

# ▲ Development and Evaluation of an Allied Health Research Training Scheme

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Allied health professionals are increasingly encouraged to utilise clinical research skills within their practice. While undergraduate allied health courses include some training in basic research skills, little is known about the most effective methods of continuing research training into professional life. This paper describes the implementation and evaluation of a 12-week allied health research training program, targeting interested clinicians and utilising a mixed approach of group learning and individual mentoring to guide participants through the process of conducting a systematic review of the literature. Evaluation included a qualitative analysis of in-depth semi-structured interviews with the first cohort of participants who completed the program ( $n=6$ ) and their mentors ( $n=6$ ), a quantitative analysis of changes in research interest, experience, and confidence of those who enrolled in the program ( $n=7$ ) using the Research Spider tool, and a 6-month follow-up of research outputs resulting from the program. Results indicated that the program was beneficial, although the time and new learning required was a challenge for both participants and mentors. A significant increase was observed in research confidence, as well as an observed improvement in research experience, that approached but did not achieve statistical significance ( $p=0.06$ ). At 6-month follow-up, the program had led to the submission of three papers for publication and one conference presentation. The results of the evaluation indicate that a research training program targeting motivated and interested clinicians and utilising existing resources can lead to tangible outputs within a clinical setting. *J Allied Health* 2010; 39:e143–e148.

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HEALTH SERVICE MANAGERS are increasingly encouraged to advocate the use of clinical research skills by allied health professionals [1]. Undergraduate allied health degrees

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include basic training in clinical research skills, but little is known about how the development of these skills is continue into professional life and what types of education are most effective. More literature is available on developing evidence based practice skills, which primarily involves the ability to find relevant literature, critically analyse and interpret results of research papers, and application of evidence into clinical practice. However, findings suggest issues with limited transference of skills into the workplace and questionable cost effectiveness, particularly for programs that attempt to impart such skills to large groups of clinicians [2-4]. An alternative approach is to target individuals who are very interested in research. There is some evidence to suggest that mentoring highly motivated individuals can foster increased clinical research in the workplace, increased interest in pursuing post graduate studies, and publication of clinical research projects [5].

A survey of Allied Health clinicians' research interests and experiences conducted at a large metropolitan health service [6] showed that the majority of the respondents had only 'some interest' in research, but a significant sub-group (15%) reported that they were very interested. Following the survey, a training opportunity was developed, informed by evidence from the literature and the survey data. The resulting program was a targeted, short term training scheme that aimed to introduce research in a manageable way, whilst embedding a "research culture" within every day clinical practice. This paper aims to describe the development of the program, to explore the experiences of the clinicians and mentors who participated, and to evaluate the outcomes of the program for the participants and the organisation.

## Methods

### THE RESEARCH TRAINING SCHEME

The training scheme was a 12-week program in which a small group of allied health clinicians were selected to write a systematic review of the literature with the support of group learning sessions and an allocated mentor. The successful candidates had written support from their managers to be released from their normal duties for 12 half-days. No additional resources were provided. Managers were responsible for

**TABLE 1. Sample Questions for Participants**

Topic Area	Sample Question
Motivation	<ul style="list-style-type: none"> <li>• What were your reasons for applying for the AHRTS?</li> </ul>
Personal experience of the program	<ul style="list-style-type: none"> <li>• For you personally, what were the most positive things that came out of being part of the training scheme?</li> <li>• What were the most challenging aspects of the program for you?</li> <li>• Were there any barriers that made it difficult to participate in the AHRTS?</li> </ul>
Program structure	<ul style="list-style-type: none"> <li>• What do you think about the model of training that was used in the AHTRS?</li> <li>• What worked well?</li> <li>• What do you think could be improved?</li> </ul>
Future	<ul style="list-style-type: none"> <li>• Has your being involved in the AHRTS resulted in any outcomes such as research presentations or articles?</li> <li>• Has being part of the AHTRS changed your attitude or interest in research?</li> <li>• Has participation influenced your ideas about including research either within your current role or in your career in the future?</li> </ul>

AHRTS, Allied Health Research Training Scheme.

making arrangements to accommodate their employee’s involvement.

Basic skills were taught during five 3-hour group workshops spaced over the 12 weeks, including formulating a question, identifying literature, critical evaluation of papers, synthesising data (qualitative and quantitative methods) and writing the review. Multiple resources were used in the development of the course content, but key references included guides for the production of systematic reviews produced by the Cochrane collaboration [7] and the Centre for Reviews and Dissemination, University of York [8]. The participants also had regular meetings with their mentor, an employee within the organisation with experience in clinical research. Mentor/participant pairs were not matched by discipline and 5 of the 6 pairs were from different disciplinary backgrounds. Presentations opportunities provided incentive for participants to complete their work.

**QUALITATIVE EVALUATION**

A qualitative research design was used to explore the experiences of the participants and their mentors. In-depth, semi-structured interviews were completed, based on predeter-

mined topic areas (Tables 1 and 2). All interviews were conducted by two researchers (an occupational therapist [KH] and a speech pathologist [DS]) who had been involved in the design of the program but not in its implementation. Interviews were audio-taped and transcribed, and participants were sent a copy of their transcript for correction, clarification and further comment [9]. Transcripts were then de-identified for further analysis.

The transcripts were read independently by the same two researchers and codes devised to represent the data. Themes were developed through a process of collapsing codes together and defining descriptive categories. Consensus on the emerging themes and categories was achieved through a further discussion involving two additional members of the project team in order to broaden the depth of ideas and experience in interpreting the data. Analysis of data was completed using a phenomenological theoretical framework and grounded theory methods [10].

**QUANTITATIVE EVALUATION**

Research confidence, experience and interest of the participants was evaluated at both the onset and conclusion of the

**TABLE 2. Sample Questions for Mentors**

Topic Area	Sample Question
Motivation	<ul style="list-style-type: none"> <li>• What were your reasons for participating as a mentor in the AHRTS?</li> </ul>
Program structure	<ul style="list-style-type: none"> <li>• What do you think about the model of training that was used in the AHTRS?</li> <li>• What worked well?</li> <li>• What do you think could be improved?</li> </ul>
Experience of participants	<ul style="list-style-type: none"> <li>• What, if any, benefits do you believe the AHTRS had for the person that you mentored?</li> <li>• What do you think were the greatest challenges for the person that you mentored?</li> </ul>
Personal experience of being involved	<ul style="list-style-type: none"> <li>• Did being part of the AHTRS have any benefits to you personally?</li> <li>• Did being part of the AHTRS bring any challenges or difficulties for you?</li> </ul>

AHRTS, Allied Health Research Training Scheme.

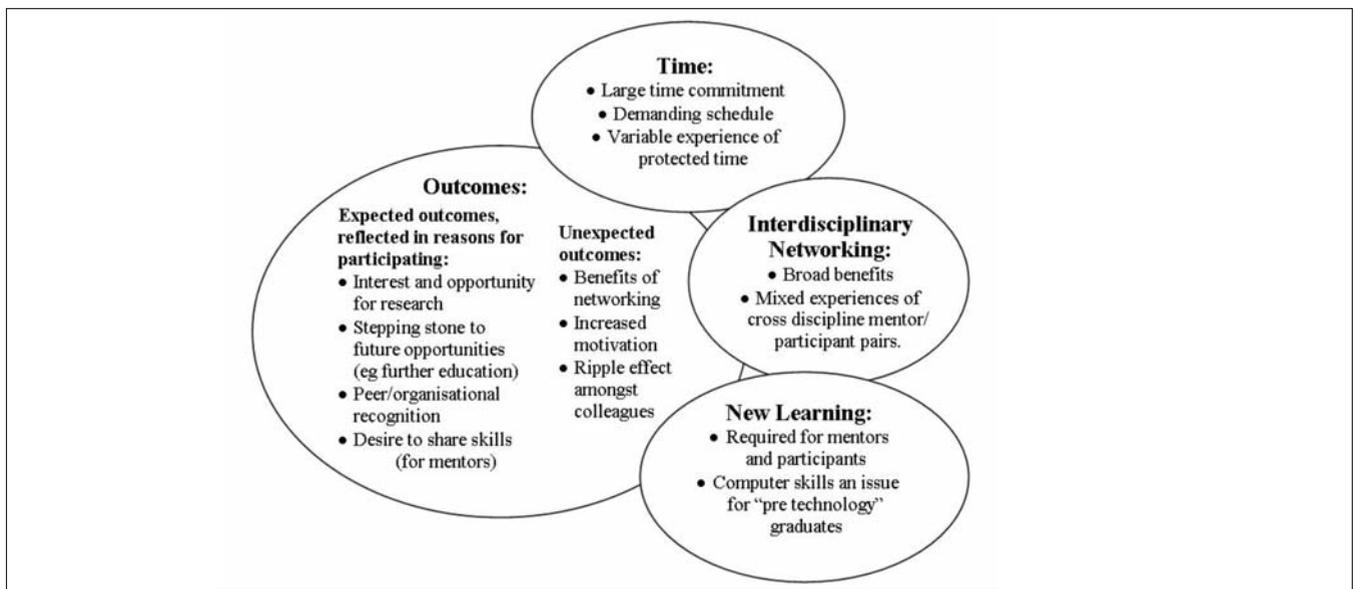


FIGURE 1. Key themes.

program using the Research Spider tool, a measure of research interest, experience and confidence, with demonstrated face and construct validity, and very high levels of retest reliability (Spearman rho = 0.95) [4,11,12]. The ten categories of the Research Spider each relate to a different aspect of research, and are measured using a 5-point Likert scale, ranging from 1 (no confidence/no experience/no interest) to 5 (very confident/very experienced/very interested). Aggregate scores at the beginning and end of the program were compared using Wilcoxon signed rank tests for non-parametric data, by averaging responses across the ten categories for each of the three dimensions (confidence, experience and interest). Six months after the formal conclusion of the program participants were contacted and asked about the outcomes of their research, including presentations or publication of their work.

## Results

### PARTICIPANTS

Seven candidates were invited to participate in the program and six of these fully participated in the group sessions and mentoring. All seven contributed to the quantitative evaluation, and the six who completed the program agreed to be interviewed. The one candidate who did not complete the program attended most of the group sessions but did not complete a systematic review citing increased work responsibilities as the reason. These six clinicians had an average of 18.5 years working in allied health (range 3 to 37 years), were all female, and included three physical therapists, two dieticians and one occupational therapist.

The six mentors (one male and five females) included two physical therapists, two occupational therapists, one dietician and one psychologist. Their primary roles varied between

clinical, management and/or research, but all had post graduate qualifications and were selected for their experience in research.

### QUALITATIVE EVALUATION

Four broad themes emerged from the qualitative analysis of the mentor and participant interviews: Expectations and outcomes; time and schedules; inter-disciplinary networking; and new learning. These themes are summarised in Figure 1.

Overall, both participants and mentors were extremely positive in their comments about the model adopted for the training program of combining small group teaching with individual mentoring. Participants' reasons for applying for the training scheme included an interest in research, and an attraction to perceived opportunities from participating. Mentors' reasons for being involved included a feeling of having skills to contribute, an interest in research or a desire to help others. Participants described many benefits from being involved. These included recognition and exposure (both within and beyond the organisation) and being able to share their knowledge and influence the practice of their colleagues. Mentors also described some unexpected benefits from participating, such as a feeling that the program had contributed to their own motivation and/or learning.

Keeping up with the program schedule was a challenge for participants and mentors. The time required to complete the systematic review exceeded the 36 hours formally allocated for all participants, which was anticipated by some but a surprise to others. There were differing opinions over whether the timelines needed to be adjusted. Some people felt that the schedule provided the structure and motivation needed to drive progress, but others believed the timelines were too tight and a source of stress. Participants had varied experi-

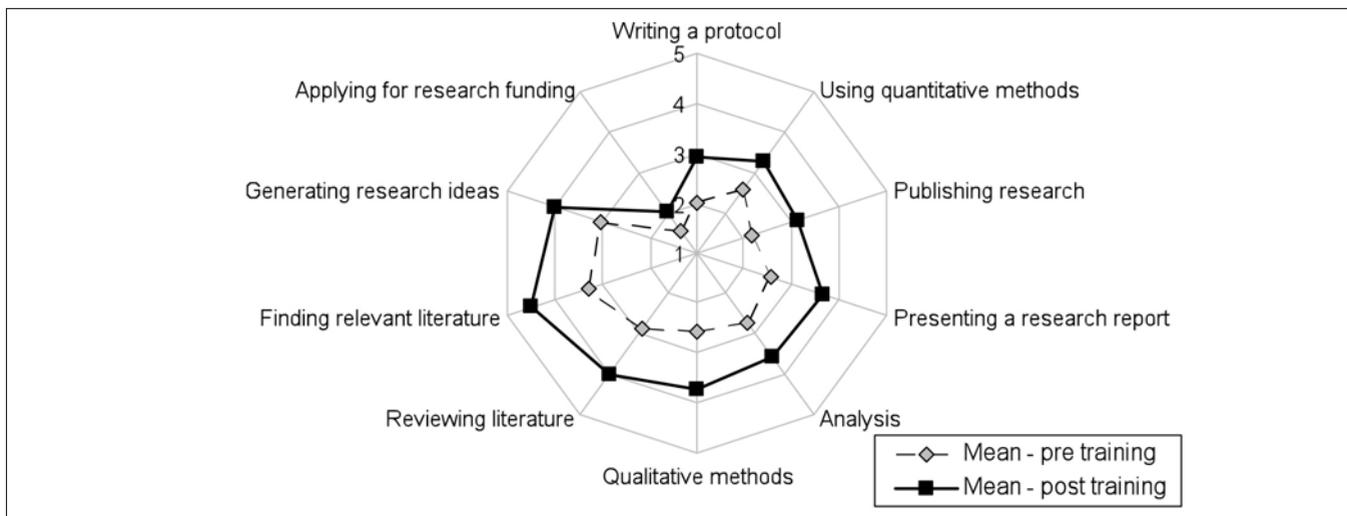


FIGURE 2. Confidence in research skills. Note: 1 denotes no confidence, 2 Little confidence, 3 Some confidence, 4 Moderate confidence, 5 Very confident.

ences in relation to their allocated time away from normal duties, with some feeling well supported but others under pressure to squeeze in the additional clinical work.

The approach of mixing the disciplines of mentor/participant pairs brought mixed reactions. Some valued the networking opportunities and diversity of ideas, whereas others believed that matching the background and/or interests of mentors and participants would enable mentors to better understand the subject matter they were working with.

The amount of new learning required was difficult for many participants. Learning to use electronic databases and bibliographic software was a particular challenge for those who had graduated some time ago. Prescribing a prerequisite level of computer skills and providing pre-reading materials were strategies suggested to ensure that all candidates begin the program with a baseline level of knowledge.

### QUANTITATIVE EVALUATION

Participants' overall confidence in research skills increased after completion of the program from a mean of 2.5/5 (SD 0.6) to 3.5/5 (SD 0.4) (Wilcoxon signed ranked test,  $z = -0.21$ ,  $p = 0.03$ ). There was also an observed increase in the post-test compared to the pre-test measures of perceived research experience from 2.2/5 (SD 0.4) to 2.7/5 (SD 0.7), which approached, but did not reach, statistical significance ( $p = 0.06$ ) (Figures 2 and 3).

In contrast, observed ratings in interest in research fell slightly in 8 of the 10 subscales on the research spider tool at the conclusion compared to the beginning of the program, although the difference did not reach statistical significance (Wilcoxon signed rank test,  $z = -1.95$ ,  $p = 0.051$ ). However, most participants still rated themselves as interested or very

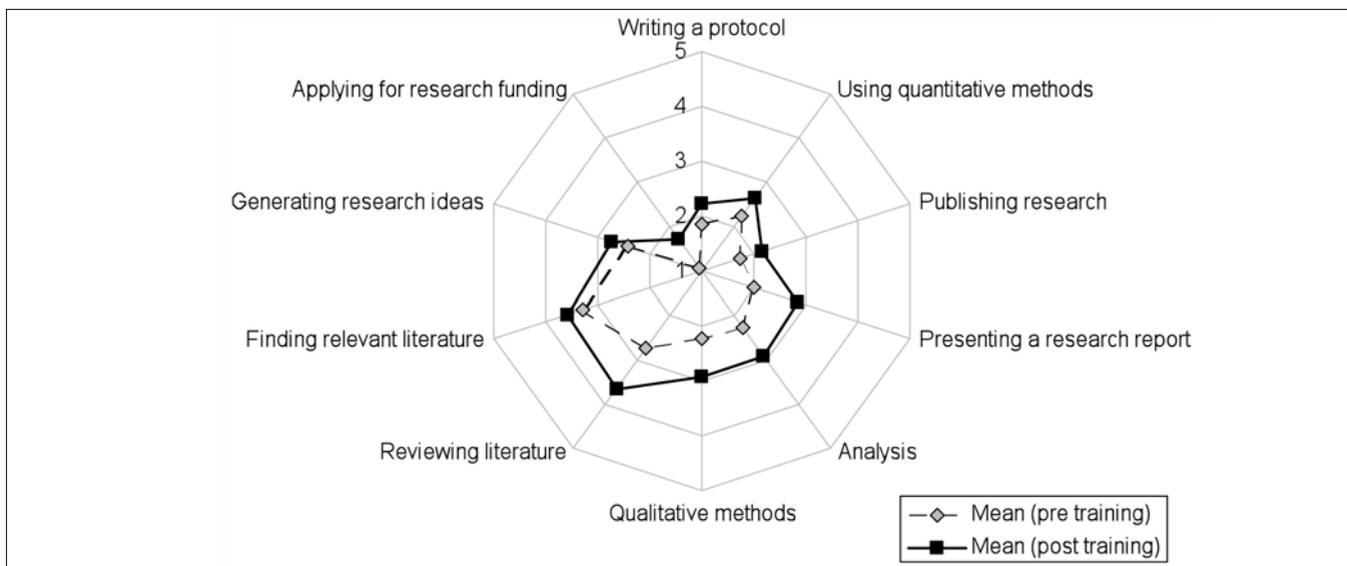


FIGURE 3. Experience with research skills. Note: 1 denotes no experience, 2 Little experience, 3 Some experience, 4 Moderate experience, 5 Very experienced.

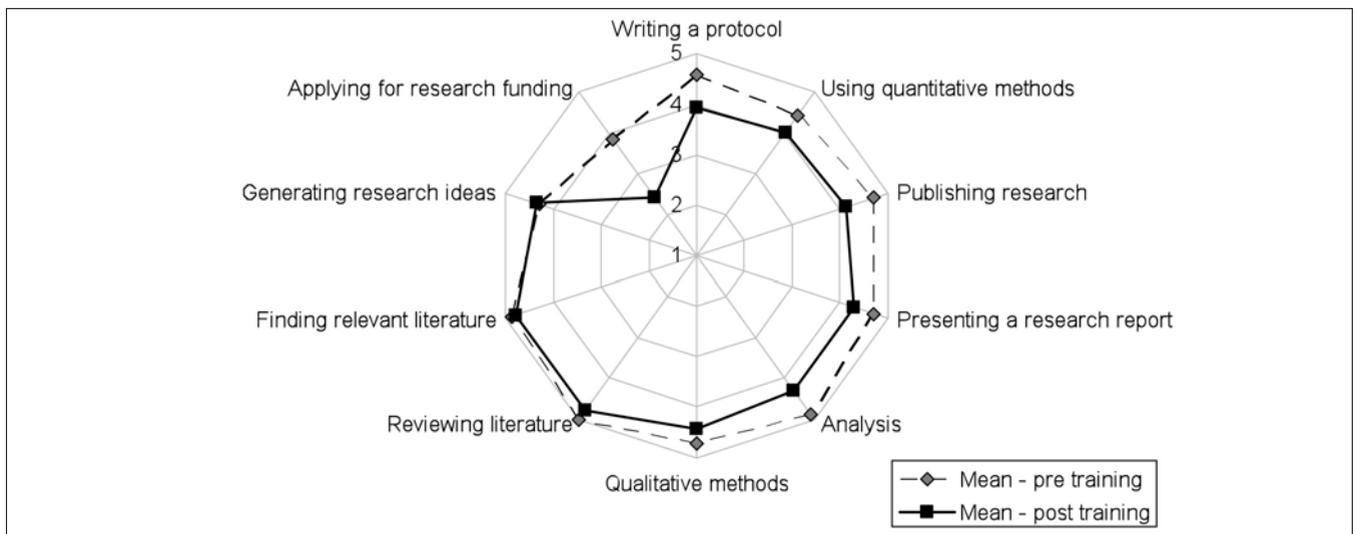


FIGURE 4. Interest in research. Note: 1 denotes no interest, 2 Little interest, 3 Some interest, 4 Moderate interest, 5 Very interested.

interested in research at the end of the program (4.1/5, SD 0.4) (Figure 4).

Six months after the completion of the training scheme, the systematic review of one participant had been accepted for publication in a peer reviewed journal [13], and two other participants had submitted papers to journals and were awaiting peer review. One additional participant had presented the outcomes of her work at a professional conference, and had the conference abstract published in a related journal [14].

## Discussion

An allied health research training scheme demonstrated success in a number of key areas. Both participants and mentors described multiple benefits, but also acknowledged that the program presented challenges, most notably the time required to complete the review.

In contrast to another scheme described in the literature [5], one feature of this program was that no additional financial resources were injected. Clinicians and mentors did take time away from their regular duties to participate, suggesting that the scheme had some costs in terms of loss of productivity. However, it is not uncommon for clinicians to dedicate a percentage of time to professional development and quality improvement, and the training scheme was considered to be within the scope of these activities. This approach reinforced the notion that research should be embedded within clinical practice, and also has implications for feasibility and sustainability. While the demands of the training scheme were an issue at times, respondents were positive overall and most participants were able to complete a systematic review. These results support the notion that clinicians given access to formal training and mentor support can produce quality research despite competing commitments.

The benefits of networking with other clinicians from other disciplines interested in research emerged as a strong

theme in the qualitative analysis. Interdisciplinary practice has become widely advocated in many aspects of allied health [15-17], and was incorporated into this program both through small group workshops and cross-disciplinary mentoring. Although there were mixed views in regard to the matching of mentors and participants, the general benefits of networking with like-minded colleagues was clearly appreciated by those involved.

Research confidence increased and there was an observed (though not statistically significant) increase in participants' perceptions of overall experience in research. More surprising was the finding of a consistent (although non-significant) observation across the ten subscales relating to "interest in research" that suggested participants may have had reduced overall interest in doing research at the conclusion of the program, although they still rated themselves as very interested. This finding is perhaps due to the participants having developed a new appreciation for what is involved in research. As one participant noted in relation to the production of a research paper, "I've certainly got a much keener appreciation of how much work is involved"

Dissemination of research results has previously been used as a measure of success of research training programs [18,19]. The participants in the research training scheme were novice researchers, who had no experience in writing a systematic review so it was not expected that all participants would reach the goal of publication. However, publications and presentations arising from this program are comparable to others [5] and provide further evidence that programs offering individual support and mentoring to interested clinicians can result in tangible outputs.

## LIMITATIONS

This evaluation was based on the first cohort of participants and mentors to experience the program. As a result, the sample is small and care must be taken in interpreting the results.

One participant did not complete the program and declined the invitation to be interviewed, and this is a possible source of bias in the qualitative data.

As this study had no comparison group, we cannot say with certainty whether these clinicians, self-reported to be very interested in research, would have gone on to pursue these interests without the training scheme. However, given that less intensive programs have shown very limited incorporation of skills into practice [3], it seems unlikely that these clinicians would have gone on to achieve these goals without the skills, support and encouragement that the program provided. Furthermore, prior to the training scheme none of the participants (who had an average of 18 years of clinical experience) had published in peer reviewed journals, suggesting that an additional factor was needed to drive a change in behaviour.

## CONCLUSION

A targeted training scheme using a mixed approach of small group learning and mentoring directed to clinicians who are interested in research, had positive outcomes in building research skills and confidence, promoting interdisciplinary networking and producing tangible research outputs. These results were achieved without additional resources, reinforcing the notion that with management support it is possible to embed research within clinical practice.

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