2005; Topping, 1996). However, given the nature of the study programmes that the medical students in our focus groups are enrolled on many already have some teaching experience, so that the most significant impact of their involvement in the scheme is the development of their information skills. Learning in this area ranges through becoming more aware of the sources, more convinced of the value of the right information in study, clinical and other practice settings, and more experienced as searchers.

Being a peer trainer also impacts on their information practices. Evidence suggests that they adopt Evidence Search as their first port-of-call for study and professional tasks, despite persisting in their use of Google for other search tasks. The persistence of this use of Google is not surprising, given the extent to which it is embedded in the information practice in everyday information searching, and the value that is accorded to accessibility (Kim & Sin, 2011; McKinney et al., 2011). The questionnaire findings offer wider insights into the impact of being a champion on both their attitudes towards ES and their information behaviour. Champions regard ES as credible, trustworthy and reliable. The key attitude factors that affect their choice of ES as the first port-of-call for a study assignment are 'convenient and accessible' and 'trustworthy'; again, the importance of accessibility is echoed in other studies (Kim & Sin, 2011). In addition, their approach to searching for and evaluating information is that of an expert. When searching, champions tend to perform comprehensive searches, and make good use of filters to narrow search outputs. For the evaluation of information, the means of all the items are high, with the highest being for "I scan through the information found for relevant items". Exploratory analyses by gender suggest there are some statistically significant differences in the responses to some of the questions in the searching and evaluation sections, suggesting that further research that considers the impact of demographic factors might be useful.

One of the most interesting findings from this research, and one that has not previously received attention, is the link between being a peer trainer and becoming an advocate. In this case, the advocacy is in respect of one specific source, but in other contexts, advocacy might relate to any of the various aspects of information literacy. Also, in this practice based discipline, advocacy extended beyond fellow students to professionals in practice settings. Older practitioners often look to younger colleagues for a lead on technology innovation, so influencing students and potential professionals is an important step towards the wider

adoption of such information literacy. However, it is also important to remember that such advocacy is not 'a free ride'. Champions became sufficiently familiar with ES, that they started to criticise aspects of its functionality and interface, and its applicability in a variety of settings. In other words, it is unrealistic to expect unconditional advocacy.

Whilst acknowledging that this research has been conducted in a specific context, the research findings are based on a national scheme, running across many universities. The specific peer-based approach described in this research may not be directly transferable to other contexts and other disciplines, and equally the findings of this research may have limited transferability. However, the scheme does present a model for reflection, and the findings of this research provide the basis for an agenda for further research into peer-led training, in general, and more specifically peer involvement in information literacy training. We suggest further research explore the following:

- Different models for embedding peer-led training in information literacy development.

- The experience, and impact of being a peer trainer, in both the short and longer term. Research in this area might explore, for example, short-term impacts on information behaviour, and longer term impacts on career routes and development.

- The impact of peer-led training on the information behaviour of the peer trainees.

- How advocacy for information literacy can be cultivated and encouraged.

- Any demographic or disciplinary influences on the motivation to engage as a peer-trainer, or its impact.

As for practice, this study has already offered valuable insights into the performance of the SCS, which will inform its further development. Specific considerations for other information literacy programmes might be:

- Recognise that to encourage peer-engagement, it is necessary to understand, communicate and deliver on the potential benefits for them.

- The most important benefits for the peer-trainers is their enhanced information literacy.

- It may be the case that 'less is more', in the sense that an information literacy programme that focuses on a few authoritative and useful sources may be more effective than a broader review of all potential information sources.

- An effective interactive information literacy programme, in which the relevance is direct and immediate can engender advocacy, not only for specific sources as in this case, but for, say an academic library or an information literacy programme.

References

Bailey, P., Derbyshire, J., Harding, A., Rayson, K. & Syson, L. (2007). Assessing the impact of a study skills programme on the academic development of nursing diploma students at Northumbria University. *UK Health Information & Libraries Journal*, 24 (s1), 77-85.

Bates, W. (2001). Reducing the frequency of errors in medicine using information technology. *Journal of the American Medical Informatics Association*, 8 (4), 299-308.

Bolton, T., Puliese, T. & Singleton-Jackson, J. (2009). Advancing the promotion of information literacy through peer-led learning. *Communications in Information Literacy,* 3 (1), 20-30.

Carr, S., Iredell, H., Newton-Smith, C. & Clark, C. (2011). Evaluation of information literacy skill development in first year medical students. *Australian Academic & Research Libraries*, 42 (2), 136-148.

Clarke, M.A., Belden, J.L., Koopman, R.J., Steege, L.M., Moore, J.L., Canfield, S.M. & Kim, M.S. (2013). Information needs and information-seeking behaviour analysis of primary care physicians and nurses: a literature review. *Health Information and Libraries Journal*, 30, 178-190.

Cullen, R., Clark, M. & Esson, R. (2011). Evidence-based information-seeking skills of junior doctors entering the workforce: an evaluation of the impact of information literacy training during pre-clinical years. *Health Information and Libraries Journal,* 28, 119-129.

DeVellis, R.F. (2003). Scale development: Theory and applications. (2nd Ed.) Thousand Oaks, California: Sage.

Dorsch, J.L., Auyer, M.K. & Meyer, L.E. (2004). Impact of an evidence-based medicine curricula on medical students attitudes and skills. *Journal of the Medical Library Association,* 92 (4), 397-406.

Farrell, A., Goosney, J. & Hutchens, K. (2013). Evaluation of the effectiveness of course integrated library instruction in an undergraduate nursing program. *Journal of the Canadian Health Libraries Association,* 34, 164-175.

Flaspohler, M., Rix, E. & Faspohler, J. (2007). The annotated bibliography and citation behaviour- enhancing student scholarship in an undergraduate biology course. *CBE – Life Sciences Education,* 6 (4), 350-360.

Gray, N.J., Klein, J.D., Noyce, P.R., Sesselberh, T.S. & Cantrill, J.A. (2005). Health information-seeking behaviour in adolescence: The place of the Internet. *Social Science & Medicine,* 60 (7), 1467-1678.

Greenhalgh, T. (2010). How to Read a Paper: The Basics of Evidence-Based Medicine (4th Ed.) Wiley-Blackwell, BMJ Books.

Gross, M. & Latham, D. (2007). Attaining information literacy: an investigation of the relationship between skill level, self-estimates of skill, and library anxiety. *Library & Information Science Research*, 29, 332-353.

Gross, M. & Latham, D. (2012). What's skill got to do with it?: Information literacy skills and self-views of ability among first-year college students. *Journal of the American Society for Information Science,* 63 (3), 574-583.

Halliday, W. & Nordgren, C. (2005). Extending the reach of librarians: Library peer mentor program at Utah State University. *College and Research Libraries News*, 66 (4), 82-284.

Hellbring, A. & Wiberg, A. (2013). Using peers in a three folded support: student needs and achieving the learning outcomes. *Nordic Journal of Information Literacy in Higher Education,* 5 (1).

Hsieh, M.L., Dawson, P.H., Hofmann, M.A., Titus, M.L. & Carlin, M.T. (2014) Four pedagogical approaches in helping students learn information literacy skills. *Journal of Academic Librarianship, Online*

Jacobsen, H.E. & Andenaes, R. (2011). Third year nursing students' understanding of how to find and evaluate information from bibliographic databases and internet sites. *Nurse Education Today,* 31, 898-903.

Jake, R., Pesut, B. & Erbacker, L. (2012). Promoting information literacy through collaborative service learning in an undergraduate research course. *Nurse Education Today*, 32 (8), 920-923.

Kim, K-S. & Sin, S-C. J. (2011). Selecting quality sources: bridging the gap between the perception and the use of information sources. *Journal of Information Science*, 37 (2), 178-188.

Loo, J.L. (2013). Guided and team-based learning for chemical information literacy. *Journal of Academic Librarianship,* 39, 252-259.

McKinney, P., Jones, M. & Turkington, S. (2011). Information literacy through enquiry. *Aslib Proceedings,* 63 (2/3), 221-240.

Mofford, K. & Steinberg, M.H. (2006). Librarians and faculty as partners: Collaboration at work. *Teaching Professor*, 20 (10), 3-5.

Moselen, C. & Wang, L. (2014). Integrating information literacy into academic curricula: a professional development programme for librarians at the University of Auckland. *Journal of Academic Librarianship,* 40, 116-123.

Mullins, K. (2014). Good IDEA: instructional design model for integrating information literacy. *Journal of Academic Librarianship, Online.*

Rowlands, I., Nicholas, D., Williams, P., Huntington, P., Fieldhouse, M., Gunter, B., Withey, R., Jamali, H.R., Dobrowolski, T. & Tenopir, C. (2008). The Google generation: the information behaviour of the research of the future. *New Information Perspectives,* 60 (4), 290-310.

Rowley, J. & Johnson, F. (2013). Understanding trust formation in digital information sources: The case of Wikipedia. *Journal of Information Science*, 39 (4), 494-508.

Rowley, J., Johnson, F. & Sbaffi, L. (2013). Insights into trust in digital health information. Paper presented at CARPE, Manchester, UK, 4-6 November 2013.

Sackett, D.L., Rosenberg, W.M., Gray, J.A., Haynes, R.B. & Richardson, W.S. (1996). Evidence based medicine: what it is and what it isn't. *BMJ*, 312 (7023), 71-72.

Schroeder, H. (2010). Creating library tutorials for nursing students. *Medical Reference Services Quarterly,* 29 (2), 109-120.

Simons, M.R., Morgan, M.K. and Davidson, A.S. (2012). Time to rethink the role of the library in educating doctors: driving information literacy in the clinical environment. *Journal of the Medical Library Association*, 100 (4), 291-296.

Smith, J. K., Given, L. M., Julien, H., Ouellette, D. & DeLong, K. (2013). Information literacy proficiency: assessing the gap in high school students' readiness for undergraduate academic work. *Library & Information Science Research,* 35, 88-96.

Thomson, P., Smith, A. & Annesley, S. (2014). Exploration of the effects of peer teaching of research on students in an undergraduate nursing programme. *Journal of Research in Nursing*, in press. *Available at: http://jrn.sagepub.com/content/early/2014/03/20/1744987113519444.*

Topping, K. (1996). Effective peer tutoring in further and higher education. *SEDA Paper 95. Available at: http://hdl.handle.net/10068/413718.*

Tuttle, B.D., Von Isenburg, M., Schardt, C. & Powers, A. (2009). PubMed instruction for medical students: Searching for a better way. *Medical Reference Services Quarterly*, 28 (3), 199-210.

Verity, M., Armstrong, J. & Caldwell, T. (2007). Who hides the books? The truth behind the tales (students use of resources). Paper presented at the CETL Research Symposium, Liverpool Hope University, UK, 26th June 2007.

Walker, K.W. & Pearce, M. (2014). Student engagement in one-shot library instruction. *The Journal of Academic Librarianship, Online.*