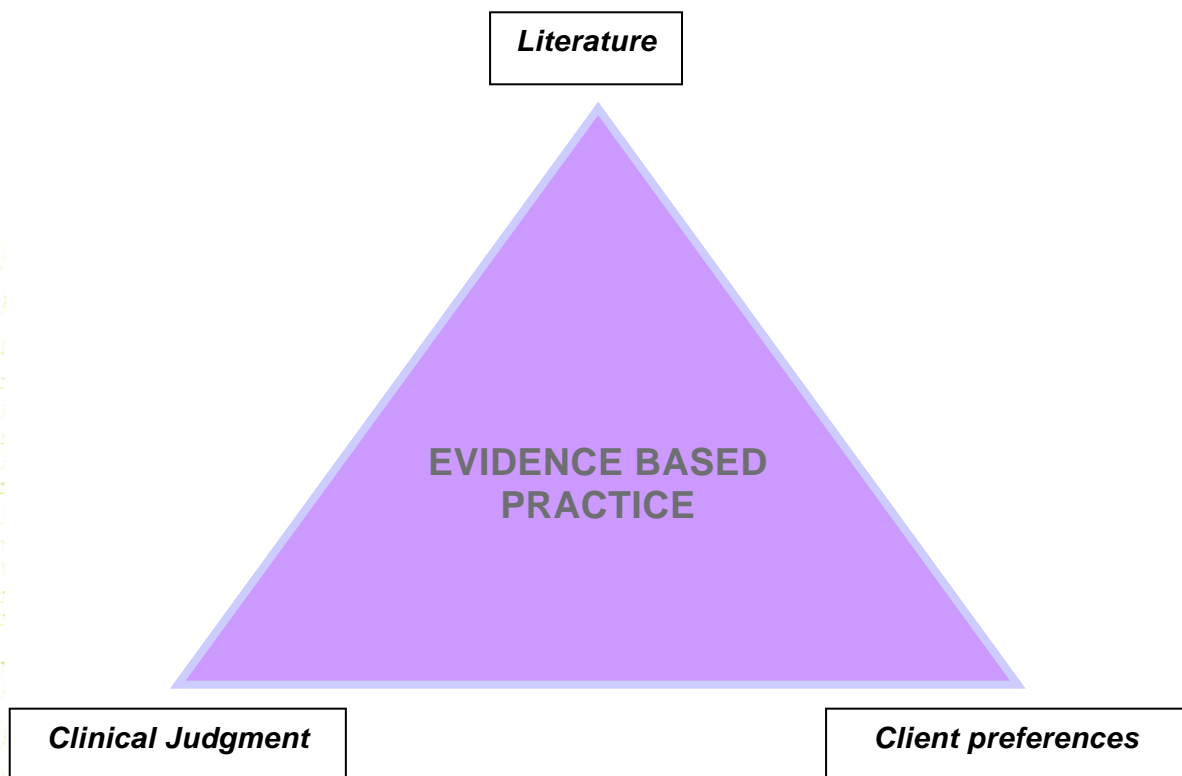




Facilitating the Integration of Evidence Based Practice into Speech Pathology Curricula: a Scoping Study to Examine the Congruence between Academic Curricula and Work Based Needs

police based initiatives



(Dollaghan, 2007)

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Facilitating the Integration of Evidence Based Practice into Speech Pathology Curricula: a Scoping Study to Examine the Congruence between Academic Curricula and Work Based Needs

Universities involved:

The University of Sydney
The University of Newcastle
Macquarie University
The University of Queensland
La Trobe University

Stakeholders:

Speech Pathology Australia
Charles Sturt University
Flinders University
James Cook University

Project team members:

Associate Professor Leanne Togher, The University of Sydney
Associate Professor Michelle Lincoln, The University of Sydney
Dr Patricia McCabe, The University of Sydney
Dr Natalie Munro, The University of Sydney
Dr Emma Power, The University of Sydney
Ms Corina Yiannoukas, The University of Sydney
Ms Pratiti Ghosh, The University of Sydney
Associate Professor Alison Ferguson, The University of Newcastle
Dr Elisabeth Harrison, Macquarie University
Associate Professor Elizabeth Ward, The University of Queensland
Professor Linda Worrall, The University of Queensland
Associate Professor Jacinta Douglas, La Trobe University

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Executive Summary

While there is a growing body of literature regarding professionals' use of the evidence based practice (EBP) process (Nail-Chiwetalu & Bernstein Ratner, 2007; Pain, Magill-Evans, Darrah, Hagler & Warren, 2004), there is a paucity of research on the teaching of EBP principles. This scoping project was undertaken in 2008 to address this, funded by a Discipline Based Initiative Grant from the Australian Learning and Teaching Council (formerly the Carrick Institute), and conducted by Associate Professor Leanne Togher (NHMRC Senior Research Fellow) in collaboration with a national team of Speech Pathology researchers.

Two online studies investigated how EBP principles are taught in Australian Speech Pathology teaching and learning contexts. Survey 1 was self evaluative and aimed to identify strengths within Speech Pathology programs, as well as gaps and challenges of incorporating EBP into academic and clinical curricula. It also explored access and knowledge of EBP resources. The respondents were 131 academic staff, program coordinators, on campus and off campus clinical educators. Survey 2 was case study based and further investigated how clinical educators incorporate EBP into the clinical decision making process and how they explain these decisions to Speech Pathology students. Eighty-five on-campus and off-campus clinical educators around Australia responded to this survey.

Data analyses from Survey 1 reveal the following overall perceived strengths: academic staff and clinical educators are enthusiastic and positive about EBP, and most have had EBP training and have access to EBP resources. EBP is assessed and considered in academic curriculum development, and educators use a variety of processes to teach EBP. However, the surveys identified gaps which offer challenges to clinical educators, both on and off campus. One issue was that students were perceived as being more competent at including the EBP process in academic assignments, compared to when making real clinical decisions. Clinical educators reported difficulty teaching EBP when there is a paucity of external evidence and also that students had a limited depth of study of research methods. It was also clear that there were differing perceptions of communication processes and the degree of perceived collaboration between academic staff and clinical educators. Results from Survey 2 validated the findings of Survey 1 showing a dissonance between knowledge and action in clinical educators' clinical teaching. Finally, a series of challenges have arisen from this project including: overcoming the perceived gaps in EBP; developing needed resources and EBP integration across settings/contexts.

The outcomes of this scoping project are a series of reports related to 1) current national teaching practices in Speech Pathology and the strengths, gaps and challenges of incorporating EBP into academic and clinical curricula; 2) a summary of worldwide EBP resources; and 3) key recommendations for curriculum change. This scoping project will lead to future work to develop EBP resources and to continue to reform curricula across Australia to enable the ready incorporation of EBP into clinical and academic teaching in Speech Pathology programs, and ultimately in other health disciplines.

Key recommendations include:

1. Changing Competency-Based Occupational Standards

By changing the competency standards document of our profession, the changes in EBP curriculum must follow-on from this at every Australian Speech Pathology program. This will provide a more explicit, clearer set of guidelines for Speech Pathology educators and students, the future health professionals.

2. A national plan of action for EBP curricula and resources

- More deeply embed EBP into Speech Pathology curricula by proposing changes to the CBOS document and participating in the CBOS Review Panel
- Devise learning objectives for Speech Pathology students at novice, intermediate & entry levels in collaboration with different stakeholders
- Develop written and online teaching and learning modules
- Develop EBP teaching and learning resources
- Develop strategies and tools for the assessment of EBP
- Evaluate the new curricula, teaching modules and resources

3. Knowledge transfer strategy for organisations and individuals

Organisational Change

Wensing and colleagues (2006) undertook a systematic review and stated that strategies targeting implementation of best evidence to improve clinical practice have mainly targeted improvement in the behaviour, attitude and knowledge of health care professionals. However, according to these authors, these strategies appear to achieve about 10% absolute change of professional performance; for the other 90%, they suggest organisational change as the mechanism of greater change. The Project Team therefore firstly recommended **changing EBP curriculum at the organisational level**. As a first step in this process, a recommendations report was sent to SPA suggesting changes in relation to EBP to their competency standards document.

Individual Change: Discourse between clinical educators and students

In light of our survey results from our case studies, as well as feedback from clinical educators in our first survey, we also recommend a change at the level of the individual. Specifically we recommend **changing the discourse between clinical educators and students so that EBP is considered consistently, explicitly, meaningfully and in a balanced manner when making clinical decisions**.

Summary of acronyms

AAC	Augmentative & Alternative Communication
ALTC	Australian Learning and Teaching Council
ASHA	American Speech-Language-Hearing Association
CAP	Critically Appraised Paper
CAT	Critically Appraised Topic
CBOS	Competency Based Occupational Standards
CE	Clinical Educator
COMPASS™	Competency Based Assessment Tool for Speech Pathology Students
CSD	Communication Sciences & Disorders
DBI	Discipline Based Initiative
EBP	Evidence Based Practice
E ³ BP	3 elements of EBP: 1) external evidence, 2) clinical judgment & 3) client preferences & values (Dollaghan, 2007)
GEMS	Graduate Entry Masters students
KPI	Key Performance Indicator
MEBDT	Modified Evans Blue Dye Test
PsycBITE™	Psychological Database for Brain Impairment Treatment Efficacy)
SP	Speech Pathology
SPA	Speech Pathology Australia
speechBITE™	Speech Pathology Best Interventions and Treatment Efficacy
UG	Undergraduate students

1. Background & purpose

1.1 Introduction

The importance of evidence based practice (EBP) has been recognised by medical and allied health professionals over the past decade (Dollaghan, 2007). It was originally described as the 'conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients' (Sackett, Rosenberg, Gray, Haynes & Richardson, 1996, p. 7). Members of the Speech Pathology profession have begun investigating the barriers to incorporating EBP into clinical practice. For example, Vallino-Napoli & Reilly (2004) surveyed a sample of Victorian speech pathologists (N = 378) and found that while most had heard of EBP and had some idea of its meaning, they infrequently accessed research findings due to time constraints and had a lack of knowledge in evaluating research findings. This sampling did not include higher education institutions or ask whether participants were involved in clinical education of Speech Pathology students. It therefore remains unclear whether the difficulties in applying EBP in clinical practice are the result of problems in teaching and learning of EBP. Reilly, Douglas and Oates (2004) in their book on evidence based practice and Speech Pathology identified that the development of university curricula and professional education modules designed to facilitate EBP was a major and immediate challenge for the profession. It is recognised that all Australian Speech Pathology programs have made significant efforts in the integration of EBP into their academic and clinical curricula, however there remains a lack of integrated approaches to the learning and teaching of EBP principles in curricula nationally. The continued difficulty for speech pathologists in applying EBP in clinical practice indicates that further work may be needed.

1.1.2 Program Priorities

This project was funded by the Australian Learning and Teaching Council (ALTC) as part of the Discipline Based Initiative (DBI) Scheme. It was classified as a scoping study under the 'Health, Medicine and Veterinary Science' banner. In the *DBI 2007 Report*, the ALTC states the following features of this type of scoping study:

Initial scoping initiatives in which discipline partners and stakeholder groups seek funds to determine the availability of existing resources, identify disciplinary strengths, gaps and challenges to be addressed and to propose measures for which additional funds will be sought to improve the quality of student disciplinary learning experience and learning outcomes.

(p. 10)

This project engaged with the values, principles and program priorities of the ALTC through the following:

- Dynamic, discipline based teaching and learning development: *An action research approach aimed at academic and clinical curriculum change in Speech Pathology*
- Foster creative interdisciplinary professional engagement: *Collaboration with professional stakeholders to recommend future changes which will ultimately enhance student learning outcomes and produce a new generation of health professionals who are well equipped, evidence based practitioners*
- Build on past successes and existing resources: *Searchable EBP databases*

- Develop what is uniquely Australian but engages with international issues: *Recommendations to improve Australian Speech Pathology curricula in EBP, with potential future ramifications for international Speech Pathology programs, as well as other health disciplines*
- Builds sustainable initiatives: *A top down, evidence based approach to ensure sustainable future recommendations*

1.1.3 Project Conception and Vision

This project was based on knowledge regarding evidence based practice (EBP) in Speech Pathology and related disciplines. Although health professionals are generally positive in their attitude to EBP (Salbach, Jaglal, Korner-Bitensky, Rappolt & Davis, 2007; Vallino-Napoli & Reilly, 2004; Zipoli & Kennedy, 2005), the challenges of applying the EBP process in clinical practice are well documented (Nail-Chewetalu & Bernstein Ratner, 2007; Vallino-Napoli & Reilly, 2004; Zipoli & Kennedy, 2005). It is unclear, however, whether these challenges are the result of difficulties with teaching and learning EBP or access to appropriate resources.

The literature regarding EBP consistently highlights time as a major barrier to clinicians. A proposed solution is using time saving EBP resources. Currently there are several searchable health databases which may, in part, meet this need. They include speechBITE™ (Speech Pathology Best Interventions and Treatment Efficacy); PsycBITE™ (Psychological Database for Brain Impairment Treatment Efficacy); PEDro (Physiotherapy Evidence Database) and OTSeeker (Occupational Therapy evidence database). It is unclear, however, how much these databases are used in teaching EBP in academic programs. Another resource is the NSW EBP Network. This is a network of Speech Pathologists who meet bi-monthly in specialist groups to develop critically appraised papers (CAPs) and topics (CATs) of evidence. They then make the CAPs and CATs freely available on their website¹. Again, it is unclear to what degree this EBP resource is used by academic staff and clinical educators to teach Speech Pathology students. The Project Team sought to extend the understanding of how much, if at all, EBP resources were used in teaching Speech Pathology students, and if there might be a future need to somehow extend these resources. Furthermore, the Project Team hoped to capitalise on these existing resources to facilitate the development of an integrated plan for a national Speech Pathology curriculum in EBP.

The Project Team undertook two online surveys in order to advance existing knowledge in this area and to capture how EBP principles are currently taught in Australian Speech Pathology teaching and learning contexts. The surveys aimed to answer the question: *How do Speech Pathology university programs in Australia facilitate student learning about the principles of evidence based practice in academic and clinical settings?*

In addition, the Project Team examined the Competency Based Occupational Standards (CBOS) of the Speech Pathology Australia (SPA). SPA is the national peak Speech Pathology professional body and the CBOS document outlines the set of necessary and demonstrable skills and knowledge by Speech Pathology graduates. All current Australian Speech Pathology students strive to meet the CBOS requirements, and all Speech Pathology curricula, although different in approach and pedagogical style, are based on the CBOS requirements. The Project Team sought to identify to what extent EBP principles are embedded in the CBOS document.

¹ http://www.ciap.health.nsw.gov.au/specialties/ebp_sp_path/

1.2 Aims of the project

The primary aim of this scoping project was to develop a clear understanding of the current state of evidence based practice (EBP) teaching and learning in Australian Speech Pathology programs. As with other health sciences, Speech Pathology programs provide vocational training for students, that is, clinical education programs where clinical decision making skills are developed with real clients. This project explored both the academic and clinical teaching and learning contexts. The literature indicates that developing clinical decision making skills presents a challenge to students and novice clinicians (Hoben, Varley & Cox, 2007). The philosophy of EBP bridges academic and clinical curricula and should form the basis of clinical decision making.

The Project Team focused on the following specific target areas:

- To establish a process of evaluating how EBP principles are taught in Speech Pathology programs nationally, particularly in relation to clinical decision making.
- To understand current, available EBP resources for use by teachers, students and clinicians which can be incorporated into curriculum development.
- To develop core teaching and learning outcomes for evidence based practice education that should be incorporated into speech pathology curricula nationally.
- To identify clear directions for future within and cross disciplinary research projects investigating approaches to teaching and learning in promoting evidence based practice principles during clinical practice.

1.3 The project team

The Project Team included academic Speech Pathology staff from the following universities: The University of Sydney, the University of Newcastle, Macquarie University, the University of Queensland and La Trobe University. Most Project Team members also have experience as clinical educators. The Project Team members were:

- Associate Professor Leanne Togher, Speech Pathology, Faculty of Health Sciences, The University of Sydney (Project Leader);
- Associate Professor Michelle Lincoln, Speech Pathology, Faculty of Health Sciences, The University of Sydney;
- Dr Patricia McCabe, Speech Pathology, Faculty of Health Sciences, The University of Sydney;
- Dr Natalie Munro, Speech Pathology, Faculty of Health Sciences, The University of Sydney;
- Dr Emma Power, Speech Pathology, Faculty of Health Sciences, The University of Sydney;
- Ms Corina Yiannoukas, Speech Pathology, Faculty of Health Sciences, The University of Sydney (Project Manager);
- Ms Pratiti Ghosh, Speech Pathology, Faculty of Health Sciences, The University of Sydney (Research Assistant);
- Associate Professor Alison Ferguson, Speech Pathology, School of Humanities & Social Sciences, The University of Newcastle;
- Dr Elisabeth Harrison, Speech Pathology, Department of Linguistics, Macquarie University;

- Associate Professor Elizabeth Ward, Speech Pathology, School of Health and Rehabilitation Sciences, The University of Queensland;
- Professor Linda Worrall, Speech Pathology, School of Health and Rehabilitation Sciences, The University of Queensland; and,
- Associate Professor Jacinta Douglas, Speech Pathology, School of Human Communication Sciences, La Trobe University

For further details about the Project Team, please see *Appendix 8.2* of this report.

1.4 Stakeholders

In addition to the Project Team, there are two groups of key stakeholders:

- 1) Participating Universities; and,
- 2) Speech Pathology Australia (SPA)

1.4.1 Participating Universities

Three universities with Speech Pathology programs were key stakeholders in this project. They were Charles Sturt University, James Cook University and Flinders University. The participating universities assisted with on-site recruitment for our online surveys. Our contacts at participating universities were themselves survey respondents, and answered a series of overall questions regarding evidence based practice in their programs.

1.4.2 Speech Pathology Australia (SPA)

Speech Pathology Australia (SPA) provided support with recruitment via online emails to their members. It is intended that SPA also publicise project outcomes in several forums. This may include emailing their members, in their monthly newsletter, *SpeakOut*, and in a conference paper presented by the Project Leader at their 2009 annual national conference.

1.5 Target outcomes

The following table outlines the target project outcomes. The outcomes are presented in relation to the project aims and the methods of achieving them.

Broad Project Aim	Methods	Target Outcomes
To develop a clear understanding of the current state of evidence based practice (EBP) teaching and learning in Australian Speech Pathology programs	<ul style="list-style-type: none"> ▪ <i>Online Survey</i> focusing on program self evaluation, attitudes to EBP, knowledge & access to EBP resources ▪ <i>Online Survey</i> focusing on EBP and clinical decision making ▪ <i>Overview Questionnaire</i> to Project Team members & stakeholders ▪ <i>Project Team Workshop</i> 	<p>A <u>report² on current national practices relating to EBP teaching and learning</u> in the field of Speech Pathology education</p> <p>A <u>report</u> documenting the <u>strengths, gaps and challenges in incorporating EBP into Speech Pathology academic and clinical curricula</u></p>
Specific Target Areas	Methods	Target Outcomes
1. To establish a process of evaluating how EBP principles are taught in Speech Pathology programs nationally, particularly in relation to clinical decision making	<ul style="list-style-type: none"> ▪ <i>Adapting published self evaluation tools</i> for Australian Speech Pathology teaching and learning contexts ▪ <i>Developing clinical case studies</i> in collaboration with university staff & clinicians 	<p>The following <u>online surveys</u>:</p> <p>i) Program self evaluation</p> <p>ii) Case studies & clinical questions</p>
2. To understand current, available EBP resources for use in the profession	<ul style="list-style-type: none"> ▪ <i>Internet & database searches</i> 	A <u>report of EBP resources</u> which can be incorporated into speech pathology curriculum development
3. To develop <u>core teaching and learning outcomes</u> for evidence based practice education that should be incorporated into speech pathology curricula nationally	<ul style="list-style-type: none"> ▪ <i>Workshop</i> ▪ <i>Utilising</i> <ul style="list-style-type: none"> i) Online survey results ii) EBP Resources Report 	An <u>outline of draft learning modules</u>
4. To identify <u>clear directions for future</u> within and cross disciplinary research projects	<ul style="list-style-type: none"> ▪ <i>Project Team collaboration:</i> <ul style="list-style-type: none"> i) Workshop ii) Email correspondence & web conferencing 	<p>A <u>report³ of future recommendations.</u></p> <p>An <u>integrated national plan of action</u> to ensure that EBP principles are incorporated into all Speech Pathology curricula.</p> <p>A <u>follow-up grant submission</u> to the ALTC</p>

² Project Outcome reports are included in the appendices of **Final Report 2** for the ALTC

³ This is part of the *National EBP Teaching & Learning in Speech Pathology Report found in Appendix 8.12*

2. Approach & methodology

2.1 Action research approach

The project followed an action research cycle: *plan, act, observe, reflect* (Williamson & Prosser, 2002). This methodology was used firstly, in planning and executing the necessary steps to achieve the project outcomes, and secondly, when gathering data through online surveys. The self evaluative process meant that learning occurred at each step, allowing the project to meet its goals. Self evaluation was an important feature in the two online surveys. Respondents were asked to not only evaluate their own work practices in relation to evidence based practice (EBP), but also in relation to their Speech Pathology programs.

Features of action research were key elements of the Project Team interactions: critical collaboration, self reflection and participatory problem solving (Rolfe, 1996). Consultation among Project Team members occurred throughout the project via phone calls, teleconferencing, web conferencing and email. This helped the Project Team to meet its first two target areas. Finally, to plan the next steps, project target areas 3 and 4, a two-day workshop consultation in Sydney was undertaken (Refer to *1.5 - Target Outcomes*).

As this project emphasised self evaluation, the Project Team provided individual written feedback to participating universities, to outline how they perceive their programs in relation to EBP and to encourage further discussion.

2.1.1 Investigation Strategy

The project involved the following phases:

1. Self evaluation of Speech Pathology programs nationally with regard to EBP learning and teaching outcomes in academic and clinical curricula (*Survey 1, Section B*)
2. Investigate clinical educators' application of the EBP process to clinical decision making using case studies and clinical questions (*Survey 2*)
3. Current access and use of EBP resources by academic staff & clinical educators (*Survey 1, Section C*)
4. Source existing national and international EBP resources
5. Develop an integrated plan for national curriculum in EBP in Speech Pathology programs using information from phases 1 to 4.

2.2 Project activities

This scoping project commenced in October 2007. The main project activities were:

2.2.1 Site visits

Early in the project, the Project Manager conducted site visits to universities with Project Team members. During site visits, the Project Manager had an opportunity to meet with Project Team members, Heads of Discipline, academic staff and clinical educators. During these visits, the Project Manager provided information about the project, answered questions and gathered qualitative information. Where site visits could not be organised, the Project Manager provided written project information via email and then made follow-up phone calls to Project Team members.

2.2.2 Online surveys

The Project Team undertook two online surveys which aimed to answer the question: *How do Speech Pathology university programs in Australia facilitate student learning about the principles of evidence based practice in academic and clinical settings?* Survey respondents were academic staff, program coordinators, on-campus clinical educators and off-campus clinical educators. The first survey was wide ranging, with a view to capturing the current national climate of EBP teaching and learning in Speech Pathology programs as well as future EBP curriculum plans. In particular, this survey addressed teaching and learning practices, curriculum issues, access to and knowledge of EBP resources, attitudes to EBP and desired future resource development to help improve EBP teaching. The second survey was case study based and focused on clinical decision making by on-campus and off-campus clinical educators.

- *Survey 1:* Self evaluation of evidence based practice teaching, & knowledge and access to EBP resources.
- *Survey 2 Case studies:* EBP & clinical decision making

2.2.3 Workshop

The project culminated in a two-day workshop on 22 and 23 July 2008. During this workshop, the Project Team discussed the data from the online surveys, agreed on the meaning of these findings and developed a set of future recommendations for Australian Speech Pathology EBP academic and clinical curricula. A key workshop development was the Project Team's decision to propose changes to the Competency Based Occupational Standards for Speech Pathology (CBOS) document. The CBOS document describes the necessary skills and knowledge for Speech Pathology graduates, as stipulated by our peak professional body, Speech Pathology Australia (SPA). In short, the proposed amendments to CBOS focus on 1) updating EBP terminology, and 2) embedding EBP principles more deeply and broadly throughout the document.

2.3 Project resources

2.3.1 Resource outcomes

The Project Team envisaged the development of several EBP resources during this scoping project. It must be noted, however, that resource development was limited by the 'scoping' nature of the project. A range of future EBP resources have been proposed for a larger, follow-on project, however, this section describes resources from the current project which will be made available to the higher education sector or groups of stakeholders within the sector:

1) National EBP Teaching & Learning Report & Key Recommendations

This report outlines current EBP teaching practices and the perceived strengths, gaps and challenges in implementing EBP in academic and clinical curricula in Australian Speech Pathology programs. It also outlines key future recommendations by the Project Team. This report is based on the results of Surveys 1 and 2. Details of these surveys are as follows:

- Survey 1: Self evaluation of evidence based practice (EBP) teaching, & knowledge and access to EBP resources.
Respondents: Academic staff & clinical educators
- Survey 2 (case studies): EBP & clinical decision making

Respondents: On-campus and off-campus clinical educators

2) Individual Program Reports

All Australian universities with Speech Pathology programs were invited to complete the online surveys. Respondents from eight of the nine universities participated and an individual report was provided based on the results of Survey 1. This individual report outlined the responses of the universities' respondents (as a group). This report could be a starting point for future discussions about EBP teaching and learning in these programs.

3) Evidence Based Practice Resources Report

This report is comprised of Survey 1 information (knowledge and access to EBP resources), as well as comprehensive internet and database searches. The report provides an overview of evidence based practice and the intended use of the report as a resource, representing worldwide EBP resources. The resources are categorised into the following areas: websites; links to discipline specific EBP databases; library/hospital links; topic-specific EBP resources; presentations; general articles concerning EBP in health; EBP text books in health and communication disorders; clinical reasoning using EBP process.

4) SPA CBOS Recommendations Report

It was decided at the project workshop that an overall method of bringing change to Speech Pathology academic and clinical curricula was to recommend amendments to the profession's key occupational competency document, CBOS. The SPA CBOS Recommendations Report outlines suggestions for changes to CBOS to more deeply embed EBP and to update and streamline EBP terminology. As part of the recommendations, the Project Team will volunteer a member to join the SPA CBOS Review Panel, to offer input to the panel, and act as a liaison between the panel and the Project Team. The CBOS document was last reviewed in 2001 and SPA intend for the current review to be completed by 2010.

5) Journal articles

Two scientific journal articles will be submitted for publication. The first will outline and discuss the findings of Surveys 1 and 2, and the second will describe the process of this EBP scoping project.

The following table summarises the EBP resources developed during the current project:

Resources	Description	Accessible via
National Speech Pathology EBP Teaching & Learning Report & Key Recommendations	This report outlines current EBP <u>teaching practices</u> and the perceived <u>strengths, gaps and challenges</u> in implementing EBP in academic and clinical curricula in Australian Speech Pathology programs. A report based on Survey 1 and 2 findings	Journal article Appendix of ALTC Final Report Part 1 (published on ALTC website)
EBP Survey	Survey 1: demographics, program self evaluation, attitude to EBP, knowledge of and access to EBP resources	Appendix of ALTC Final Report Part 1 (published on ALTC website) Journal article
EBP Case Studies & Model Responses	Survey 2: four case studies, questions, expected answers and key references	Appendix of ALTC Final Report Part 1 (published on ALTC website) Journal article
Individual Program Reports	Individual reports for programs which participated in Survey 1. A summary of their program self evaluation.	Two copies of the individual report were sent to participating programs. One copy went to the Project Team member or key contact, and the other copy was sent to the Head of Discipline.
EBP Resources Report	A summary and descriptions of current worldwide EBP resources in medicine and allied health.	Appendix of ALTC Final Report Part 1 (published on ALTC website) <i>speechBITE™</i> website
SPA CBOS Recommendations Report	A report recommending changes to the Competency Based Occupational Standards for Speech Pathologists (Entry Level) to more deeply embed EBP	SPA
Journal Articles	1) Interpretation of findings from Surveys 1 & 2 2) Project process	International scientific journals

2.3.2 Links to other ALTC projects

This scoping project has links with two projects in the ALTC Strategic Priority Areas. The ALTC has funded two projects about COMPASS™, a new competency based assessment tool for Speech Pathology students. The elements of COMPASS™ are based on CBOS, thus ensuring compliance with professional standards of competency. This assessment tool is benchmarked and used nationally in Speech Pathology clinical education. Two members of our Project Team led the COMPASS™ projects: Associate Professor Michelle Lincoln and Associate Professor Alison Ferguson. We drew on the expertise of the COMPASS™ team in undertaking the current project in areas such as national stakeholder engagement and devising future recommendations for Speech Pathology EBP curricula.

This project also has links with another ALTC project that has not yet commenced, led by Dr Patricia McCabe. She stated, '*The project management process has provided me with a clear model for how to manage my new ALTC project*' (from email correspondence).

2.3.3 Professional and interdisciplinary links

2.3.3.1 The NSW EBP Network

The NSW EBP Network is a network of Speech Pathologists who meet bi-monthly in specialist groups to develop critically appraised papers (CAPs) and topics (CATs) of evidence. They then make the CAPs and CATs freely available on their website. The Project Team collaborated with the NSW EBP Tracheostomy Group to create the adult swallowing assessment case study for Survey 2.

2.3.3.2 Speech Pathology Australia (SPA)

SPA is our national professional body. It provides links between the Speech Pathology profession and this scoping project. SPA has provided support with recruitment emails to their members, and will assist with the dissemination of project outcomes via email ('eBLAST'), in their monthly newsletter, *SpeakOut*, via their website and at their 2009 annual national conference.

2.3.3.3 EBP Databases: speechBITE™ & PsycBITE™

speechBITE™ and *PsycBITE™* are searchable, freely available EBP databases. *speechBITE™* is a Speech Pathology treatment EBP website funded by SPA, the Motor Accidents Authority and Guild Insurance (www.speechbite.com). The Project Team has close links with the *speechBITE™* team, which consists of a group of Speech Pathology academic staff, clinical educators and clinicians. The *speechBITE™* team have assisted with their EBP resource website links and case studies for Survey 2. The *speechBITE™* Project Manager has provided information about which countries are accessing this EBP resource.

PsycBITE™ is a brain impairment treatment efficacy database (www.psycbite.com). The *PsycBITE™* team are a multidisciplinary research team, made up of academics in Speech Pathology, Psychology, Neuropsychology and Physiotherapy. *PsycBITE™* is used as a resource in international higher education institutions such as the University of Wisconsin-Madison; the College of St Rose in Albany, New York; Exeter University and City University London. This Project Team has drawn on the multidisciplinary expertise of the *PsycBITE™* team.

2.3.3.4 Nancy Salbach and colleagues

Nancy Salbach is a Canadian researcher in the area of Physical Therapy. The Project Team have had correspondence with Nancy regarding her work with the attitudes of Canadian

Physical Therapists to EBP. She provided copies of her work to the Project Manager, and a section from her survey was included in Survey 1 of the current project.

2.4 Evaluation methods

We evaluated throughout the project (i.e. formative evaluation) and at key stages and the end of the project (i.e. summative evaluation). The process of continual evaluation is in keeping with the action research approach of this scoping project. The information was used to help improve current and future projects. The following evaluation questions were used to explore to what extent critical project outcomes were achieved and by what means:

Formative evaluation questions:

1. Have we consulted sufficiently with the Project Team?
2. Is progress on our objectives meeting scheduled deadlines?

Summative evaluation questions:

3. To what degree have the main objectives of the project been achieved?
4. What has been learned from the project for implementation or future projects?

2.4.1 Formative Evaluation

2.4.1.1 Consultation with Project Team

The Project Team were consulted throughout the project and engaged via the following:

- Ascertaining their most valued project outcomes

The importance of exploring why Project Team members are most interested in a project was brought up during a skills sharing session among participants at an ALTC Project Management workshop in 2008. In our project, we found that knowing this helped with motivating and engaging Project Team members and stakeholders throughout the project, and the information was obtained during discussions between the Project Manager and Project Team members. For instance, one Project Team member stated that her desired outcomes were *1) critical discourse analysis about the EBP process; 2) considering case based resources for particular populations to teach clinical decision making skills; and, 3) not 'reinventing the wheel' with EBP resources* (expressed verbally during a site visit).

- Providing appropriate project updates:

Progress update emails were sent to the Project Team on a fortnightly basis. These emails were succinct, providing progress in the last fortnight, requesting information or feedback and keeping the Project Team apprised of upcoming events and deadlines. One Project Team member's written feedback illustrates the effectiveness of these emails: *'Thanks for the information. I really like how clearly you express things!'* (from email correspondence between Project Team member and Project Manager). In a written workshop evaluation, all attending Project Team members indicated that they felt the email updates were appropriate in content, format and frequency.

Please refer to *Section 6.1 Critical Success Factors* for further information about the effectiveness of these updates.

- Providing appropriate 'lead time' for key tasks such as:
 - a) Feedback about Survey 1 and Survey 2 (case studies)
 - b) Online survey participant recruitment
 - c) Interpretation of data findings
 - d) Feedback on deliverables (reports)

The Project Manager negotiated 'lead time' for key tasks with the Project Leader and Project Team. This was done in face-to-face meetings, in teleconferences and via email. For instance at the workshop, the Project Manager negotiated a realistic deliverables schedule with the team. Reminders for upcoming deadlines were sent via email e.g. *I have attached the **SPA CBOS Recommendations Report**. If you have an opportunity, please provide **feedback** about this 3-page report. I would be most grateful if you could send comments back to me within a week (by Wednesday 1 October). Also, I will be **sending the ALTC Final Reports to you on 15 October** and you will have *two weeks* to provide your feedback. You might want to put this date in your diaries (from email correspondence on 24 September 2008)*. In a written workshop evaluation, all attending Project Team members indicated that they felt that they were given appropriate lead time for creating Survey 1, recruiting participants and providing feedback on survey data.

- Feedback from the Project Team that they felt appropriately informed

The Project Manager checked periodically that the Project Team felt informed about the project progress and that they had been adequately consulted at key times during the project. This was done during web conferences, teleconferences, in person and via email. For example, 'Project Team member feedback' was a standing item on web conference agendas; Project Team members indicated their feedback via the *Illuminate Live!* emoticons (e.g. 'smiley face' or 'hand clapping').

2.4.1.2 Progress on project objectives

We evaluated progress on project objectives by clearly defining the scope of the project in a *Project Description Document* (see Appendix 8.6) and then devising and following a project plan with sufficient built-in flexibility in terms of time and resources. An example of the importance of this formative evaluation data is with online survey recruitment, as information from Survey 1 recruitment helped to inform and improve Survey 2 recruitment efficiency. During Survey 1 recruitment, it was challenging to collect representative national data, and the initial seven weeks which had been set aside for recruitment was increased to ten weeks. By analysing the factors affecting recruitment for Survey 1 (e.g. the frequency and timing of reminder recruitment emails), Survey 2 recruitment was completed during the scheduled seven weeks.

2.4.2 Summative evaluation

2.4.2.1 Extent to which the project objectives have been achieved

Please refer to *Section 3.1 Project Outcomes* for a summary of which target outcomes were fully achieved and which were amended during the project process, and therefore partially achieved in terms of the original target outcomes.

2.4.2.2 Lessons learnt from the project

The Project Team gathered summative evaluation data on what we had learned from the project in order to aid implementation and follow-on projects.

Research instruments: Online surveys

- Efficient recruitment

We improved our recruitment process from Survey 1 to Survey 2, by sending recruitment reminders sooner rather than later, informing sites about their individual response rates and noting key events during the recruitment period.

- Survey respondent feedback

We gathered information from survey participant feedback about their experience of completing the online surveys. Respondents were asked:

- How long it took them to complete survey
- What features made the survey easy to complete
- What features made the survey hard to complete

For example, overall Survey 1 respondents indicated the following 'easy features' most frequently: *clear instructions, check boxes, online format & 'no difficulty'*.

Successful engagement of the Project Team

- Obtaining regular Project Team feedback

We obtained feedback from the Project Team at key project points either via email, web conference or in person. Their feedback ranged from detailed input (e.g. finalising Survey 1) to minimal input (e.g. EBP Resources Report).

- Competing demands of Project Team members

It was important to establish Project Team members' schedules early in the project, so that most were available at any one time to provide input. In particular, securing commitment from the Project Team for the workshop was done months in advance. This led to a high turnout with ten out of twelve (83%) of the Project Team attending the two-day workshop in Sydney.

- Project Team members' experiences of this scoping project

We asked Project Team members what their experience of this scoping project was like after the workshop (July 2008) and at the completion of project (November 2008).

After the workshop, all of the Project Team members indicated that they felt the workshop met their expectations in terms of content and sharing of ideas. One Project Team member wrote that sharing ideas was '*the most rewarding part*' (from written workshop evaluation) and another wrote '*It exceeded my expectations in terms of content – depth and breadth of EBP education*' (from written workshop evaluation).

The Project Team members expressed similar satisfaction at the end of the project. They particularly highlighted the importance of workshop discussions in enriching their understanding of EBP and in generating fresh and exciting ideas for their teaching and curricula. They made comments such as the following:

'I really enjoyed our 2 day face to face meeting. I had two "light bulb" moments – 1. about how client and therapist preferences are included in EBP – love the E³BP acronym⁴. 2. How EBP is therefore really about clinical reasoning.' (from email correspondence)

'I also know I've been attempting to integrate concepts of E³BP into previous clinical teaching as best I could ... but, it is not until my involvement with this project through the cases [Survey 2 Case Studies] and the workshop that the importance of being explicit and talking about these concepts, 'clicked' for me. I am now more explicit about the scope of evidenced based practice in underpinning clinical decision making AND in the explaining of that to students, clients and family, fellow clinicians and researchers.' (from email correspondence)

'The final workshop was a real highlight this in itself built up a network for the future as well as some of the activities we did would serve as a great 'model' for how to build up other EBP/curriculum development networks.' (from email correspondence)

'Sharing our own resources was an inspired choice - I came away with a list of tasks/ projects which will improve how I teach about EBP. I have also now been given the task of overall curriculum development coordination at my University and will use this learning to lead the teaching team in curriculum renewal.' (from email correspondence)

'The workshop widened my understanding of innovative approaches and initiatives in EBP around the country and was important in developing my conceptual understanding of the issues through discussion with others. I've enjoyed the collaborative nature of it and the critical self reflection time it has afforded.' (from email correspondence)

Unexpected success

- Efficient self facilitators

The Project Team members took turns at self-facilitating the workshop when our Facilitator was unable to attend. We remained focused on our workshop goals, and all but one of the Project Team members indicated that we had fully achieved our four broad outcomes (from written workshop evaluation), with that one member stating that we had fully achieved three outcomes and partially achieved one outcome *'Definitely lots of discussion ... we identified issues not necessarily a national plan – but definitely on the way there!'* (from written workshop evaluation). Self facilitation was considered an advantage with one Project Team member commenting, *'it meant that we were able to really tap into the expertise in the room amongst our own team'* (from email correspondence).

⁴ Dollaghan (2007) refers to EBP as E³BP as it encompasses three types of evidence: published literature (external), clinical judgment (internal) and client preferences and values (client).

3. Summary of outcomes

3.1 Project Outcomes

The Project Team fully achieved most of their target outcomes. Some outcomes were partially achieved as they were amended during the project. All outcomes are outlined in the table below.

Broad Project Aim	Target Outcomes	Amended outcomes
To develop a clear understanding of the current state of evidence based practice teaching and learning in Australian Speech Pathology programs	<p>A report on current national practices relating to EBP teaching and learning in the field of Speech Pathology education</p> <p style="text-align: center;">➡ <i>Fully achieved</i></p> <p>A report documenting the strengths, gaps and challenges in incorporating EBP into Speech Pathology academic and clinical curricula</p> <p style="text-align: center;">➡ <i>Fully achieved</i></p>	NB. These reports were originally intended to be separate, however it was decided that they should be amalgamated into one report entitled <i>National EBP Teaching & Learning in Speech Pathology</i> .
Specific Target Areas	Target Outcomes	Amended outcomes
1. To establish a process of evaluating how EBP principles are taught in Speech Pathology programs nationally, particularly in relation to clinical decision making	<p>The following online surveys:</p> <p>i) Program self evaluation</p> <p>ii) Case studies & clinical questions</p> <p style="text-align: center;">➡ <i>Fully achieved</i></p>	Nil
2. To understand current, available EBP resources for use in the profession	<p>A report of EBP resources which can be incorporated into speech pathology curriculum development</p> <p style="text-align: center;">➡ <i>Fully achieved</i></p>	Nil
3. To develop core teaching and learning outcomes for EBP education that should be incorporated into Speech Pathology curricula nationally	<p>An outline of draft learning modules</p> <p style="text-align: center;">➡ <i>Partially achieved through workshop discussion</i></p>	<p>Preliminary suggestions for written or online teaching modules include:</p> <ul style="list-style-type: none"> ▪ General introductory EBP module ▪ Specific modules demonstrating implementation of EBP in different areas of practice (e.g. Fluency, Aphasia) and with special populations (e.g. Cultural & Linguistic Diversity, & Complex Communication Needs) ▪ Specific training module for speech pathology students regarding evaluating methodological quality of research papers as listed on the <i>speechBITE™</i> online database

<p>4. To identify clear directions for future within and cross disciplinary research projects</p>	<p>A report of future recommendations.</p> <p style="text-align: center;">➡ <i>Fully achieved</i></p> <p>An integrated national plan of action to ensure that EBP principles are incorporated into all Speech Pathology curricula.</p> <p style="text-align: center;">➡ <i>Partially achieved</i></p> <p>A follow-up grant submission to the ALTC</p> <p style="text-align: center;">➡ <i>Partially achieved through an Expression of Interest</i></p>	<p>NB: This is in the <i>National EBP Teaching & Learning in Speech Pathology Report</i></p> <p>An additional recommendation is the <i>CBOS Recommendations Report</i> sent to Speech Pathology Australia. This represents an overarching approach of changing EBP curriculum by changing professional standards.</p> <p>The national plan was amended to a preliminary framework based on three sources of evidence: 1) Survey findings, 2) Available EBP Resources, & 3) Transformational literature. For details of this plan, please refer to <i>Section 5.1</i> of this report.</p> <p>The Project Team have been invited to submit a full application to the ALTC in the first funding round of 2009.</p>
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3.1.1 Summary of Results of Online Surveys

The Project Team undertook two online surveys to answer the question: *How do Speech Pathology university programs in Australia facilitate student learning about the principles of evidence based practice in academic and clinical settings?* These surveys were based on existing literature and published tools, and our survey results advanced existing literature in this area. Survey 1 was based on published Quality Indicators by the American Speech-Language-Hearing Association (ASHA). This program self-evaluation instrument was extended by i) simplifying the language and ii) making it appropriate to an Australian context. Another subsection was added based on the published work of Salbach and colleagues (2007) with Canadian physical therapists. To gain a fuller understanding of Australian Speech Pathology programs, extra questions were added focusing on resources plus short answer questions regarding barriers and proposed future resources. The Project Team invited a wide range of respondents to complete the survey: academic staff, program coordinators, on-campus clinical educators and off-campus clinical educators. The results of Survey 1 mirrored published evidence of clinicians' generally positive attitudes to EBP with the caveat of barriers (e.g. time, work environment) to implementing EBP. Further information about Survey 1 findings is contained in 1) *National EBP Teaching & Learning in Speech Pathology Report* in the Appendices of ALTC Final Report Part 2 and in international peer reviewed publications.

A second online survey was undertaken to examine clinical decision making processes. Survey 2 was case study based, eliciting a depth of responses. This survey was written in collaboration with the NSW EBP Network and academic staff who specialise in areas of Speech Pathology.

The four case studies focused on: 1. Adult Swallowing Assessment and Tracheostomy; 2. Adult Speech (Apraxia); 3. Child Speech; and 4. Child Developmental Disability. Each of the case studies was based on published evidence about assessment and treatment in these areas.

The results of Survey 2 validated those of Survey 1. In Survey 1 clinical educators overall indicated that teaching students to apply the EBP process was challenging. The results of Survey 2 indicate that this is indeed the case, and that when asked to explain clinical reasoning to students, that all elements of EBP were not consistently included in discussions. Dollaghan (2007) refers to EBP as E³BP as it encompasses three types of evidence: published literature (external), clinical judgment (internal) and client preferences and values (client). Responses to Survey 2 were scored for the presence or absence of each of these elements. The three elements were not consistently evident in explanations of clinical reasoning to students.

3.2 Dissemination

In this scoping project we undertook both engaged and information provision dissemination.

3.2.1 Engaged dissemination

We consulted and collaborated with different groups throughout the project process. We believe this consultation helped to support ongoing dissemination, sparking interest and discussion during the project and after the project as well. Some examples are included below of this type of dissemination, and its impact:

- Project Team: *They provided input at key project stages including feedback about all project deliverables (reports). All Project Team members were positive in response to the following statements: 'I intend to share information from this workshop with other colleagues' and 'I will recommend actions arising from this workshop and/or further discussion of issues identified to appropriate groups/colleagues in my discipline'. Six out of eight 'strongly agreed' and the remaining two 'agreed' with these statements (from written workshop evaluation).*
- Participating Universities: *They assisted with survey recruitment and completed an overview questionnaire. Feedback from one participating university indicated that Survey 1 sparked discussion among the staff who responded to the survey. Our contact at the university sent the following request to the Project Manager: 'Is it possible to get a copy of the actual questions [Survey 1] as we were keen to discuss some of the ideas presented as a staff group?' (from email correspondence).*
- Speech Pathology Australia: *SPA assisted with recruitment and will assist with dissemination of project outcomes.*
- Academic staff and clinical educators: *During site visits, the Project Manager engaged in discussions with Speech Pathology staff about this project. The Project Manager prefaced some survey questions with clinical educators at one university, to encourage discussion and survey participation. The clinical educators stated that they felt barriers to teaching students to be evidence based practitioners were: 1) an overall paucity of published research in Speech Pathology, 2) student perception that research was too broad or too narrow in its focus, and 3) students' development of clinical reasoning skills. The clinical educators felt that resources that might help with this were: 1)*

speechBITE™ searchable EBP database, 2) clinical guidelines, 3) CAPs and CATs, and 4) more published research (from site visit field notes).

- Survey respondents: *Respondents were provided with feedback about Survey 1 to encourage them to take part in Survey 2. A recruitment email to clinical educators stated: 'Thank you for completing our first online survey earlier this year! We are happy to report that **70% of responses were from clinical educators**. You have indicated that **EBP is very important to you**, and our research program is focusing on how we can help you to include EBP in your clinical teaching'.*

It is worth noting the impact of this project on Project Team members, and in turn, how they are disseminating ideas from this project, among students, academic colleagues, Speech Pathologists and other health professionals. One Project Team member gave a presentation to students and one to colleagues at a conference and she stated, *'people commented on how they could see clearly how I had made my decisions and included evidence available in doing this and asked me more about EBP. So at a very simple level I feel my involvement in the project has benefited my teaching and dissemination of even my single case study.'* (from email correspondence).

3.2.2 Information provision dissemination

Project outcomes will be shared through different outlets both nationally and internationally through:

- *speechBITE™* website
- SPA *eBLAST* (emails to SPA members)
- SPA monthly newsletter, *SpeakOut*
- Reports sent to individual institutions
- Journal articles to be submitted to international scientific journals
- Conferences
- ALTC Final Report Part 1 Appendices

Please find following some examples of this type of dissemination:

The **EBP Resources Report** will be freely available through the Australian Learning and Teaching Council, as it is included in the appendices of this publishable report, as well as via the *speechBITE™* website.

Universities who participated in the online surveys will be provided with **individual reports** providing feedback of their program self evaluation. Furthermore, a description of the project is available via this report (refer to *Project Description Document* in the appendices of this report) as well as both online surveys. Please note that Survey 2 is included with permission from the collaborators.

A **paper submission** has been placed for next year's SPA National Conference. The success of this submission will be known in December 2008.

SPA may choose to publicly share the Project Team's **recommendations for changes to CBOS**. As a key stakeholder, SPA may provide a summary of survey results to its members by *e-BLAST* or via their monthly newsletter, *SpeakOut*.

Project outcomes will be shared nationally and internationally via **scientific journal publications**. Two articles will be written: the first will provide the results of both online surveys and the second will describe the process of undertaking this project.

3.3 Summary of outcomes & dissemination

The table below outlines the final project outcomes in relation to the project aims and specific target areas:

Broad Project Aim	Outcomes Achieved
To develop a clear understanding of the current state of evidence based practice (EBP) teaching and learning in Australian Speech Pathology programs	<p>A report outlining:</p> <ol style="list-style-type: none"> 1) Current national practices relating to EBP teaching and learning in the field of Speech Pathology education 2) The strengths, gaps and challenges in incorporating EBP into Speech Pathology academic and clinical curricula 3) Key future recommendations
Specific Target Areas	Outcomes Achieved
1. To establish a process of evaluating how EBP principles are taught in Speech Pathology programs nationally, particularly in relation to clinical decision making	<p>Program self evaluation online survey (Survey 1)</p> <p>Online case studies, clinical questions & model answers (Survey 2)</p>
2. To understand current, available EBP resources for use in the profession	A report of EBP resources which can be incorporated into speech pathology curriculum development
3. To develop core teaching and learning outcomes for evidence based practice education that should be incorporated into speech pathology curricula nationally	Workshop discussion for possible draft learning modules for follow-up project. Please refer to <i>Section 5.1</i> of this report for details.
4. To identify clear directions for future within and cross disciplinary research projects	<p>Key future recommendations⁵</p> <p>A <u>recommendations report</u> to Speech Pathology Australia regarding the Competency Based Occupational Standards (CBOS) document. This represents an overarching approach of changing EBP curriculum by changing professional standards.</p> <p>Discussion toward a preliminary integrated national plan of action to ensure that EBP principles are incorporated into all Speech Pathology curricula. For details refer to <i>Section 5.1</i> of this report.</p> <p>A follow-up grant submission to the ALTC to be submitted in the first funding round of 2009.</p>

⁵ This is part of the *National EBP Teaching & Learning in Speech Pathology Report* (see above in 'Broad Project Aim - Outcomes Achieved' in this table)

The table below outlines dissemination strategies used in this scoping project:

Engaged dissemination	
Consultation and collaboration with groups of stakeholders.	<p>Stakeholders include:</p> <ul style="list-style-type: none"> • Project Team • Participating Universities • SPA • Academic staff & clinical educators • Survey respondents
Information provision dissemination	
National and international dissemination of project outcomes	<p>Avenues for this type of dissemination include:</p> <ul style="list-style-type: none"> • <i>speechBITE™</i> website • SPA, via: <ol style="list-style-type: none"> 1) <i>eBLAST</i> (emails to SPA members) 2) monthly newsletter, <i>SpeakOut</i> • Individual institutions • International scientific peer reviewed journals • Conferences • ALTC Final Report Part 1 Appendices (publishable)

4. Implications of project processes & outcomes for other disciplines / institutions/ locations

The project methodology and processes used, as well as the project outcomes, are amenable to implementation in a variety of institutions, disciplines and locations.

4.1 Approach/Methodology & Processes

An action research approach was utilised with this scoping project. This approach was dynamic and inclusive, emphasising self evaluation. It is an approach that lends itself to ALTC Strategic Priorities with scoping projects because it facilitates an exploration of the strengths, gaps and challenges within a discipline.

Other important processes used during this project include the following:

- Site visits: *Facilitated project involvement, awareness and engagement by Project Team members and survey respondents.*
- Web-based survey methodology: *Enabled national participation in the project, including input from almost all universities across Australia as stakeholders, in both urban and rurally based institutions.*
- Online data collection approach: *Viewed positively by Survey 1 and Survey 2 participants; this was the third most popular reason for 'features which made the survey easy to complete' for Surveys 1 and 2.*
- National Project Team: *A key member at each participating institution assisted project success in terms of online survey participation and interpretation of project findings and outcomes. The Project Team members had lively, in-depth discussions at our workshop, contributing their knowledge and perspective on EBP, Speech Pathology teaching, clinical education, the pedagogical style of their program/s and their EBP teaching resources. This sharing of ideas and expressing their views was highly valued, with 100% of workshop attendees agreeing that their expectations were met in these areas (from written workshop evaluation).*

4.2 Project Outcomes

This was a scoping project enabling an understanding of the current national climate of EBP teaching and learning in Speech Pathology programs. The project outcomes were bound by the 'scoping' nature of the project and the relatively brief length of the project (1-year). The Project Team and the funding institution both viewed this project as a 'first step', and the amenability of implementing outcomes reflects this.

4.2.1 Recommendations for changes to academic & clinical curricula

The Project Team have key recommendations for changes to the Professional Standards document of Speech Pathology Australia, the CBOS document, and have offered a representative to join the CBOS Review Panel, a suggestion which has been welcomed by the Association. The suggested amendments to CBOS regarding EBP will potentially change university curricula and assessment processes in clinical practica (e.g. Changes to the COMPASS™ Competency Based Assessment Tool in Speech Pathology) in the future. If adopted all higher education institutions across Australia will need to comply with the new guidelines and this will ensure a modification of the teaching and learning outcomes for Speech Pathology students. The proposed changes will be considered by a Review Panel that has recently been established and may be incorporated into the new CBOS document by 2010. We recognise that this is a scoping project, and at this stage we can only make recommendations to SPA based on our survey findings and published literature regarding EBP and professional behaviour change. As two of our Project Team members (Lincoln and Ferguson) are also on the ALTC funded COMPASS™ projects, any suggested changes to

COMPASS™ arising from amendments to CBOS would be assured. One Project Team member commented, *'I also feel our profession, if it chooses to, has the opportunity to integrate these components [E³BP] better into our curriculum, competency documents and practice as a result of the 'spark' this project has provided.'* (from email correspondence). This project has been timely given a recent increased focus on the importance of EBP in everyday clinical practice. One of our project team recently attended a national conference at The University of Queensland and commented as follows: *"There were a couple of papers at the recent Aphasiology Symposium of Australia from clinicians who were translating evidence into practice. They were showing how it is done in real life. I am not sure what implications that has for speech pathology curricula in Australia but it was impressive"* (from email correspondence).

4.2.2 Reports

Deliverables which are available at the end of this scoping project:

- Evidence Based Practice Resources Report: This report is freely available to academic staff, clinical educators, students and clinicians. It provides an overview of currently available EBP resources in communication disorders and other fields.
- Universities which participated in the online surveys each received Individual program reports. These reports focused on academic staff, program co-ordinator and clinical educators' self evaluations of their programs. The reports provide a possible starting point for future discussions about EBP teaching and learning for those programs.
- The ALTC received the *National EBP Teaching & Learning in Speech* Report in Final Report Part 2.

Scientific journal articles which will be available in the future:

- One journal article will describe the survey results
- The other will describe the process of the project

The findings in these articles will be applicable to medical, allied health and nursing professions, as the principles underlying EBP are common to all health professions.

5. Recommendations

In terms of future recommendations, the Project Team took into account the following sources of information:

1. Findings from the online surveys - *Australian Speech Pathology academic staff and clinical educators' knowledge, attitudes and feedback about EBP*
2. Available EBP resources – *a comprehensive list of currently available worldwide EBP health resources*
3. Transformational ('knowledge transfer') literature – *evidence of how to change professional behaviour*

By considering these three sources, the Project Team established:

- Consultation with Australian Speech Pathology educators who would ultimately be the key 'end users' of the recommendations.
- Availability of EBP resources as a tool for Speech Pathology educators, and in order to find what, if any, gaps existed in EBP resources.
- An evidence-based approach to our recommendations for maximum impact in the field, and for related health professions in the future.

5.1 Changing Competency-Based Occupational Standards (CBOS)

An overarching approach was adopted to changing EBP curriculum through changing Speech Pathology professional standards. The Project Team sent a recommendations report to SPA proposing changes in relation to EBP to their Competency Based Occupational Standards for Entry Level Speech Pathologists (CBOS) document. By changing the competency standards document of our profession, the changes in EBP curriculum must follow-on from this at every Australian Speech Pathology program. This will provide a more explicit, clearer set of guidelines for Speech Pathology educators and students, the future health professionals. For further information about this report, please also refer to *2.3.1 Resource Outcomes 'SPA CBOS Recommendations Report*.

5.2 National Plan

The Project Team members took into consideration the results of the online surveys and available EBP resources in drafting a preliminary national plan of action for EBP curricula and resources in Speech Pathology. The following table summarises their discussion:

Aims	Deliverables	Methods
EBP in Speech Pathology curricula	1. More deeply embedding EBP into the CBOS document 2. Learning objectives for Speech Pathology students: <ul style="list-style-type: none"> ▪ Novice ▪ Intermediate ▪ Entry Level 	Follow-up on CBOS Recommendations Report to SPA, including participation on CBOS Review Panel Devise learning objectives for: <ul style="list-style-type: none"> ▪ Integration into existing subjects ▪ Stand-alone EBP subjects These learning objectives are to be devised in collaboration with different stakeholders.

<p>Develop teaching & learning modules</p>	<p>Written/online teaching modules:</p> <ul style="list-style-type: none"> ▪ General introductory EBP module ▪ Specific modules demonstrating implementation of EBP in different areas of practice (e.g. Fluency, Aphasia) and with special populations (e.g. Cultural & Linguistic Diversity, & Complex Communication Needs) ▪ Specific training module for speech pathology students regarding evaluating methodological quality of research papers as listed on the <i>speechBITE™</i> online database 	<p>Target areas of need by reviewing data from surveys and literature review</p> <p>Feedback from clinical educators & students – focus groups</p> <p>Make T&L modules available on new section to <i>speechBITE™</i> website</p>
<p>Develop EBP teaching & learning resources for student and clinician use (encouraging lifelong learning with EBP principles and dissemination of resources in teaching and learning contexts as well as into the professional community)</p>	<p>Establish a variety of online or accessible EBP resources e.g.:</p> <ul style="list-style-type: none"> ▪ Develop training area on <i>speechBITE™</i> (searchable on-line database for treatment efficacy research in Speech Pathology) – training on how to use the <i>speechBITE™</i> database and then apply external research information to clinical practice. ▪ Dynamic, educational web-based network – a forum for academic staff, program coordinators, clinical educators, students and clinicians to 'discuss' EBP principles & recent research using ALTC infrastructure (e.g., ALTC Exchange). 	<p>Review data from Survey 1 (wish lists)</p> <p>Review transformational literature</p> <p>Feedback from clinical educators & students</p> <p>Make T&L modules available on new section to <i>speechBITE™</i> website</p>
<p>Develop strategies and tools for the assessment of EBP</p>	<p>Changes to CBOS impacting on COMPASS™</p> <p>Written outlines and materials for EBP assessment processes and development of assessment tools.</p> <p>e.g. Case based exams questions, online self assessment quiz options and sample assignment topics with marking guides.</p>	<p>Review data from Survey 1 (wish lists)</p> <p>Review transformational literature</p> <p>Feedback from clinical educators & students</p> <p>Make strategies and tools available on new section to <i>speechBITE™</i> website</p>
<p>Evaluation of new curricula, teaching modules and resources</p>	<p>Engage academic staff, program coordinators, clinical educators (on campus & off campus), clinicians and students in the evaluation of new processes and resources.</p>	<p>Focus groups or questionnaires for clinical educators and students; External Steering Group meetings</p> <p>Pilot resources with clinical educators and students during clinical block; evaluate; revise; collect more data with next clinical block</p>

5.3 Knowledge transfer

The transformational (knowledge transfer) literature was used when considering the future recommendations of this scoping project. On the whole, Speech Pathology and other health professions are positive and enthusiastic about EBP (Pain et al., 2004; Salbach et al., 2007). This positive attitude is also born out in survey results from this scoping project. However, a change in professional behaviour does not immediately follow on from a positive attitude, with or without the required knowledge to change (Soper & Hanney, 2007; Wensing et al., 2006). A pilot project among members of the NSW EBP Network Child Speech Group found that even with up-to-date external research knowledge, practitioners did not always use this evidence (Murray, Baker & McCabe, *unpublished thesis*). Professor Jeremy Grimshaw, Canadian Research Chair in Health Knowledge, Transfer and Uptake, stated that changing professional behaviour is facilitated by change at four levels:

- Individual health professional
- Health care teams (e.g. Speech Pathology hospital department)
- Organisations providing health care (e.g. Royal Prince Alfred Hospital)
- Health care systems (e.g. NSW Health)

(Grimshaw, 2008; Grol & Grimshaw, 2003)

5.3.1 Organisational change: Curriculum

The medical literature supports curriculum change in order to change professional behaviour (for a systematic review, see Coomarasamy & Khan, 2004). In a seminal article in this area, Green & Ellis (1998) undertook a controlled trial of a seven-week EBP curriculum with medical students in which the students worked through a tutorial, facilitated EBP techniques and undertook the EBP process with real patient decisions. The authors concluded that this EBP curriculum, which is based in adult learning theory, improved medical students' skills and some EBP related behaviours (Green & Ellis, 1998).

Wensing and colleagues (2006) undertook a systematic review and stated that strategies targeting implementation of best evidence to improve clinical practice have mainly targeted improvement in the behaviour, attitude and knowledge of health care professionals. However, according to these authors, these strategies appear to achieve about 10% absolute change of professional performance; for the other 90%, they suggest organisational change as the mechanism of greater change. The Project Team therefore firstly recommended changing EBP curriculum at the organisational level. As a first step in this process, a recommendations report was sent to Speech Pathology Australia suggesting changes in relation to EBP to their competency standards document (see *5.1 CBOS Recommendations Report*). There would be additional implications for the COMPASS™ assessment tool, which would make organisational change evident in the evaluation of students' use of EBP in the clinical decision making process.

5.3.2 Individual change: Discourse between Clinical Educators & Students

In light of our survey results from our case studies, as well as feedback from clinical educators in our first survey, we also recommend a change at the level of the individual. Specifically, we recommend changing the discourse between clinical educators and students so that EBP is considered consistently, explicitly, meaningfully and in a balanced manner when making clinical decisions. There is evidence in the literature to support focus on changing the behaviours of clinical educators and students, largely from the nursing literature (e.g. Eaton et al., 2007; Mohide & Matthew-Maich, 2007; Tilley et al., 2007).

6. Analysis of factors supporting and impeding success

6.1 Critical Success Factors

Four factors can be identified as critical to this project's success: 1) active participation by universities, their affiliates and key stakeholders, 2) Project Team engagement and participation, 3) a clear understanding of the scope of the project and 4) utilising existing resources.

1) Active Participation

This national scoping project needed active participation by universities with Speech Pathology programs and their affiliates. Universities were involved in one of two ways: they either had Project Team members or were key stakeholders. We collaborated with our contacts at universities, or with administration staff or Clinical Education Coordinators, to recruit participants to our online surveys.

We undertook two online surveys with this project. The first survey was open to Speech Pathology academic staff, program coordinators, on-campus clinical educators and off-campus clinical educators. The latter of these work in a variety of settings such as hospitals, community health centres and schools. We invited only on-campus and off-campus clinical educators to participate in the second survey. In order to successfully recruit around Australia, we worked closely with our university Project Team members and key stakeholders. We needed them to both assist with survey recruitment and to participate in the surveys.

Another key stakeholder was the Speech Pathology Australia (SPA) who were intimately involved in project recruitment. They assisted the Project Team by sending recruitment emails to their national members.

2) Project Team Participation & Engagement

Participation

For this project to be a success, active participation was needed from Project Team members through all project stages. This included taking part in the following:

1. Responding to emails
2. Teleconferences:
 - a. Introduction & Elluminate Live! training
 - b. Survey 1 (creation)
 - c. Survey 1 (results)
 - d. Workshop
3. Workshop: Survey results & project outcomes

Engagement

In order to engage Project Team members, regular progress update emails were sent on a fortnightly basis. These emails were succinct and simply written, providing progress in the last fortnight, requesting information or feedback, keeping the Project Team apprised of upcoming events and deadlines.

These progress emails engaged the Project Team in several key ways. Firstly, each of the Project Team members are busy academics with competing priorities, and so this short, regular email, helped the Project Team members to remain engaged with the project and not

forget explicitly about it or move it to the bottom of the list of priorities. One Project Team member commented to the Project Manager that *the progress emails helped her to not let the project move toward the bottom of her list of priorities* (from site visit field notes). Another important function they fulfilled was to keep up the enthusiasm about the project, because it was constantly moving forward towards its goals. One Project Team member commented to the Project Manager at the workshop that it was *refreshing to receive project emails which were not always demanding work on her part, but informing her of progress that had been achieved* (notes from conversation at workshop). The implication being that perhaps this Project Team member remained enthusiastic about the project, did not feel it was a burden, and when tasks were requested of her, she was happy to fulfil them in the time required. A related function is that task requests to the Project Team rarely occurred outside the fortnightly emails. Such a routine assisted with clarity of the research tasks and with finding information related to the project. Avoiding additional contacts outside of the fortnightly update also alleviated unnecessary interruption to the Project Team's schedules.

In addition to the progress update emails, another method of engaging the Project Team members was during site visits. In site visits, the Project Manager had an opportunity to meet with Project Team members, Heads of Discipline, Academic Staff and Clinical Educators. During these discussions, the Project Manager provided information about the project, answered questions and gathered in-depth qualitative information. This may have resulted in higher response rates to online surveys, as staff had met with the Project Manager and become knowledgeable about the project. An additional advantage of this approach was promotion of the project, with an emphasis on promotion of EBP as an important guiding principle in curriculum development for Speech Pathology programs. A Project Team member commented, *'I got a lot out of your site visit - this helped me (and other staff who joined in our discussions) to get a grip on how aspects of the project related to our own program (i.e. beyond my project team involvement).'*' (from email correspondence).

Overall, the methods used to engage the Project Team were successful. One Project Team member stated, *'I also think you've managed to keep us engaged and 'with' the project which I know is a challenge in any project. Thank you for maintaining and supporting the vision of the project and providing seamless organisation and coordination'* (from email correspondence) and other wrote, *'I have appreciated the steps taken to overcome distance and absences so that at all times I felt like a productive member of the team'* (from email correspondence).

3) Scope of the Project

A clear understanding of the limitations of project was necessary to achieve the project goals on time and on budget. This was a scoping project, with the limitations that this implies, and a two-page Project Description Document clearly stated the goals, intended outcomes/deliverables and limitations of this project. This helped to avoid 'scope creep' during enthusiastic project discussions.

As project time was limited to one year, a schedule containing all key tasks was produced and scheduled from the end point of the project to the beginning. This provided clear weekly goals and reminders of upcoming tasks. The schedule was reviewed after the workshop and discussed with the Project Team, feedback would be required on a series of deliverables.

One Project Team member stated the following: *'The very defined nature of the project as well as the tight management of the project throughout has meant that things have stayed very much 'on track' and all major goals have been achieved within a restricted time frame. This has meant that it has been very satisfying to be involved i.e. it has been clear what was being*

done, why, and what was being achieved at every stage. It was also clear when we needed to be doing things and what sort of things!' (from email correspondence).

4) Utilising existing resources

The Project Team utilised relationships with people with existing related resources. These included the experience of members of the PsycBITE™ and speechBITE™ teams. Members of these teams assisted by providing EBP resource links and links with the profession. These professional links helped the Project Team to understand the 'bigger picture' in relation to the profession's attitudes to EBP. Furthermore, having links with the speechBITE™ team helped to facilitate the significant involvement of our professional association, SPA, as a key stakeholder. speechBITE™ also provided international links with the American Speech and Hearing Association (ASHA) who sponsor speechBITE™. Also, two members of our Project Team, Alison Ferguson and Michelle Lincoln, led two related national projects which were also funded by the ALTC. These projects focused on COMPASS™, a new competency based assessment tool for Speech Pathology clinical education. Their input helped to underpin not only the current project, but the intended future project plans.

6.2 Factors Impeding Success

Three factors impeded the project's success: 1) representative participation in online surveys, 2) IT infrastructure, and 3) contractual negotiations.

1) Representative participation

The Project Team hoped to collect representative data and have high response rates at each university across Australia for the project's two online surveys. This prolonged the duration of data collection, which went for longer than anticipated for Survey 1. The Project Team learned from and instigated earlier follow-up emails for Survey 2 so that data collection occurred as scheduled.

2) IT infrastructure

The Project Team worked in different states in Australia, and to facilitate discussion several web conferences were organised using the Elluminate Live! software. Unfortunately there were issues with using the Elluminate Live! software, particularly at The University of Sydney, where the server set-up denied access to Elluminate Live! One Project Team member stated, '*I found trying to set up Elluminate complex*' (from email correspondence). It became challenging to facilitate interaction during these web conferences because of these IT issues. There were two separate occasions when multiple people were sitting at one computer, which is not ideal when trying to communicate and interact via web conferencing. Another Project Team member commented that Elluminate Live! *is 'a fantastic concept but without being able to utilise it, its innovation was not useful for us'* (from email correspondence). It was decided that we move to traditional teleconferencing, to be on the safe side, while trying to work out the issues with our IT department. Toward the end of the project, after exhausting all possible avenues with The University of Sydney IT department, it was suggested that we liaise with Yellow Edge staff to try to find a solution. Luckily one of the solutions worked. Therefore, we see the potential of Elluminate Live! and also the cost savings. We anticipate that this will be a more successful way of interacting during another project.

3) Contractual Negotiations

Contractual negotiations between The University of Sydney and the Australian Learning and Teaching Council over intellectual property clauses in the contract delayed project commencement by six months. This was out of the control of the Project Team members.

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8. Appendices

APPENDICES

8.1 List of participating universities

8.2 Project Team

8.3 Summary of acronyms in report

8.4 Survey 1: Self evaluation of evidence based practice teaching, & knowledge and access to EBP resources.

8.5 Survey 2 Case Studies: EBP & clinical decision making

8.6 Model answers for Survey 2

8.7 EBP Resources Report

8.8 Project description document

8.9 Workshop schedule

8.10 Evaluation of workshop

8.11 National Evidence Based Practice Teaching & Learning Report & Key Recommendations for Australian Speech Pathology Programs

8.1 *List of participating institutions*

University	Speech Pathology Program/s
The University of Sydney	Undergraduate & Graduate Entry Masters
Macquarie University	Graduate Entry Masters
The University of Newcastle	Undergraduate
The University of Queensland	Undergraduate & Graduate Entry Masters
La Trobe University	Undergraduate & Graduate Entry Masters
Flinders University	Undergraduate & Graduate Entry Masters
James Cook University	Undergraduate
Charles Sturt University	Undergraduate

8.2 Project Team

A/Prof Leanne Togher (Project Leader), The University of Sydney, Project Leader - Leanne, a Senior NHMRC Research Fellow, led the current scoping study and will lead this proposed project. Leanne is also leading another project, funded by Speech Pathology Australia and the Motor Accidents Authority of NSW, which aims to develop and launch an evidence based practice (EBP) web-based database (speechBITE™) for speech pathologists and students in 2008.

Dr Patricia McCabe, The University of Sydney, Lecturer & Scientific Affairs Coordinator for Speech Pathology Australia (NSW). Tricia is responsible for EBP curriculum in the Undergraduate Speech Pathology Program and teaches an EBP subject in the Master of Speech Language Pathology. Tricia has presented a number of papers on EBP in Speech Pathology education.

Dr Natalie Munro, The University of Sydney, Lecturer and Vice President NSW Speech Pathology Australia. Natalie is an academic staff member who teaches and researches in the area of EBP and child language disorders. Natalie will facilitate project involvement of staff and students, both undergraduate and graduate entry masters. Additionally, she will be able to liaise with the profession and other allied health institutions in her executive role within Speech Pathology Australia.

Dr Emma Power, The University of Sydney. Emma is an academic staff member at the university. For four years, Emma was the President of Speech Pathology Australia's NSW Branch, and facilitated EBP groups for professional clinicians. She is currently a member of the University of Sydney speechBITE™ (searchable EBP database) committee. Emma will facilitate involvement of staff and students in this project, as well as helping to develop a national plan for EBP curriculum in Speech Pathology.

A/Prof Liz Ward, The University of QLD. Liz teaches EBP at the University of QLD and will be involved in developing a national plan, EBP processes, teaching modules and resources, as well as facilitating the engagement of academic staff and clinical educators in the project.

Prof Linda Worrall, The University of QLD. Linda has developed the Critically Appraised Topic and Critically Appraised Paper guidelines used by the NSW EBP Network and has written extensively regarding EBP and Speech Pathology. She will consult on the design of the evaluation tool and facilitate the involvement of University of Queensland academic staff and clinical educators.

A/Prof Alison Ferguson, The University of Newcastle. Alison's research has been internationally recognised for its contribution to the discipline of speech-language pathology as evidenced by a consistent rate of high quality publications and presentations across Australia, Britain, USA and Europe. She is currently the Deputy Head, School of Humanities & Social Sciences (Callaghan) at The University of Newcastle. Her team leadership in the development of speech pathology teaching curriculum led to the University of Newcastle Award for Excellence in Teaching for 2000, and her work with a cross-institutional educational research team contributed to the 2006 ALTC Award for Australian University Teaching – Citation for Outstanding Contributions to Student Learning. She will consult on the design of the evaluation tool, facilitate student, academic staff and clinical educator involvement in the project and assist with the interpretation of findings.

Dr Elisabeth Harrison, Macquarie University, NSW. Elisabeth teaches EBP in the Speech Pathology Program and has published in the area of EBP and stuttering. Elisabeth will provide input in all project aims, as well as facilitating involvement of Macquarie University academic staff and clinical educators in this project.

A/Prof Michelle Lincoln, The University of Sydney, Head of Discipline, Speech Pathology. Michelle is an active researcher in the area of learning and teaching, in particular workplace based learning experiences. In the past five years she has averaged four peer reviewed publications per year, authored

one book and four book chapters. In addition she has won a total of \$900K of external and internal funding, including three ARC grants. Her capacity for excellence in teaching at the tertiary level is best demonstrated by the awarding of 2005 University of Sydney's Vice Chancellor's Award for Outstanding Teaching and a 2006 ALTC Australian Awards for University Teaching Citation for Outstanding Contributions to Student Learning: *For the development of a valid and reliable national workplace competency assessment for speech pathology students*. Her expertise and scholarly approach to facilitating student learning is further demonstrated by the publication of two books that specifically address student learning in clinical settings (McAllister, Lincoln, Maloney & McLeod, 1997 McAllister & Lincoln, 2004).

Corina Yiannoukas, The University of Sydney, Project Manager. Corina is successfully managed this EBP scoping project from project conception through to the delivery of project outcomes. She has developed working relationships with Project Team members and key stakeholders.

Pratiti Ghosh, The University of Sydney, Research Assistant. Pratiti completed her post graduate degree in speech pathology from Macquarie University. She has helped to facilitate the successful completion of this scoping project.

A/Prof Jacinta Douglas, La Trobe University. Jacinta has written a textbook on Evidence Based Practice and Speech Pathology and is Acting Head of School and the Course Coordinator of the Master of Speech Pathology. Jacinta will consult on the design of the evaluation tool, facilitate student and clinical educator involvement at La Trobe University and assist with interpretation of findings.

8.3 Survey 1: Self evaluation of evidence based practice teaching, & knowledge and access to EBP resources.

A. BACKGROUND INFORMATION

Academic Staff & Program Coordinators

A1. Where do you work?

- Charles Sturt University, NSW
- Curtin University, WA
- Flinders University, SA
- James Cook University, QLD
- La Trobe University, VIC
- Macquarie University, NSW
- Newcastle University, NSW
- The University of Sydney, NSW
- The University of Queensland, QLD

A2. What type of students do you teach? (course work students, not research students)

- Undergraduate
- Graduate Entry Masters
- Both

A3. What subject areas do you teach?

- Dysphagia
- Adult Speech
- Adult Language
- Child Language
- Child Speech
- Fluency
- Voice
- AAC/complex communication needs
- Clinical education
- Professional development
- Other: _____

A4. What proportion of your time at work is spent on the following tasks:

- _____ % Teaching
- _____ % Research
- _____ % Administration
- _____ % Clinical Education
- _____ % Other (specify) _____

A. BACKGROUND INFORMATION (continued)

A5. How long have you worked as an academic?

- Less than 1 year
- 1 – 2 years
- 3 – 5 years
- 6 – 10 years
- Over 10 years

<u>Clinical Educators</u>

A1. What state are you in?

- NSW
- VIC
- TAS
- WA
- QLD
- SA
- NT
- ACT

A2. What types of students do you teach?

- Undergraduate
- Graduate Entry Masters
- Both

A3. Employment

Oncampus CEs only.

i. Who is your employer?

- Charles Sturt University, NSW
- Curtin University, WA
- Flinders University, SA
- James Cook University, QLD
- La Trobe University, VIC
- Macquarie University, NSW
- Newcastle University, NSW
- The University of Sydney, NSW
- The University of Queensland, QLD

ii. Are you academic or general staff?

- Academic
- General

A. BACKGROUND INFORMATION (continued)

Off campus CEs only

i. Who is your employer?

- Hospital
- Community Health Centre
- Department of Education
- Disability Services
- Other: _____

ii. Does your clinic operate primarily as a student learning clinic?

- Yes
- No

All clinical educators

A4. i. What is your clinical caseload?

- Adult
 - Acute
 - Rehabilitation
- Child
- Mixed

ii. What types of cases do you see in your caseload?

- Speech
- Language
- Fluency
- Voice
- Swallowing
- Other: _____

iii. How long have you worked as a clinical educator?

- Less than 1 year
- 1 – 2 years
- 3 – 5 years
- 6 – 10 years
- Over 10 years

A5. Do you do any academic teaching?

- Yes
- No

If yes, how many hours per week? _____ hours per week

B. INTEGRATING RESEARCH AND CLINICAL PRACTICE IN SPEECH PATHOLOGY PROGRAMS

Quality Indicators for Integrating Research into Clinical Practice in Communication Sciences and Disorders (CSD) Programs: Program Self-Assessment

Adapted from American Speech-Language-Hearing Association (2007) & Salbach et al. (2007)

Aim: This self-assessment survey has been designed to help academic and clinical programs develop a shared understanding and vision for successful integration of research and clinical practice.

Both academic staff and clinical educators will be encouraged to complete a self-assessment in order to facilitate discussion about the program and to identify areas of strength and need. All of the responses from academic and clinical education staff at your university, as well as field clinical educators in your state, will be de-identified and collated into a report and provided to your Head of Department/Program for feedback and discussion. The research team plan to use the results to develop a national plan of action for enhancing integration of research and clinical practice into Speech Pathology programs.

Content (academics & program coordinators): The self-assessment contains 5 sections: *general curriculum considerations, your course/s & program, academic staff preparation, students and attitudes to evidence-based practice (EBP)*. There are **43** questions, and this section will take approximately **10** minutes to complete.

Content (clinical educators): The self-assessment contains 6 sections: *general curriculum considerations, your program, clinical educator preparation, students, clinical practicum and attitudes to evidence-based practice (EBP)*. There are **43** questions, and this section will take approximately **10** minutes to complete.

Definitions:

- ◆ 'Subject' refers to a 'unit of study' or 'topic of study' or 'course' (e.g. Articulation & Phonology).
- ◆ 'Formative assessments' refer to tasks throughout the semester to evaluate student learning.
- ◆ 'Summative assessments' refer to end of semester assessment tasks.
- ◆ We are considering **EBP** from a **broader perspective**, which is **the process of integrating the best evidence into clinical decision making**.

Instructions: Rate each quality indicator using the 5-point scale shown below. **Please identify how much you agree or disagree with each of the following statements. If you do not know or have no opinion please choose 3 (neutral). If you do not think the statement is applicable, please choose 'not applicable' (N/A).**

1	2	3	4	5	☐
Strongly Disagree				Strongly Agree	N/A

B. EBP CURRICULUM SELF EVALUATION

GENERAL CURRICULUM CONSIDERATIONS

ACADEMIC STAFF & PROGRAM COORDINATORS

Q1. When developing and reviewing curricula, academic staff decide which subjects are appropriate for teaching EBP concepts

Q2⁶. The academic and clinical curricula reflect adequate depth of study of clinical research methods and their application to clinical practice to support EBP

Q3. The department's written curriculum reflects EBP philosophy (i.e. the integration of theory, research & clinical practice)

CLINICAL EDUCATORS

Q1. When developing and reviewing curricula, clinical educators decide which clinical practicums are appropriate for teaching EBP concepts

Q2. The academic and clinical curricula reflect adequate depth of study of clinical research methods and their application to clinical practice to support EBP

YOUR PROGRAM/YOUR COURSE

ACADEMIC STAFF & PROGRAM COORDINATORS

Q1⁷. Subject outlines set out readings and class assignments which focus on integrating clinical research into clinical practice

Q2. Case studies are used to teach students to analyse research and apply findings to assessment and treatment questions

Q3. Class assignments require students to have hands-on experience finding, appraising, and applying clinical research to relevant clinical questions.

Q4. Academic staff and clinical educators use formative and summative assessments to determine student learning in EBP concepts

Q5. Undergraduate and graduate syllabi are reviewed by curriculum committees to determine that current EBP concepts are being presented to students

CLINICAL EDUCATORS

Q1. Students are required to include EBP in clinical documentation during clinical placements e.g. session plans, client management plans

Q2. Students experience implementing EBP during their clinical practicums

⁶ Academic staff, program coordinators and clinical educators are all asked to respond to Q2.

⁷ Program coordinators respond to these questions in relation to the entire program. Academic staff respond to Questions 1 to 3 in relation to their courses and Questions 4 and 5 in relation to the entire program.

B. EBP CURRICULUM SELF EVALUATION (continued)

STAFF PREPARATION

ACADEMIC STAFF & PROGRAM COORDINATORS

Q1. I have access and training in the EBP process i.e. defining questions, identifying sources for clinical evidence, finding evidence, appraising the literature, applying findings to relevant clinical questions for a specific client's needs and evaluating effectiveness of EBP process.

Q2. I have access to the electronic tools necessary for efficiently finding appropriate research

Q3. I have attended training in the use of the electronic tools necessary for efficiently finding appropriate research.

Q4. I preserve time to participate in training and collaborative projects that promote EBP learning and practice.

Q5. I participate with other academic staff and clinical educators in regularly scheduled group discussions covering selected topics related to EBP.

Q6. I regularly communicate with clinical educators who supervise clinical practicums related to the same clinical disorder area/s that I teach.

Q7. Clinical educators are aware of the research, theory, and literature presented in academic subjects.

Q8. I am aware of clinical and student learning issues that arise in clinical education placements.

Q9. I am aware of client management issues that arise in clinical education placements.

Q10. I have regular communication (formal or informal) with clinical educators about curricular issues.

Q11. I model positive collaborative relationships with clinical educators through collaborative teaching and research activities.

Q12. Clinical educators and I share activities and information presented in our subjects/clinical education placements during at least one group discussion per semester.

Q13. Clinical educators and I develop and/or participate in at least one joint research project during a 2-year period.

Q14. Clinical educators and I include at least one student in a joint research project during a 2-year period.

Q15. Research students and I are involved in generating evidence about the efficacy of clinical approaches

Q16. Clinical educators and I use a common vocabulary about EBP (i.e. the application of research to clinical practice).

Q17. I have opportunities to attend continuing education courses focused on concepts related to EBP (at least one professional development opportunity in a 2-year period).

B. EBP CURRICULUM SELF EVALUATION (continued)

STAFF PREPARATION

CLINICAL EDUCATORS

- Q1. I have access and training in the EBP process i.e. defining questions, identifying sources for clinical evidence, finding evidence, appraising the literature, applying findings to relevant clinical questions for a specific client's needs and evaluating effectiveness of EBP process
- Q2. I have access to the electronic tools necessary for efficiently finding appropriate research.
- Q3. I have attended training in the use of the electronic tools necessary for efficiently finding appropriate research.
- Q4. I preserve time to participate in training and collaborative projects that promote EBP learning and practice.
- Q5. I participate with academic staff &/or clinical educators in regularly scheduled group discussions covering selected topics related to EBP.
- Q6. I regularly communicate with academic staff who teach subjects related to the same clinical disorder area/s or clinical populations that I manage.
- Q7. I am aware of the research, theory, and literature presented in academic subjects.
- Q8. Academic staff are aware of clinical and student learning issues that arise in clinical education placements with me.
- Q9. Academic staff are aware of client management issues that arise in clinical education placements with me.
- Q10. Academic staff and I have regular communication (formal or informal) about curricular issues.
- Q11. Academic staff and I model positive collaborative relationships through collaborative teaching and research activities.
- Q12. Academic staff and I share activities and information presented in subjects/clinical education placements during at least one group discussion per semester.
- Q13. Academic staff and I develop and/or participate in at least one joint research project during a 2-year period.
- Q14. Academic staff and I include at least one student in a joint research project during a 2-year period.
- Q15. Students in the speech pathology program and I are involved in generating evidence about the efficacy of clinical approaches
- Q16. Academic staff and I use a common vocabulary about EBP (i.e. the application of research to clinical practice).
- Q17. I have opportunities to attend continuing education courses focused on concepts related to EBP (at least one professional development opportunity in a 2-year period).

B. EBP CURRICULUM SELF EVALUATION (continued)

STUDENTS

ALL STAFF

Q1. Students demonstrate satisfaction with a culture of EBP within the department/clinic environments as documented by student feedback about critiquing research skills.

Q2. Students are provided with training in the EBP process i.e. defining questions, identifying sources for clinical evidence, finding evidence, appraising the literature, applying findings to relevant clinical questions for a specific client's needs and evaluating effectiveness of EBP process

Q3. Students have access to the electronic tools necessary for efficiently finding appropriate research.

Q4. Students have training in the use of the electronic tools necessary for efficiently finding appropriate research.

Q5. Students can find and appraise clinical research and apply it appropriately when making clinical decisions for the assessment and treatment of a range of communication disorders.

Q6. Students complete a task involving application of evidence to an individual client

Q7. Students are assessed regarding their knowledge of EBP

ACADEMIC STAFF & PROGRAM COORDINATORS

Q1. Students participate in at least one research project with an academic staff member during their degree.

Q2. Students' research projects are presented and/or published at a local, state, and/or national workshop/convention/publication.

Q3. Students complete an assignment or task based on critiquing a journal article

Q4. Students complete an assignment or task based on critiquing a small body of work (e.g. 5 related journal articles)

ONCAMPUS AND OFFCAMPUS CLINICAL EDUCATORS

Q1. Students document their application of EBP in clinical settings

CLINIC

ONCAMPUS AND OFFCAMPUS CLINICAL EDUCATORS

Q1. Students demonstrate knowledge of current theoretical models about typical communication development across the life span

Q2. Students demonstrate knowledge of current theoretical models about communication development across culturally and linguistically diverse populations

Q3. It is expected that students ask appropriate clinical questions about their clients that lead to finding, appraising, and applying quality research prior to assessing and treating their clients.

Q4. It is expected that students ask appropriate nonclinical questions about their clients and then apply the client's goals and values as part of evidence based practice

Q5. Assessment and treatment plans contain references to research as part of the rationale

Q6. Assessment and treatment plans discuss the quality of the available research as part of the rationale

Q7. EBP is directly addressed in the Competency-Based Occupational Standards (CBOS) for Speech Pathologists

OFF CAMPUS CLINICAL EDUCATORS ONLY

Q1. Field clinical educators (non university) are able to foster skills in EBP in students when they supervise them on clinical placement

Q2. The university provides training in EBP for field clinical educators (non university) to assist student learning in this area

ATTITUDES TO EBP

ALL STAFF

Q1. Application of EBP is necessary in the practice of speech pathology

Q2. Literature and research findings are useful in day-to-day practice

Q3. The adoption of EBP places an unreasonable demand on speech pathologists

Q4. EBP improves the quality of client care

Q5. EBP helps speech pathologists make decisions about client care

Q6. EBP does not take into account client preferences (i.e. clients' reported values and preferences for treatment)

Q7. There is a definite divide between research and practice

C. KNOWLEDGE & ACCESS TO EBP RESOURCES

C1. Have you received training in EBP?

- Yes
- No

If yes, how was the training delivered?

- In service
- On-line
- Teleconference
- Written materials
- Other: _____

C2. What kinds of EBP activities do you regularly engage in?

- Journal clubs
- Critically appraising research papers
- Searching for evidence
- Writing research papers
- Training others
- EBP networks
- Special interest groups
- Academic collaborations
- Other: _____
- None [*option for clinical educators only*]

C3. Do you access EBP resources for your teaching?

- Yes
- No

If yes, which of the following do you expect students to access in your subjects/while they are on placement with you?

- A. Databases

I expect students to access the following databases:

- CINAHL
- Medline via Ovid
- Psycinfo
- PsycBITE™
- Cochrane Reviews
- Web of Science
- Other/s _____

C. KNOWLEDGE & ACCESS TO EBP RESOURCES (continued)

B. Journals

I expect students to access the following journals:

- ACQuiring Knowledge in Speech Language & Hearing
- Advances in Speech Language Pathology
- Journal of Speech Language and Hearing Research
- American Journal of Speech Language Pathology
- Journal of Speech Language and Hearing Services in Schools
- Journal of Communication Disorders
- International Journal of language and communication disorders
- Disability and Rehabilitation
- Aphasiology
- Journal of Voice
- Journal of Fluency Disorders
- AAC
- Evidence-Based Communication Assessment & Intervention
- Other/s _____

Internet

C. General EBP websites

- Yes
- No

If yes, specify which EBP specific websites you expect students to access:

D. Websites for specific areas of practice

- Yes
- No

If yes, specify which websites you expect students to access:

E. Internet discussion groups

F. Text books

G. Other/s: _____

H. Professional development workshops [**option for clinical educators only**]

I. Attend in-services [**option for clinical educators only**]

C. KNOWLEDGE & ACCESS TO EBP RESOURCES (continued)

C4. How often do you access EBP resources?

- Daily
- Weekly
- Fortnightly
- Monthly
- Every few months
- Never

C5a. Is student assessment involving EBP included in the subject/s that you teach? [*Academics & program coordinators only*]

- Yes
- No

C5b. Is EBP integrated into your program curricula or is it taught in a stand-alone subject? [*Academics & program coordinators only*]

- Integrated into curricula
- Stand alone subject
- Both

C6. Do you use EBP resources in teaching and learning to foster the integration of research findings with clinical practice with your students?

- Yes
- No

If yes, specify how do you use these resources/tools:

Academic staff & program coordinators only:

- Teach students about EBP in tutorials/lectures
- Add to subject outlines (e.g. useful reference lists, relevant websites etc)
- Assignment tasks
- Other: _____

Clinical educators only:

- Discuss EBP in relation to particular client/s
- Discuss EBP in relation to caseload management
- Direct students to relevant research publications
- Students to demonstrate knowledge of evidence in written plans
- Students critically appraise papers

C. KNOWLEDGE & ACCESS TO EBP RESOURCES (continued)

- Student presentations on recent research
- Other: _____

C6. How do you feel about EBP? [*Clinical educators only*]

C7. In your opinion what are the barriers to integrating EBP into your subjects?

C8. In order to facilitate the integration of EBP into SP programs, what EBP tools would you like to see developed? [*Academic staff and program coordinators only*]

For teaching EBP process

For assessment of EBP knowledge

For clinical application of EBP

C8. In order to facilitate the integration of EBP into SP programs, what EBP tools would you like to see developed to assist in clinical education of students in EBP? [*Clinical educators only*]

PARTICIPANT FEEDBACK

Time to complete survey: ___ minutes

What survey features made it easy for you to complete this survey?

What survey features made it hard for you to complete this survey?

8.4 Survey 2 Case Studies: EBP and Clinical Decision Making

PRE CASE STUDY QUESTIONS

1a) How many _____ clients have you seen in the last 12 months?

- a) 0 b) 1 – 3 c) 3 - 10 d) 10 +

If answer to 1a is '0', respondent was asked 1b

1b) If you have not seen any in the last 12 months, when was the last time you saw _____ clients?

- a) 1-2 years ago b) 3-5 years ago c) 6-10 years ago d) Over 10 years ago e) Never

If answer to 1b is 'Never', respondent is not asked questions 2 & 3

2) How many years have you been working with _____ clients?

- a) Less than 1 year b) 1-2 years c) 3-5 years d) 6-10 years e) Over 10 years

3) Are you involved in Evidence Based Practice activities in _____ (Child Articulation & Phonology / Disability / Tracheostomy / Apraxia), with your speech pathology peers?

- a) Yes b) No

SCORING

METHOD

1. Clinical decision & reasoning questions
2. Explanation to students
 - External literature – Present/Absent
 - Clinical Judgment – Present/Absent
 - Client Values & Preferences – Present/Absent

CHILD SPEECH CASE STUDY

Matthew is 4 years 2 months old. Apart from a moderate-severe phonological impairment, all other communication skills (receptive, expressive language, voice, fluency) and developmental milestones are appropriate for his age. His oral musculature structure and function, and hearing are also normal. Matthew has not had any previous therapy. He is the eldest of two boys. There is a positive family history of speech impairment. An example and summary of Matthew's speech skills follows:

- ★ **Speech sounds in Matthew's phonetic inventory:** All except the following: h, 'th' voiceless (as in 'think), 'th' voiced (as in 'this'), f, v, s, 'sh', z, 'zh' (as in 'vision'), 'ch' and 'j' (as in 'jump')
- ★ **Phonological processes in Matthew's speech:**

Phonological Processes	Sounds affected	Word positions affected and examples
Stopping of fricatives and affricates, EXCEPT /h/.	/f/ □ [p] /v/ □ [b] 'th' (voiceless) □ [t] 'th' (voiced) □ [d] /s/ □ [t] /z/ □ [d] 'sh' □ [t] 'zh' □ [d] 'ch' □ [t] 'j' □ [d]	<i>All word positions (initial, medial and final).</i> <i>Examples:</i> Feather □ 'peda' Van □ 'ban' Thin □ 'tin' Them □ 'dem' Sad □ 'tad' Zebra □ 'deba' Sheep □ 'teep' Measure □ 'meda' Chips □ 'tip' Jacket □ 'datet'
Deletion of /h/	/h/ □ ∅	<i>Initial Medial</i> Hat □ 'at' Grasshopper □ 'dart-opper'
Cluster reduction	For example: /sp/ □ [p] /st/ □ [t] /fr/ □ [w] /mp/ □ [m]	<i>Initial Final</i> Spider □ 'pider' Wasp □ 'wop' Star □ 'tar' Toast □ 'toat' Frog □ 'wog' Jump □ 'dum'
Gliding of /r/ □ [w]	/r/ □ [w]	<i>Initial</i> Red □ 'wed'
Velar fronting	/k/ □ [t] /g/ □ [d]	<i>Initial</i> Cat □ 'tat' Go □ 'do'

- ★ **Stimulable phonemes (those not in phonetic inventory produced as a singleton with modelling and cues):** h, f, 'sh' & 'th' voiceless (as in 'think)
- ★ **Syllable structures adequate** e.g., says 'hippopotamus' □ 'ipepotamet' and 'trapeze' □ 'tapeed'

QUESTIONS:

1. Given the background information about Matthew, what phoneme(s) or phonological process would you first target in therapy?
2. Why did you select this phonological process / phoneme(s)?
3. How would you explain your target selection choice to your students?

CHILD DEVELOPMENTAL DISABILITY CASE STUDY

Giorgio is 36 months of age. He lives with his parents and older brother, Luca (5 years). Giorgio likes his pet dog, Rex; playing with toy animals; visits to the park and books, especially *Maisy* books. Giorgio attends preschool 2 days a week and his grandparents look after him once a week.

Giorgio was diagnosed with cerebral palsy when he was 12 months old. Since his diagnosis, he has been receiving regular therapy from a multidisciplinary team (speech pathologist, occupational therapist and physiotherapist). At present, Giorgio is not using functional speech, however recent receptive language and psychometric testing revealed age appropriate comprehension and cognition. Giorgio communicates via gestures, vocalisations, crying and pointing at pictures on the fridge to indicate what food he wants.

In consultation with Giorgio's parents, you decide to introduce a manual communication board for Giorgio to use in all environments (e.g. home, preschool, grandparents' house). Initially you choose 15 symbols to put onto Giorgio's board.

QUESTIONS:

1. Given the background information about Giorgio, which symbols would you choose for his board?

LIST A	LIST B	LIST C
Mum	Mum	Mum
Dad	Dad	Dad
Luca	Luca	Luca
Rex	Rex	Rex
Yes	Yes	Books
No	No	Maisy
There	More	Juice
That	Books	Toast
It	Maisy	Vegemite
I	Next	Strawberry Jam
My	Park	Toilet
You	Open	Bed
More	Give	Park
In	Juice	Elephant
On	Toast	Lion

- List A
- List B
- List C

2. Why did you select this list of symbols?
-

3. How would you explain your choice of symbols to your students?
-

ADULT SWALLOWING CASE STUDY

BL is a 78-year-old woman who was admitted to your hospital's emergency department. She presented with loss of consciousness following a fall. An initial CT scan revealed an intracranial haemorrhage. BL underwent surgery and was intubated for 10 days post op in ICU. Following failed extubation, a Size 7 tracheostomy tube was inserted percutaneously (Portex cuffed non-fenestrated tracheostomy tube).

Two days later, BL was transferred to the ward and a referral was made to the Speech Pathology department. She was self-ventilating with HME in situ, alert, and attempting to communicate (via mouthing of words). Her chest and medical status were stable. On discussion with the medical and multidisciplinary team, the patient was deemed appropriate for a cuff deflation and oral intake trial.

QUESTIONS:

1. Which of the following would you use in your assessment with this patient, when conducting a food/fluid trial, &/or cuff deflation trial?

Note: All resources are available to you, and you can choose more than one response

- FEES (Fibreoptic Endoscopic Evaluation of Swallowing)
- MEBDT (Modified Evans Blue Dye Test)
- MBS (Modified Barium Swallow)
- Observe relevant physiological variables at assessment (e.g. SaO₂, coughing)
- Cervical Auscultation

2. Which of the above procedures would you not use and why?

- FEES (Fibreoptic Endoscopic Evaluation of Swallowing)
- MEBDT (Modified Evans Blue Dye Test)
- MBS (Modified Barium Swallow)
- Observe relevant physiological variables at assessment (e.g. SaO₂, coughing)
- Cervical Auscultation
- I would use any of the above procedures

Why?

3. How would you explain this choice to your students?

ADULT REHABILITATION CASE STUDY

TR is a 67-year-old English speaking man. He was diagnosed with moderate aphasia and moderate-severe apraxia of speech following a left hemisphere cerebrovascular accident (CVA) three years ago.

His aphasia is characterised by word finding difficulties and reduced length of utterance. TR has mildly impaired auditory comprehension. His apraxia of speech is characterised by misarticulation (substitutions and distortions), variable articulation and articulatory groping.

Immediately following his CVA, TR received intensive speech pathology treatment (daily for six weeks). TR is now three years post-incident and is receiving out-patient treatment from you 2 to 3 times per week focusing on his speech. Below are examples of some of TR's speech sound errors:

Articulation errors Note: These are represented as substitutions, but may frequently be perceived as distortions of the target sound or the substituted phoneme	line -> 'rine' luck -> 'tuck' or 'duck' shut -> 'tut' Labialised /r/
Cluster reduction	quit -> 'wit' street -> 'reet'
Cluster simplification (epenthesis of schwa between consonants)	black -> 'belack'

QUESTIONS:

1. During your therapy sessions with TR (using whichever treatment methods you wish (e.g. modelling, placement cues, orthographic cues), you identify several speech behaviours that need targeting (e.g. production of /l/ & production of clusters). With regard to the case history information, how would you go about the following:

A) TREATMENT TARGETS

i) Would you target one speech behaviour at a time (e.g. Achieve /l/ production mastery before moving on to clusters) or multiple speech behaviours?

- One speech behaviour
- Multiple speech behaviours

Why?

ii) How would you target these within each treatment session for maximum generalisation? (if answer to Ai) was 'multiple speech behaviours'

- Practice each target randomly (e.g. ACB CAB ABC)
- Practice in blocks (e.g. AAA BBB CCC)

Where A = Speech behaviour 1, B = Speech Behaviour 2, C = Speech Behaviour 3

Why?

B) REINFORCEMENT SCHEDULE

- i) Reinforce after each production (100% of the time) OR following 30 to 60% of productions?
- 100% of the time
 - Following 30 to 60% of productions

Why?

- ii) Reinforce after a short delay OR immediately following production?
- After a short delay
 - Immediately following production

Why?

2. How would you explain your choices to your students?

8.5 Model Answers for Survey 2

Child Speech Case Study Model Answers

ACKNOWLEDGEMENTS

This case study was used with permission from Elizabeth Murray, Dr Elise Baker and Dr Patricia McCabe, from their research exploring the impact of EBP workshops on clinicians' treatment target choices with child speech clients. Some of the case study questions used in the current study were different to those in the original study.

Elise Baker and Patricia McCabe are currently faculty members at the University of Sydney in the Discipline of Speech Pathology, and have published research in the area of child speech. This case study was part of Elizabeth Murray's honours thesis.

MODEL ANSWERS

QUESTION 1

The scoring for this question was based on the respondent's treatment target (sound or process) selection and their clinical reasoning. There were many acceptable target selection responses. The following table was used to score responses, and is divided into a continuum from least knowledge (LEAST) to most knowledge (MOST) options. It outlines both target selection possibilities and explanations. Acceptable responses were part of LEAST 1 (e.g. Stopping of affricates, Stopping of fricatives) or LEAST 2 (e.g. Cluster reduction, Deletion of /h/). Unacceptable responses were from MOST 1 or 2. If the respondent chose a target from LEAST 1 or 2, but provided an explanation from the MOST category, then the response was unacceptable. Respondents were also expected to include in their explanation the other two aspects of E³BP i.e. their clinical experience (internal evidence) and the preferences and values of the client and their family.

	Process	Sounds	Explanation
LEAST 1	Stopping of affricates	1. /j/ 2. /ch/	- Not in sound system. - System-wide shift.
	Stopping of fricatives	1. /z/ 2. /s, v, th (voiced) & 3. /zh/	- Generalisation. -Non-stimulable phonemes. -Late developing sounds.
LEAST 2	Cluster reduction	Depends on sound targets	-Marked sounds
	Deletion of /h/		
MOST 2			- Facilitates Intelligibility. - Inventory constraints. - Early developing sounds.
MOST 1	Gliding of /r/ Velar fronting	1. /g / 2. /k/	- Sounds in their names. - Stimulable sounds.

QUESTION 2

Responses were scored for the presence or absence of each of the E³BP elements: external evidence, clinical judgment, and client preferences and values. A prototype 'model response' might include:

I would target stopping of fricatives and explain this choice to my students in terms of the evidence, my clinical experience and the preferences of the client and their family when they are making an informed choice [*client preference*]. The evidence states that using harder, least knowledge targets produces better generalisable treatment outcomes. Fricatives are not in Matthew's phonetic inventory, so targeting them should produce a system wide shift [*external evidence*]. I have worked with many child speech clients and it generally takes less sessions when you use a least knowledge approach, but you also have to take the child into consideration [*clinical judgment*].

A model response from a survey respondent:

"If Matthew is shy & needs success - /k/, otherwise, /fr/ clusters. 1. Most knowledge 2. Least knowledge"

Key References:

- Creaghead, N. A., Newman, P. W., et al. (1989). *Assessment and remediation of articulatory and phonological disorders*. Columbus: Ohio, Merrill.
- Gierut, J. (2001). Complexity in phonological treatment: Clinical factor. *Language, Speech, & Hearing Services in Schools, 32*, 229-241.
- Gierut, J. A. (2007). Phonological complexity and language learnability. *American Journal of Speech-Language Pathology, 16*, 6-17.
- Miccio, A. W., Elbert, M., et al. (1999). The relationship between stimulability and phonological acquisition in children with normally developing and disordered phonologies. *American Journal of Speech-Language Pathology, 8*, 347-363.
- Williams, A. L. (2005). From Developmental Norms to Distance Metrics: Past, Present and Future Directions for Target Selection Practices. In A. G. K. K. E. Pollock (Ed.), *Phonological Disorders in Children. Clinical Decision Making in Assessment and Intervention* (pp. 101-108). Baltimore: Paul H. Brookes Publishing Co.

Child Developmental Disability Case Study

ACKNOWLEDGEMENTS

This case study was formulated in collaboration with David Trembath, who is a published author in the disability field and currently a faculty member at the University of Sydney in the Discipline of Speech Pathology.

MODEL ANSWERS

QUESTION 1

This question was scored based on a multiple choice response and a clinical reasoning explanation. There were two acceptable word lists (Lists A and B) depending on the stated clinical reasoning. Word lists were made up of combinations of core vocabulary and fringe vocabulary, based on the core vocabulary literature (e.g. Trembath, Balandin & Togher, 2007). Core vocabulary is high frequency vocabulary which is commonly used across contexts, is flexible and aids in sentence development. Word List A consists entirely of **high frequency core vocabulary** making this the preferred choice according to the external evidence. Word List B has **some core vocabulary (less high frequency core vocabulary) and some fringe vocabulary**. This list was also acceptable. Word List C consisted entirely of **fringe vocabulary**. A key tenet in the field of disability is including the client and their family in the decision making process. Respondents were also expected to include their clinical judgment in their explanation.

QUESTION 2

Responses were scored for the presence or absence of each of the E³BP elements: external evidence, clinical judgment, and client preferences and values. A prototype 'model response' might include:

I would explain to my students that I chose List B in collaboration with the client and their family. I talked to them about core vocabulary being words that come up frequently in every day communication [*external evidence*]. Also, as this is a new communication board for the client, we agreed that it would be good to include some highly motivating fringe vocabulary [*client preference & clinical judgment*]. Working with similar clients in the past, I've found that they develop better language skills when core vocabulary is included on communication boards [*clinical judgment*].

Key References:

Banajee, M., Dicarlo, C., & Sticklin, S. B. (2003). Core vocabulary determination for toddlers. *Augmentative and Alternative Communication, 19* (2), 67-73.

Beukelman, D. R., Jones, R., & Rowan, M. (1989). Frequency of word usage by nondisabled peers in integrated preschool classrooms. *Augmentative and Alternative Communication, 5*(4), 243-248.

Fallon, K. A., Light, J. C., & Paige, T. K. (2001). Enhancing vocabulary selection for preschoolers who require augmentative and alternative communication (AAC). *American Journal of Speech -Language Pathology, 10* (1), 81-94.

- Fried-Oken, M., & More, L. (1992). An initial vocabulary for nonspeaking preschool children based on developmental and environmental language sources. *Augmentative and Alternative Communication, 8*(1), 41-56.
- Marvin, C. A. (1994). Cartalk! Conversational topics of preschool children en route home from preschool. *Language, Speech and Hearing Services in Schools, 25*, 146-155.
- Marvin, C. A., Beukelman, D. R., & Bilyeu, D. (1994a). Vocabulary-use patterns in preschool children: Effects of context and time sampling. *Augmentative and Alternative Communication, 10*(4), 224-236.
- Marvin, C. A., Beukelman, D. R., Brockhaus, J., & Kast, L. (1994b). "What are you talking about?": Semantic analysis of preschool children's conversational topics in home and preschool settings. *Augmentative and Alternative Communication, 10*(2), 75-86.
- Trembath, D., Balandin, D., & Togher, L. (2007). Vocabulary selection for Australian children who use augmentative and alternative communication. *Journal of Intellectual & Developmental Disability, 32*, 291-301.

Adult Swallowing Case Study Model Answers

ACKNOWLEDGEMENTS

This case study was formulated in collaboration with the 'NSW Speech Pathology EBP Network' Tracheostomy Group. In particular, we wish to thank Rachelle Robinson for her input. Rachelle is a specialist clinician in tracheostomy and an active member of the NSW Speech Pathology EBP Network. She also guest lectures about tracheostomy management at universities.

MODEL ANSWERS

QUESTION 1

There were several acceptable responses to this multiple choice question and respondents were not required to explicitly state their clinical reasoning. Of the five multiple choice responses, 'Physiological variables' was the only necessary response to score correctly. Respondents could also have a combination such as 'Physiological variables' and 'FEES' / 'MBS' / 'Cervical auscultation'. Responses including 'MEBDT' were scored incorrect, and responses which had only 'Cervical auscultation' were incorrect.

QUESTION 2

This question was scored based on a multiple choice response and a clinical reasoning explanation. The expected answer was that the Modified Evans Blue Dye Test (MEBDT) would not be used because evidence suggests using MEBDT is unreliable in detecting aspiration of the intended substance (i.e. saliva, food, fluid) and gives false positives (e.g. blue dye return on suctioning when testing for puree, but the patient is not aspirating puree, but saliva) and/or false negatives (e.g. the patient is aspirating, but MEBDT is not detecting it). Respondents were also expected to include in their explanation the other two aspects of E³BP i.e. their clinical experience (internal evidence) and the preferences and values of the patient and their family.

QUESTION 3

Responses were scored for the presence or absence of each of the E³BP elements: external evidence, clinical judgment, and client preferences and values. A prototype 'model response' might include:

I would explain to my students that I would not use the MEBDT because evidence suggests it is unreliable in detecting aspiration and can give false negatives or false positives [*external evidence*]. In my experience, MEBDT has been unreliable with tracheostomy patients [*clinical judgment*]. I would also discuss the assessment options with the patient and family, once the patient was no longer critically ill. [*patient preferences and values*].

A model response from a survey respondent:

"The current evidence base does not sufficiently support MEBDT - high false negative rate for aspiration, in particular. Further, I would not routinely trial oral diet/fluids in a short-term trache pt - as per the current evidence base, the risk of dysphagia and aspiration are increased with a trache in situ, due to sensory and structural changes to the oropharyngeal tract. In a pt requiring longer-term tracheostomy (no fixed time frame - dependent on the individual pt), with consideration of quality of life issues in the longer-term, oral trials under MBS conditions are considered. Note: this is considered once pt is stable, the need for longer-term trache is confirmed with treating team, the pt and family are educated and part of the decision making process once fully informed of pros and cons associated with oral trials."

Key References:

- Belafsky, P. C., Blumenfield, L., LePage, A., & Nahrstedt, K. (2003). The Accuracy of the Modified Evans Blue Dye Test in Predicting Aspiration. *Laryngoscope*, *113*, 1969-1972.
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Adult Rehabilitation Case Study Model Answers

ACKNOWLEDGEMENTS

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MODEL ANSWERS

QUESTION 1

Responses were scored for presence or absence of each of the E³BP elements: external evidence, clinical judgment, and client preferences and values. A prototype 'model response' might include:

The respondents chose one of two options and explained their choice with clinical reasoning. The expected response regarding treatment targets was working on **multiple speech behaviours** (as opposed to one speech behaviour). Working on multiple targets is a principle of motor learning (Ballard & Thompson, 1999; Knock, Ballard, Robin & Schmidt, 2000; Thompson, 2007). Respondents were also expected to include in their explanation the other two aspects of E³BP i.e. their clinical experience (internal evidence) and the preferences and values of the patient and their family.

A model response from a survey respondent:

"It's a little difficult to clearly ascertain current severity & therefore at what level to pitch treatment. Also TR's goals and current ability to communicate effectively in any way would influence my decision. However I might assume that TR has resolved somewhat and has already had some specific impairment based single phoneme Tx. Motor Learning theory is suggesting that we "mix it up" with target phonemes if the client can handle it".

QUESTION 2

Responses were scored for presence or absence of each of the E³BP elements: external evidence, clinical judgment, and client preferences and values. A prototype 'model response' might include:

I would explain to my students that I would target multiple speech behaviours because this is a key principle of motor learning, and there is evidence for this in Dyspraxia research, as well as in rehabilitation research outside of speech pathology [*external evidence*]. When working with patients, I've found that they have better overall generalisation which is important in terms of treatment success [*clinical judgment*]. I would discuss the options with the patient and their family because if the patient is not involved in the decision making process, then this may affect their treatment progress and whether they transfer their treatment gains beyond the clinical setting [*patient preferences and values*].

A model response from a survey respondent:

"Need to look at pt as a whole. need to look at what works for the individual patient - it may vary with the next patient. Need to incorporate evidenced based practice into clinical decision making also"

Key References:

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8.6 EBP Resources Report

EVIDENCE BASED PRACTICE RESOURCES

OVERVIEW

Evidence based practice (EBP) is recognised by the World Health Organisation as being an essential philosophy underlying clinical practice for all health professionals. From the fields of allied health (speech pathology included) to the field of nursing (Rutledge, 2005) or physical medicine and rehabilitation (Cicerone, 2005), decisions have to be based on actual evidence. Sackett and colleagues (1996) originally described evidence based medicine as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients... [by] integrating individual clinical expertise with the best available research” (p.71).

This definition has been refined over the years, and recently Dollaghan (2007) described EBP as the integration of 1) best available external evidence from systematic research, 2) best available evidence internal to clinical practice, and 3) best available evidence concerning the preference of a fully informed patient. This definition emphasises the importance of both external and internal evidence in clinical decision making as well as acknowledging the individual expertise of clinicians and the preferences of their clients. Vallino-Napoli and Reilly (2004) stated that the critical element of clinical decision making relies on the integration of these three factors.

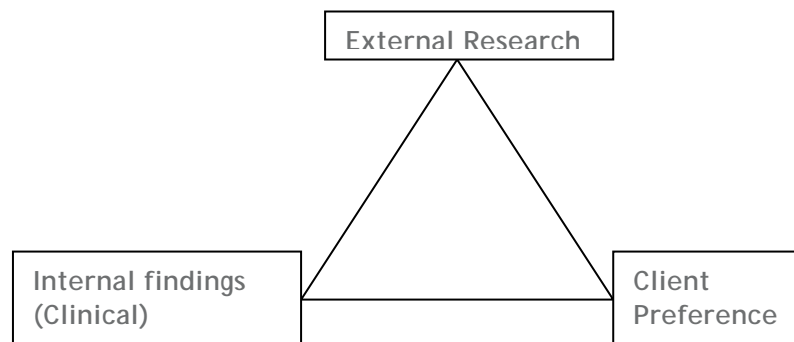


Figure: The triangle E³BP (Adapted from Dollaghan, 2007)

The concept of EBP has evoked both positive and negative emotions. Though it appears that speech pathologists are practicing EBP better than either physiotherapists or occupational therapists in Canada (Pain et al., 2004), there still exists a clear gap in available research evidence and current clinical practice.

One of the most discussed barriers of implementing EBP has been lack of resources and availability of research evidence at hand on which to base clinical decision making (Dodd, 2007; Reilly, 2004; Zipoli & Kennedy, 2005). Speech pathologists generally are positively disposed towards EBP, but lack of time, lack of access and knowing what is already available are considered critical elements in the implementation of EBP.

The following collection of currently available EBP resources is for clinicians, academic staff, clinical educators and students, to help them teach, learn and practice EBP.

Support for this report has been provided by the Australian Teaching and Learning Council (formerly The Carrick Institute for Learning and Teaching in Higher Education Ltd), an initiative of the Australian Government Department of Education, Employment and Workplace Relations.

The views expressed in this report do not necessarily reflect the views of the Australian Teaching and Learning Council.



WEBSITES		
The websites listed below provide either a collection of direct EBP related resources or provide links to other EBP related websites.		
WEBSITES	DESCRIPTION	LINK
The University of Sydney website	This website lists important EBP related definitions and resources. It also lists on-line journal and online EBP resources.	http://www.library.usyd.edu.au/subjects/medicine/links/ebp.html
The Joanna Briggs Institute (JBI) website	This website has a collection of EBP resources for medical and allied health professionals. JBI is an initiative of Royal Adelaide Hospital and the University of Adelaide.	http://www.joannabriggs.edu.au/about/about.php http://www.joannabriggs.edu.au/consumer/ci_intro_evidence_based.pdf
NSW Speech Pathology EBP Network	The Network was established in May 2002 for speech pathologists to share the task of evidence based practice in a collaborative forum.	http://www.ciap.health.nsw.gov.au/specialties/ebp_sp_path/ <i>For CATs and CAPs:</i> http://www.ciap.health.nsw.gov.au/specialties/ebp_sp_path/resources.html
Speech Pathology Resources	A list of selected resources available on the Internet and World Wide Web for speech pathology.	http://www.library.jcu.edu.au/subjectqds/Fac3/NetResources/speechpathology.shtml
EBP Resources	This website provides EBP related resources compiled by Royal Melbourne Hospital.	http://www.mh.org.au/royal_melbourne_hospital/scripts/printpage.asp?objectid=1001645&objecttypeid=16&portletid=1001217
Evidence Based Medicine	The Australasian Cochrane Centre website provides articles related to EBP.	http://www.nh.org.au/www/360/1001127/displayarticle/1001388.html
Evidence-Based Practice: Resources from ASHA	This technical report was produced by the American Speech-Language-Hearing Association in 2004 on evidence based practice in communication disorders.	http://www.asha.org/docs/html/SP2007-00283.html www.asha.org/policy
REFERENCE.COM	This site has links to different speech pathology websites which lists EBP resources.	http://www.reference.com/browse/wiki/Speech_and_language_pathology
STUTTER-ED	This website provides video-education in stuttering treatment.	http://www.stutter-ed.com

The Australian Centre for Evidence Based Clinical Practice (ACEBCP)	This is a resource centre for clinicians, researchers, health service managers and consumers with an interest in improving the quality and safety of health care through the application of best evidence.	http://www.acebcp.org.au/acebcp.htm
Definitions of EBP	This webpage provides definitions of EBP as well as their sources.	http://www.shef.ac.uk/scharr/ir/def.html
RTI International	RTI gathers and assesses the best available research about interventions and technologies to foster better decision making and improve patient care outcomes and quality of life. There are some speech pathology related topics (e.g. speech and language disorders that cause disability).	http://www.rti.org/page.cfm?nav=440
Google Scholar	This site lists articles on <u>evidence based practice and speech pathology</u> .	http://scholar.google.com/scholar?q=evidence+based+practice+speech+pathology&hl=en&um=1&ie=UTF-8&oi=scholar
Critical Appraisal of Topic (CAT)	This website lists CATs and links to related topics. Most of the CATs contained on these websites have not been formally peer reviewed.	http://www.otcats.com/links/cat_banks.html
“Links 2 Go 2” Key Resource	The purpose of this page is to provide links to where you can find information in the field of speech pathology.	http://www.herring.org/speech.html
CAROLINE BOWEN'S WEBSITE	Since 1998, this website has been providing speech pathology related information to consumers, professionals and students around the world.	http://speech-language-therapy.com/
Internet for Allied Health	This website provides tutorials in using the internet for allied EBP.	http://www.vts.intute.ac.uk/he/tutorial/allied
National Health and Medical Research Council (NHMRC)	NHMRC is Australia's peak body for supporting health and medical research and for developing health advice for the Australian community, health professionals and governments.	http://www.nhmrc.gov.au/index.htm <i>Report of EBP Workshop:</i> http://www.nhmrc.gov.au/publications/synopses/r14syn.htm
Evidence-Based Medicine Online British Medical Journal	This website surveys a wide range of international medical journals applying strict criteria for quality and validity of research. Practicing clinicians assess the	http://ebm.bmjournals.com

(BMJ)	clinical relevance of the best studies.	
Centre for Evidence Based Medicine	Based at Oxford University, UK, this site provides valuable tools and downloads for EBP in health care.	http://www.cebm.net
Centre for Reviews and Dissemination (CRD)	CRD undertakes reviews of research about the effects of interventions used in health and social care. The centre maintains various databases, provides an enquiry service and disseminates results of research to National Health Service (NHS) decision makers.	http://www.york.ac.uk/inst/crd/index.htm
Health Links – Techniques for Locating Evidence Based Practice Resources	This site provides a number of links to resources regarding EBP, including information regarding EBP terminology, overviews of systematic reviews, clinical guidelines and links to EBP tutorials.	http://healthlinks.washington.edu/howto/ebp
Agency for Healthcare Research and Quality (AHRQ)	AHRQ sponsors and conducts research that provides evidence-based information on healthcare outcomes, quality, cost, use, and access.	http://www.ahrq.gov
The Cochrane Collaboration	The Cochrane Collaboration provides up to date information and systematic reviews on the effects of interventions across the healthcare field.	http://www.cochrane.org
Clinical Information Access Program	This site provides information for allied health professionals on important clinical facts and research.	http://www.ciap.health.nsw.gov.au/
Wikipedia	This link connects to Wikipedia's EBP related information.	http://en.wikipedia.org/wiki/Evidence-based_medicine
Centre for Health Evidence	This is a user guide to EBP, originally published in the Journal of the American Medical Association.	http://www.cche.net/usersguides/main.asp
Linguisystems	This is a guide to Evidence-based practice.	http://www.linguisystems.com
Therapy scoop	An online, interactive community where professionals & parents can meet to share ideas, which has EBP resources links.	http://www.therapyscoop.com/
Public Library of Science (PLOS)	The aim of this organisation is to make scientific and medical literature freely	http://www.plos.org/

	available to public.	
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Links to Discipline Specific EBP Databases		
The following databases provide discipline specific EBP resources.		
WEBSITES	DESCRIPTION	LINK
speechBITE™	speechBITE™ is a new (May2008), internet based resource designed to assist speech pathologists in evidence based clinical decision making. It's rapidly growing database catalogues treatment studies across the entire range of communication and swallowing disorders.	http://www.speechbite.com
PsycBITE™	This database holds a large catalogue of studies on cognitive, behavioural and other treatments for psychological problems and issues occurring as a consequence of acquired brain impairment (ABI).	http://www.psycbite.com
ABIEBR	This is a joint project to develop an evidence-based review of the literature for rehabilitation or rehabilitation-related interventions for ABI.	http://www.abiebr.com/modules.html
PEDro	This database provides access to the bibliographic details and abstracts of randomised controlled trials, systematic reviews and evidence-based clinical practice guidelines in physiotherapy.	http://www.pedro.fhs.usyd.edu.au
OTseeker	This database contains abstracts of systematic reviews and randomised controlled trials relevant to occupational therapy.	http://www.otseeker.com

Library /Hospital links		
The following links to libraries or hospitals provide resources compiled by their institutions.		
James Cook University Library	A select list of resources available on the Internet and World Wide Web.	http://www.library.jcu.edu.au/suobjectgds/Fac3/NetResources/speechpathology.shtml <i>Related website:</i> http://fss.hs.uottawa.ca/EBCpg/english/main.htm
Royal Children's Hospital	This website lists publications including books, book chapters and journal articles that members of the speech pathology team at the Royal Children's Hospital have been involved with.	http://www.rch.org.au/speech/pubs/index.cfm?doc_id=10120
The Physicians' Information and Education Resource	This website focuses on research demonstrating the best (and worst) practices, helping member institutions benefit from one another's learning curves.	http://www.rph.health.wa.gov.au/library/evidence.aspx
Royal Melbourne Hospital	This list is compiled by the professionals of RMH.	http://www.mh.org.au/royal_melbourne_hospital/scripts/printpage.asp?objectid=1001645&objecttypeid=16&portletid=1001217
Intute	This website provides web based resources for education and research for speech pathology and other fields.	http://www.intute.ac.uk/healthandlifesciences/cgi-bin/browse.pl?gateway=nmap&id=103929
University of Ottawa resources	This library website has a collection of resources.	http://www.biblio.uottawa.ca/content-page.php?g=en&s=rqn&c=src-suj&spec=61
Lane Library	This website provides resources in particular areas (e.g. speech pathology).	http://www.library.armstrong.edu/subguidespeech.html
Speech Language Pathology Pathfinder	This website provides resources available in the Gumberg Library as well as additional links to other relevant websites.	http://www.library.duq.edu/pathfinders/slp/
Flinders University website	This is a user guide to valuable EBP resources to assist clinicians with critical appraisal of the information they receive.	http://www.lib.flinders.edu.au/resources/sub/medicine/ebm.html http://www.lib.flinders.edu.au/resou

		rces/sub/healthsci/azlist/evidence.html
University of Washington	This webpage lists EBP resources.	http://healthlinks.washington.edu/ebp
University of Western Australia guide	This guide is designed to introduce a selection of resources on evidence based practice which covers this relatively new approach for clinicians in the medical, dental and allied health arenas.	http://www.library.uwa.edu.au/education_training_and_support/guides/evidence-based_practice
Adelaide University Library page	This website provides notes which can be used in the Cochrane Library demonstration sessions. They contain background material, links and references on evidence based medicine, and the Cochrane Collaboration.	http://www.adelaide.edu.au/library/guide/med/pubhealth/ebm.html
McMaster University Library webpage	This website lists a number of EBP resources and provide links to them.	http://hsl.mcmaster.ca/resources/ebpractice.htm
Callier Library website	Lists journal articles pertaining to speech pathology and EBP.	http://callierlibrary.wordpress.com/tag/evidence-based-practice/

Topic-specific EBP Resources		
InteRACT	This website provides guidelines for intensive rehabilitation for people with aphasia and evidence for the intensity required for successful intervention	http://www.aphasiaaction.com/reflinks.php
Care and communication: The role of speech pathologists in palliative care	This website provides information for speech pathologists about multidisciplinary client care. It outlines current practice and the available evidence-base for speech pathology assessment and intervention procedures with palliative clients.	http://www.latrobe.edu.au/careandcommunication/index.htm
Australian Health Review on Autism.	The behavioural therapy for children with autism has been described in this website.	http://www.mja.com.au/public/issues/178_09_050503/cou10054_fm-1.html
Lists of articles on autism	This site has a collection of articles about autism.	http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=Link&LinkName=pubmed_pubmed&from_uid=12720505

Academy of Neurologic Communication Disorders and Sciences	This website lists EBP articles on <u>acquired apraxia of speech</u> , <u>aphasia</u> , <u>dementia</u> , <u>dysarthria</u> and traumatic brain injury.	http://www.ancds.org/practice.shtml#Acquired%20Apraxia%20of%20Speech
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PRESENTATIONS (PDF FORMAT)		
Evidence-based practice in speech pathology	“How to interpret the case for single cases” by Lyndsey Nickels	http://www.maccs.mq.edu.au/~lnickels/papers/Evidence%20based%20practice.ppt
EBP Tutorial: University of Minnesota	This tutorial is designed for students in healthcare fields, medical professionals, faculty, and others interested in evidence based practice.	http://www.biomed.lib.umn.edu/learn/ebp/
EBP Tutorial: University of Rochester, Miner Library	This tutorial describes the steps to build better information seeking skills for evidence-based clinical practice.	http://www.urmc.rochester.edu/HSLT/Miner/resources/evidence_based/
Supercourse: Online lecture	These “supercourses” were not specially created for speech pathology, but they may be useful to understand EBP concepts.	http://www.pitt.edu/~super1/lecture/lec10311/index.htm
Evidence Based Practice Tutorial for Nurses	This tutorial outlines a framework of EBP. Although this framework was developed for nurses, it could also be used in speech pathology.	http://www.libraries.psu.edu/instruction/ebpt/index.htm
Swallowing problems after acute stroke	This presentation describes “Why speech pathology assessment is important?” after acute stroke.	http://www.ircst.health.nsw.gov.au/_data/assets/pdf_file/0014/53411/Practical_Stroke_Strategies- Speech_Path- Dubbo_07.pdf
Evidenced-based Communication Assessment and Intervention CAT criteria	This is a table, which describes how to do Clinical Appraisal of Topics (CAT) and Critical Appraisal of Papers (CAP).	http://www.tandf.co.uk/journals/authors/tebc_cat_criteria.pdf
The Joanna Briggs Institute website	This website has PDF documents among other resources on EBP.	http://www.joannabriggs.edu.au/consumer/ci_intro_evidence_based.pdf

National Institute of Clinical Studies (NICS) Presentation	Prof. Jeremy Grimshaw (Canada Research Chair in Health Knowledge, Transfer and Uptake) visited Australia in May 2008. His presentation was entitled, "Towards a better understanding of professional behaviour change."	www.nhmrc.gov.au/nics/asp/download.asp?media=/nics/data/portals/00000005/content/80404001208230452486.pdf
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A Selection of General Articles concerning EBP in Health Fields

Armstrong, E. (Ed.). Evidence Based Practice [Special issue]. *Advances in Speech-Language Pathology*, 6(2).

Beecham, R. (2004). Power and practice: a critique of evidence-based practice for the profession of speech-language pathology. *Advances in Speech-Language Pathology*, 6(2), 131-133.

Dodd, B. (2007). Evidence-based practice and speech-language pathology: strengths, weaknesses, opportunities & threats. *Folia Phoniatrica et Logopaedica*, 59(3), 118-129.

Dollaghan, C. (2004). Evidence-based practice in communication disorders: what do we know, and when do we know it? *Journal of Communication Disorders*, 37, 391-400.

Dollaghan, C. (2004). Evidence-based practice: myths and realities. *The ASHA Leader*, 12, 4-5.

Elman, R. J. (2006). Evidence-based practice: what evidence is missing? *Aphasiology*, 20(2/3/4), 103-109.

Enderby, P. (2004). Making speech pathology practice evidence-based: is this enough? Commentary on Reilly. *Advances in Speech-Language Pathology*, 6(2), 125-126.

Finn, P., Bothe, A. K., & Bramlett, R. E. (2005). Science and pseudoscience in communication disorders: criteria and applications. *American Journal of Speech-Language Pathology*, 14(3), 172-186.

Frattali, C. (2004). Developing evidence-based practice guidelines. *The ASHA Leader*, 13-14.

Goldstein, B. (Ed.). (2006). Language, Speech & Hearing Services in the Schools [Special issue], *Language, Speech & Hearing Services in the Schools*, 37(4).

Gosling, S. A. & Westbrook, J. I. (2004). Allied health professionals' use of online evidence: a survey of 790 staff working in the Australian public hospital system. *International Journal of Medical Informatics*, 73, 391-401.

Kazdin, A.E. & Whitley, M.K. (2006). Comorbidity, Case Complexity, and Effects of Evidence-Based Treatment for Children Referred for Disruptive Behavior. *Journal of Consulting and Clinical Psychology*, 74 (3): 455 – 467.

- Kent, R. D. (2006). Evidence-based practice in communication disorders: progress not perfection. *Language, Speech & Hearing Services in the Schools*, 37(4), 268-270.
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- McCluskey, A. (2003). Occupational therapists report a low level of knowledge, skill and involvement in evidence-based practice. *Australian Occupational Therapy Journal*, 50(1), 3-12.
- Meline, T., & Paradiso, T. (2003). Evidence-based practice in schools: evaluating research and reducing barriers. *Language, Speech & Hearing Services in the Schools*, 34(4), 273-283.
- Nail-Chiwetalu, B. J., & Ratner, N. B. (2006). Information literacy for speech-language pathologists: a key to evidence-based practice. *Language, Speech & Hearing Services in the Schools*, 37(3), 157-167.
- Olson, E. A. (1996). Evidence-based practice: A new approach to teaching the integration of research and practice in gerontology. *Educational Gerontology*, 22(6), 273-283.
- Pain, K., Magill-Evans, J., Darrah, J., Hagler, P., & Warren, S. (2004). Effects of profession and facility type on research utilization by rehabilitation professionals. *Journal of Allied Health*, 33(1), 3-9.
- Parkes, J., Hyde, C., Deeks, J., & Milne, R. (2001). Teaching critical appraisal skills in health care settings. *Cochrane Database of Systematic Reviews*, 3, 1-15.
- Pennington, L., Roddam, H., Burton, C., Russell, I., Godfrey, C., & Russell, D. (2005). Promoting research use in speech and language therapy: a cluster randomized controlled trial to compare the clinical effectiveness and costs of two training strategies. *Clinical Rehabilitation*, 19, 387-397.
- Ratner, N. B. (2006). Evidence-based Practice: an examination of its ramifications for the practice of speech-language pathology. *Language, Speech & Hearing Services in the Schools*, 37(4), 257-267.
- Reilly, S. (2004). The challenge in making speech-pathology practice evidence-based. *Advances in Speech-Language Pathology*, 6(2), 113-124.
- Reilly, S. (2004). Making speech pathology practice evidence-based: a response to Beecham, Elliot, Enderby, Logemann and Vallino-Napoli. *Advances in Speech-Language Pathology*, 6(2), 138-140.
- Singh, N. N., & Oswald, D. P. (2004). Evidence-based Practice. Part 1: General methodology. *Journal of Child & Family Studies*, 13(2), 129-142.

Tonelli, M. R. (2006). Integrating evidence into clinical practice: an alternative to evidence-based approaches. *Journal of Evaluation in Clinical Practice*, 12(3), 248-256.

Vallini-Napoli, L. D. & Reilly, S. (2004). Evidence-based health care: a survey of speech pathology practice. *Advances in Speech-Language Pathology*, 6(2), 107-112.

Wolfe, J. (1999). Overcoming barriers to evidence-based practice: lessons from medical practitioners. *Clinical Psychology-Science & Practice*, 6(4), 445-448.

Zeitz, K., & McCutcheon, H. (2003). Evidence-based practice: To be or not to be, this is the question! *International Journal of Nursing Practice*, 9(5), 272-279.

Zipoli, R. P Jr., Kennedy, M (2005). Evidence-Based Practice Among Speech-Language Pathologists :Attitudes, Utilization, and Barriers. *American Journal of Speech-Language Pathology*. 14(3) 208-220.

A Selection of EBP text books in health and communication disorders

1. Bury, T. & Mead J. (1998). *Evidence-based health care: a practice guide for therapists*. Oxford: Butterworth-Heinemann.
2. Dollaghan, C. A. (2007). *The Handbook for Evidence-Based Practice in Communication Disorders*. Baltimore: Paul H. Brookes Publishing Co.
3. Johnson, A.F. & Jacobson, B. H. (2007). *Medical Speech-language Pathology: A Practitioner's Guide*. (2nd ed.). NewYork: Thieme Medical Publishers.
4. Haynes, W. O., & Pindzola, R. H. (2007). *Diagnosis and Evaluation in Speech Pathology*(7th Ed.). Engelwood Cliffs, N.J.: Prentice Hall.
5. Kent, R. D. (2004) (Ed.). *The MIT Encyclopedia of Communication Disorders*. Cambridge, Massachusetts: MIT Press.
6. Law, M. & MacDermid, J. (2002) (Eds.) *Evidence-based rehabilitation: a guide to practice*. (2nd ed). Thorofare, NJ: Slack Incorporated.
7. Reilly, S., Douglas, J., & Oates, J. (2004) (Eds.). *Evidence Based Practice in Speech Pathology*. London: Whurr Publishers.
8. Whalley Hammell, K. & Carpenter, C. (Eds.) (2004). *Qualitative research in evidence-based rehabilitation*. Edinburgh : Churchill Livingstone.

Clinical Reasoning Using EBP Process Resources

EBP briefs

Evidence-based Practice (EBP) Briefs is a tool for everyday clinical decision-making. This tool combines electronic, print and peer-reviewed journals. These briefs are written resources for teaching clinical reasoning using EBP 6-step process.

<http://www.speechandlanguage.com/ebp/>

8.7 Project description document

Evidence Based Practice in Speech Pathology Curricula: A Scoping Study

Description

Purpose: To establish a process of evaluating how evidence based practice (EBP) principles are taught in Speech Pathology (SP) programs nationally.

There is little information to date regarding how EBP is incorporated within academic curricula and in clinical education in Speech Pathology.

Objectives & Benefits

- Identify strengths within SP programs
- Identify gaps & challenges of incorporating EBP into academic curricula and clinical education
- Explore how EBP is incorporated into clinical decision making
- Establish the availability of existing EBP resources

*This will enable the development of **core teaching & learning outcomes** for EBP education to be incorporated into SP curricula nationally*

Deliverables

- Report of strengths, gaps & challenges in incorporating EBP into academic curricula and clinical education
- Report on current national EBP teaching practices in SP
- Report on current EBP resources
- Core teaching & learning outcomes for EBP education in Australia & clear directions for the future
- Conference presentations

Key Stakeholders

- University of Sydney, NSW
- University of Queensland, QLD
- La Trobe University, VIC
- University of Newcastle, NSW
- Macquarie University, NSW
- Speech Pathology Australia
- Charles Sturt University, NSW
- Flinders University, SA
- James Cook University, QLD

Strategy

This is a *scoping study* where academic staff and clinical educators (university and field) will be asked to complete *online surveys*. These surveys will focus on *the integration of EBP into academic curricula & clinical education, attitudes to EBP, knowledge of & access to EBP resources & EBP in clinical decision making*. Survey information (de-identified) will be analysed and provided to participating universities.

Resources

- Australian Learning & Teaching Council (funding)
- ALTC Exchange (IT support)
- Speech Pathology Australia & EBP Network
- University of Sydney (infrastructure)

Limitations

- An *outline* for core teaching & learning in EBP will be produced, but investigators will not generate a whole EBP curriculum
- A report outlining *existing EBP resources* will be produced, but new EBP teaching materials will not be developed

Critical Success Factors

- Active participation by participating universities & their affiliates
 - ◆ Survey 1: Integration of EBP into academic curricula & clinical education
 - ◆ Survey 2: EBP & clinical decision making

Risks

- Low online survey participation rate
- Reduced timeliness of responses to project requests

Key Performance Indicators (KPIs)

- Clear understanding of current EBP teaching practices in SP in Australia
 - ◆ Current strengths & gaps
 - ◆ Challenges of integrating EBP into SP programs
- Clear understanding of current EBP resources
- Recommendations of core teaching & learning outcomes for EBP education in Australia
- Clear future directions for further integration of EBP into SP curricula:
 - ◆ What learning modules need to be developed?
 - ◆ What EBP resources need to be developed?

8.8 Workshop schedule

ALTC EBP Workshop

22nd & 23rd July 2008

Broad purposes of workshop

1. Discuss project findings
 - Discuss data analyses of online surveys
 - Survey 1: Integration of EBP into academic curricula & clinical education & knowledge & access to EBP resources
 - Survey 2: EBP & clinical decision making (case studies)
2. Discuss reports (deliverables)
 - Strengths, gaps & challenges in incorporating EBP into academic curricula and clinical education
 - Current national EBP teaching practices in SP
 - Current EBP resources
3. Develop national plan for curriculum development for EBP education in Australia
 - Core teaching & learning outcomes
 - Academic subjects
 - Clinical practica
4. Identify clear future directions:
 - Follow-up project
 - Develop EBP teaching resources, draft learning modules etc
5. Evaluate current project

Attendees:

The University of Sydney: Leanne Togher, Michelle Lincoln, Trish McCabe, Emma Power, Corina Yiannoukas & Pratiti Ghosh

Macquarie University: Lis Harrison

The University of Newcastle: Alison Ferguson

The University of Queensland: Liz Ward, Linda Worrall

Venue: Darlington Centre, The University of Sydney, Camperdown, Sydney

Workshop Program

DAY 1: Tuesday 22nd July 2008 – 8.30am to 5.30pm

Introduction & overview of workshop (8.30am – 9.45am)

- Short overview from Leanne – Project Leader (PPT presentation)
- Definitions of 'EBP' and 'curriculum'

MORNING TEA (9.45am – 10.15am)

Project findings – presentation & whole group discussion about surveys & project

- Survey 1: 'Integration of EBP into academic curricula & clinical education' – PPT presentation by Corina – Project Manager (10.15am to 10.30am)
 - Detailed data analysis – individual activity (30 minutes) (10.30am to 11am)
- Survey 2: 'EBP & clinical decision making: Case studies' – PPT presentation by Corina – Project Manager (11am to 11.15am)
 - Detailed data analysis – individual activity (30 minutes) (11.15 – 11.45am)
- Group Discussion: (11.45am to 1pm)
 - Themes in data
 - Previously raised points about the survey data
 - Critical project issues

LUNCH (1pm to 2pm)

Reports (deliverables) & EBP Teaching – presentation, 'show & tell', small group workshopping & group discussion

- 'Show & tell' – Your EBP teaching resources (2pm to 3pm)
Each member of Project Team to present one of their teaching resources;
8 X 5 minutes presentations followed by group discussion
- Current EBP resources report – PPT presentation by Corina – Project Manager (3pm to 3.10pm)

AFTERNOON TEA (3.10pm to 3.30pm)

Reports (deliverables) continued – presentation, small group workshopping & group discussion

- Strengths, gaps & challenges in incorporating EBP into academic curricula and clinical education – Corina (PPT presentation) (3.30pm – 3.45pm)
 - Small groups discussions 1) Strengths, 2) Gaps & 3) Challenges/barriers? (3.45 – 4pm)
 - Group discussion (4pm to 4.25pm)
- Student Perspective: 'Put yourself in their shoes' activity (4.25pm to 5.25pm)

Tomorrow's schedule (5.25pm to 5.30pm)

- Overview
- Suggested amendments?

DAY 2: Wednesday 23rd July 2008 – 8.30am to 5pm

Develop national plan for curriculum development for EBP education in Australia

- Core teaching & learning outcomes; in two steps: (8.30am to 10am)
 1. Small groups: define T & L outcomes
 2. Whole group: develop the overall plan plus some specific parts of an actual EBP curriculum!
 - Best guess at 'ideal EBP curriculum' or EBP curriculum 'in a perfect world'
 - If you were developing a new Australian EBP curriculum, what should it include? (essentials, priorities, considerations)
 - What would a new curriculum achieve in short term learning outcomes? ('knowledge', 'skills' and 'attitudes')
 - USYD EBP Working Party - EBP Curriculum presentation 5 – 10 mins (Tricia)

MORNING TEA (10am to 10.20am)

National plan continued (10.20am to 1pm)

- Group discussion
 - What can we work with existing curricula?
 - Academic
 - Clinical – COMPASS™ (introduction by Michelle)
 - What additional processes will need to be generated?
 - What resources are required?
 - Generic curriculum development
- Individual activity
 - Priorities - boxes and arrows worksheet

LUNCH (1pm to 2pm)

Identify clear future directions: Small groups followed by whole group (2pm to 3.30pm)

- Follow-up project participation – submit for funding in first round of 2009
- Priorities for new EBP curriculum and resources e.g. Develop EBP teaching resources, further develop speechBITE™, draft learning modules etc
- Review what people want, what exists and what the literature says works!

AFTERNOON TEA (3.30pm to 3.50pm)

- Wrap up – (3.50pm to 5pm)
 - Final group discussion
 - Evaluation of workshop and project as a whole – written and verbal

8.9 Evaluation of workshop

PROJECT TEAM FEEDBACK: ALTC EBP Project

WORKSHOP (22nd & 23rd July 2008)

1. In your opinion, have we achieved our four broad workshop outcomes?

(Please circle your responses)

- | | | |
|----------------------------------------------------------|-----|----|
| a. Discussing project findings (data analyses) | Yes | No |
| b. Discussing reports (deliverables) | Yes | No |
| c. Developing a national plan for curriculum development | Yes | No |
| d. Identifying clear future directions | Yes | No |

Comments: _____

2. Has this workshop met your expectations in terms of the following:

- | | | |
|----------------------------------------------|-----|----|
| a. Content | Yes | No |
| b. Sharing of ideas | Yes | No |
| c. Personal input (expressing your opinions) | Yes | No |

Comments: _____

STAKEHOLDER CONSULTATION

1. Are the fortnightly project email updates appropriate in terms of:

- | | | |
|-------------------------|-----|----|
| a. Content | Yes | No |
| b. Format | Yes | No |
| c. Frequency | Yes | No |
| d. Other Specify: _____ | Yes | No |

Comments: _____

2. I feel that 'lead time' for the following project tasks was appropriate:

- | | | |
|-------------------------------------------------------|-----|----|
| a. Creating Survey 1 | Yes | No |
| b. Recruitment for Survey 1 & Survey 2 (case studies) | Yes | No |
| c. Feedback on Survey 1 data | Yes | No |
| d. Feedback on Survey 2 data (case studies) | Yes | No |

Comments: _____

3. The workshop presentations and discussions will form the basis of our reports (project deliverables).
Do you have further comments regarding the presentations or our discussions?

4. I intend to share information from this workshop with other colleagues:

Strongly Disagree Disagree Neutral Agree Strongly Agree

5. I will recommend actions arising from this workshop and/or further discussion of issues identified to appropriate groups/colleagues in my discipline:

Strongly Disagree Disagree Neutral Agree Strongly Agree

Thank you for your feedback!

Name: (Optional) _____

8.10 National Evidence Based Practice Teaching and Learning Report and Key Recommendations



National Evidence Based Practice Teaching & Learning Report & Key Recommendations for Australian Speech Pathology Programs

Support for this project has been provided by the Australian Learning and Teaching Council, an initiative of the Australian Government Department of Education, Employment and Workplace Relations. The views expressed in this report do not necessarily reflect the views of the Australian Learning and Teaching Council Ltd.



Background

In 2008, two online surveys were conducted to investigate how evidence based practice (EBP) principles are taught in Australian Speech Pathology programs in academic and clinical settings. The aim of the first survey was to identify strengths within Speech Pathology programs, as well as identifying gaps and challenges of incorporating EBP into academic curricula and clinical education. The aim of the second survey was to explore how evidence based practice is incorporated into clinical decision making in clinical education placements. The surveys were part of a Discipline Based Initiative Grant from the Australian Learning and Teaching Council (ALTC), formerly the Carrick Institute, and were conducted by Associate Professor Leanne Togher (NHMRC Senior Research Fellow) in collaboration with a national team of Speech Pathology researchers.

Aims

The aims of this report are threefold: firstly, to provide a summary of national teaching practices in Australian Speech Pathology programs in relation to EBP; secondly, to outline the strengths, gaps and challenges of incorporating EBP into Speech Pathology curricula; and finally, to outline the potential implications of survey findings and propose key future recommendations. The information in this report has been collected via online surveys, discussions with university programs and a short written questionnaire for Project Team members and key stakeholders.

Online Survey Participants

Academic staff, program coordinators and on-campus clinical educators from the following institutions participated: The University of Sydney, The University of Queensland, The University of Newcastle, Macquarie University, Charles Sturt University, James Cook University, Flinders University and La Trobe University. Off-campus clinical educators affiliated with these institutions also participated. There were 131 participants in total for Survey 1. On-campus and off-campus clinical educators were invited to take part in Survey 2 and a total of 85 completed the survey.

Project Team & Key Stakeholders

The Project Team was comprised of a group of Speech Pathology academic staff from the following five Australian universities: The University of Sydney, The University of Queensland, The University of Newcastle, Macquarie University and La Trobe University. Most of the Project Team also have clinical education experience. A further three Australian universities were key stakeholders in the project. These universities were Charles Sturt University, James Cook University and Flinders University. Finally, our national professional body, Speech Pathology Australia, was also a key stakeholder.

Survey Participation

Nine universities in Australia have Speech Pathology programs, and eight of these universities participated in our surveys.

Overview Questionnaire Participation

All participating universities were invited to complete a short overview questionnaire in relation to EBP in their programs. These questionnaires were completed by appropriate staff, such as Program Coordinators. Four from seven (57%) Australian undergraduate programs responded, and 3 out of 5 (60%) graduate entry masters programs responded.

Summary of Results

Executive Summary

Australian Speech Pathology programs clearly recognise the importance of EBP in their academic and clinical curricula. However to date there is a lack of national integration of EBP into curriculum development and professional competency based standards documents. Preliminary data analyses from Survey 1 reveal the following overall perceived strengths: academic staff and clinical educators are enthusiastic and positive about EBP, and most have had EBP training and have access to EBP resources. EBP is assessed and considered in academic curriculum development, and educators use a variety of processes to teach EBP. However, the surveys identified gaps which offer challenges to clinical educators, both on and off campus. One issue was that students were perceived as being more competent at including the EBP process in academic assignments, compared to when making real clinical decisions. Clinical educators reported difficulty teaching EBP when there is a paucity of external evidence and also that students had a limited depth of study of research methods. It was also clear that there were differing perceptions of communication processes and the degree of perceived collaboration between academic staff and clinical educators. Results from Survey 2 validated the findings of Survey 1 showing a dissonance between knowledge and action in clinical educators' clinical teaching. Finally, a series of challenges have arisen from this study including: overcoming the perceived gaps in EBP; developing resources and EBP integration across settings/contexts. This scoping study will lead to future work to develop EBP resources and reform curricula across Australia to enable the ready incorporation of EBP into clinical and academic teaching programs.

Section 1. National Teaching Practices

This section has a summary of current national teaching practices in Australian Speech Pathology programs in relation to evidence based practice. There are a total of thirteen Speech Pathology undergraduate and graduate entry masters programs; twelve participated in our surveys. Please note that this section of the report comes from two sources:

- i) Survey 1 (Points 1 to 10), and
- ii) A short overview questionnaire completed by Project Team members and contacts at Participating Universities (Points 11 to 13).

1. Teaching undergraduate & graduate entry masters students

Survey respondents taught the following students:

- Undergraduate: 35%
- Graduate Entry Masters (GEMS): 9%
- Both undergraduate & GEMS students: 56%

2. The structure of evidence based practice teaching in academic curricula

According to academic staff and program coordinators (N = 40), EBP teaching is structured in academic curricula in the following manner:

- Integrated into subjects in curriculum: 60%
- Both integrated into subjects & in stand-alone EBP subjects: 40%

3. Student assessment of EBP concepts

Survey respondents were asked whether students were assessed in EBP concepts. Academic staff were consistently positive in their responses. On-campus and off-campus clinical educators were less positive when compared to academic staff who were asked the same question. Participants' responses are outlined in Table 1.

Table1. Student assessment of EBP

Academic Staff (N =)	Section & Statement or Question	Response	Clinical Educators (N =)	Section & Statement or Question	Response
40	Section B, 'Students', Q7 ¹	Agree = 72.5% Disagree = 12.5%	91	Section B, 'Students', Q7	Agree = 37.4% Disagree = 24.2%
34	Section B, 'Program', Q4, Undergraduates ²	Agree = 64.7% Disagree = 5.9%	69 (Off-campus)	Section B, 'Students', Q7	Agree = 36.2% Disagree = 30.4%
28	Section B, 'Program', Q4, GEMS ³	Agree = 75% Disagree = 3.6%	22 (On-campus)	Section B, 'Students', Q7	Agree = 40.9% Disagree = 4.5%
40	Section C, Student Assessment includes EBP ⁴	Yes = 82.5% No = 17.5%			

¹Statement: 'Students are assessed regarding their knowledge of EBP'

²Statement: 'Academic staff and clinical educators use formative and summative assessments to determine student learning of EBP concepts'

³As above

⁴Question: 'Is student assessment involving EBP included in the subject/s that you teach?'

4. Teaching & learning processes

All of the participants were asked if they used EBP resources and strategies to facilitate teaching and learning. Participants were strongly positive in their responses.

Most academic staff and program coordinators (95%) used teaching and learning processes to facilitate EBP teaching. The most frequently used methods were:

- Tutorials/lectures (80%)
- Assignments (80%)
- Subject outlines (70%)

Similarly, most clinical educators (90%) used EBP teaching and learning processes. The following were the most frequently used methods:

- EBP with a particular client (81%)
- Journal articles (64%)
- EBP in written plans (57%)

5. Developing and reviewing academic and clinical curricula

When asked about developing and reviewing curricula, academic staff and program coordinators felt strongly positive that they had input into which subjects were appropriate for teaching EBP concepts, with 85% who 'agreed' or 'strongly agreed' with this statement.

When clinical educators were asked about their input into which clinical practica were suitable for teaching EBP concepts, 35% of clinical educators teaching undergraduate students and 31% teaching GEMS students 'agreed' or 'strongly agreed'.

6. EBP training and access to resources

Most respondents felt they were trained in the EBP process and had access to appropriate EBP resources. Participants' responses are described Tables 2 and 3. These responses are presented in terms of the following participant types: Academic staff (including Program Coordinators), Clinical Educators, On-campus Clinical Educators and Off-campus Clinical Educators.

Table2. EBP Training

Section & Statement or Question	Academic Staff (N =)	Response	Clinical Educators (CEs)	Response	On-campus CEs	Response	Off-campus CEs	Response
Section B, 'Staff Preparation', Q1 ¹	40	Agree = 90% Neutral = 10% Disagree = 0%	91	Agree = 76.9% Neutral = 8.8% Disagree = 14.3%	22	Agree = 50% Neutral = 18.2% Disagree = 31.8%	69	Agree = 85.5% Neutral = 5.8% Disagree = 8.7%
Section B, 'Staff Preparation', Q3 ²	40	Agree = 72.5% Disagree = 25%	91	Agree = 67% Disagree = 23.1%	22	Agree = 59.1% Disagree = 31.8%	69	Agree = 69.6% Disagree = 20.3%
Section C, Q1 ³	40	Yes = 70% No = 30%	91	Yes = 79.1% No = 20.9%	22	Yes = 54.5% No = 45.5%	69	Yes = 87% No = 13%

¹ Statement: 'I have access and training in the EBP process'.

² Statement: 'I have attended training in the use of the electronic tools necessary for finding appropriate research'.

³ Question: 'Have you received training in EBP?'

Table3. Access to EBP resources

Section & Statement or Question	Academic Staff (N =)	Response	Clinical Educators (CEs)	Response	On-campus CEs	Response	Off-campus CEs	Response
Section B, 'Staff Preparation', Q2 ¹	40	Agree = 97.5% Neutral = 2.5% Disagree = 0%	91	Agree = 76.9% Neutral = 6.6% Disagree = 16.5%	22	Agree = 90.9% Neutral = 9.1% Disagree = 0%	69	Agree = 72.5% Neutral = 5.8% Disagree = 21.7%

¹ Statement: 'I have access to the electronic tools necessary for efficiently finding appropriate research'

7. Training students in the EBP process and the use of EBP tools

Most academic staff, program-coordinators and clinical educators (on-campus and off-campus) (70%) agreed that students were trained in the EBP process. Most respondents (66.4%) were similarly positive that students were trained in the electronic tools for searching the literature.

8. EBP documentation and experiences in clinical settings

Most on-campus and off-campus clinical educators agreed that students experience EBP in their clinical placements (89%). While 80% of clinical educators required students to include EBP in their clinical documentation, only 59% reported that their students included EBP explicitly in assessment and treatment rationale plans.

9. Educators' expectations of students' use of EBP resources

Academic staff, program coordinators and clinical educators expected students to access a range of EBP resources, including:

- Scientific journals
- Databases
- Websites (particularly in relation to specific areas of practice)
- Textbooks

10. Critical evaluation of one or several related journal articles

Academic staff and program coordinators were asked if students undertook assignments which involved critiquing one article or a short body of related articles. Most respondents felt positive about these statements, with 82.5% agreeing in relation to one journal article and 67.5% agreeing in relation to five related journal articles.

11. Introduction of EBP into Speech Pathology programs

Undergraduate and graduate entry masters Speech Pathology programs consistently introduced EBP in the first year of their programs.

12. Teaching Specific EBP concepts versus teaching the application of the EBP process

Australian Speech Pathology programs stated different amounts of time for teaching their students specific EBP concepts and the application of the EBP process. However, they consistently dedicated relatively more time to the application of the EBP process than teaching specific EBP concepts. It must be noted that all programs who responded had some difficulty in answering this question.

13. EBP specific courses

All Australian Speech Pathology undergraduate and graduate entry masters programs had one to three specific EBP courses in their program. They also embedded EBP into most of their other courses.

Limitations

The results of this study are based on the reports of academic staff, program coordinators and clinical educators thus student perspectives were not elicited. In addition the items in Survey 1 asked participants to provide their perception of aspects of EBP teaching and learning, however no behavioural measures were taken given the scoping nature of this study. It should also be noted that the results of these surveys are preliminary in nature given that the assessment tools have not yet been validated. Nonetheless, the data in Survey 2 had established inter-rater reliability and there appeared to be consistency across similar items in Survey 1.

Section 2. Strengths, gaps and challenges of incorporating evidence based practice into Australian Speech Pathology programs

The following results are from the national data sets from Survey 1 and Survey 2. Information about individual programs was provided to participating universities.

Strengths

Respondents were positive about many aspects of EBP teaching and learning in academic subjects and clinical practica.

1. Survey 1 participants were presented with seven attitudinal statements regarding EBP which originated in published research about Canadian physical therapists (Salbach, Jaglal, Korner-Bitensky, Rappolt, & Davis, 2007). Both university staff (academic staff, program coordinators and on-campus clinical educators) and non-university staff (off-campus clinical educators) were mostly enthusiastic and positive in their attitude to evidence based practice. Their responses were more positive than the attitudes of Canadian physical therapists, and statistically significantly more positive for five out of seven (71%) statements.
2. Most respondents were trained in the EBP process. Overall, more academic staff and program co-ordinators reported that they had received training, compared to clinical educators. On-campus clinical educators reported the least EBP training of all survey respondent types. Please refer to Table 2 in Section 1 for details about EBP training.
3. Most respondents had access to EBP resources. More university staff (academics, program co-ordinators and on-campus clinical educators) reported having access to EBP resources than non-university staff (off-campus clinical educators). Please refer to Table 3 in Section 1 for details about access to EBP resources.
4. Academics and program coordinators were positive that they have input into the curriculum development process regarding which subjects are appropriate for teaching EBP concepts.
5. Most respondents used a variety of teaching and learning resources to facilitate EBP teaching. Academic staff and program coordinators most frequently used tutorials/lectures, assignments and subject outlines, while clinical educators mostly used EBP with a particular client and journal articles.
6. Respondents felt positively that students were assessed regarding EBP in academic subjects. Please refer to Table 1 in Section 1 for further details.

Gaps

Some gaps in EBP teaching and learning were highlighted in the survey data. They related to students' understanding and application of EBP, understanding of research methodologies, and communication and collaboration between academic staff and clinical educators.

1. While students experience the implementation of EBP in their clinical placements, only 59% of students were reported to include specific rationales based on EBP in their assessment and treatment plans. Furthermore, few clinical educators agreed that students commented on the quality of the literature cited in their rationales.
2. Academic staff and program coordinators were more positive that they were involved in generating research evidence with students about the efficacy of clinical approaches (63% agreed), but clinical educators did not feel similarly positive that they generated evidence with students (23% agreed).
3. The perceptions of academic staff and clinical educators differed in relation to awareness of each other's subjects/practica, communication and collaboration. These differences perhaps indicate a general overarching issue in Speech Pathology education, not necessarily an EBP issue. This may indeed require further exploration and discussion at a national level, as it has the potential to become a barrier in implementing EBP solutions.
4. Foundational research methods are not considered an area of strength in Speech Pathology programs with 48.7% of respondents teaching undergraduates and 53.5% teaching GEMS students feeling that there is not an adequate depth of study of research methods in academic and clinical curricula.
5. Qualitative data from Survey 1 suggested that clinical educators experience difficulties in applying the EBP process due to: 1) difficulty translating the research into practice; 2) limitations in strong evidence; 3) a paucity of evidence; and 4) difficulty applying EBP to complex clinical cases. For example, when asked about feelings toward EBP, one clinical educator commented: *'I strongly agree that we need EBP as a part of daily clinical practice but often find that evidence (journal articles) are lacking/non-existent or those that have been done are 'theory' related and have minimal practical application.'*
6. The results from the Survey 2 case studies indicate that the clinical decision making discourse between clinical educators and students does not explicitly and consistently include E³BP (Dollaghan, 2007) i.e. consideration of 1) external evidence; 2) clinical judgment and; 3) client preferences and values. An overall observation of the four case studies indicates an over-emphasis on clinical judgment or internal evidence. Please refer to Table 4 in this report for further details.

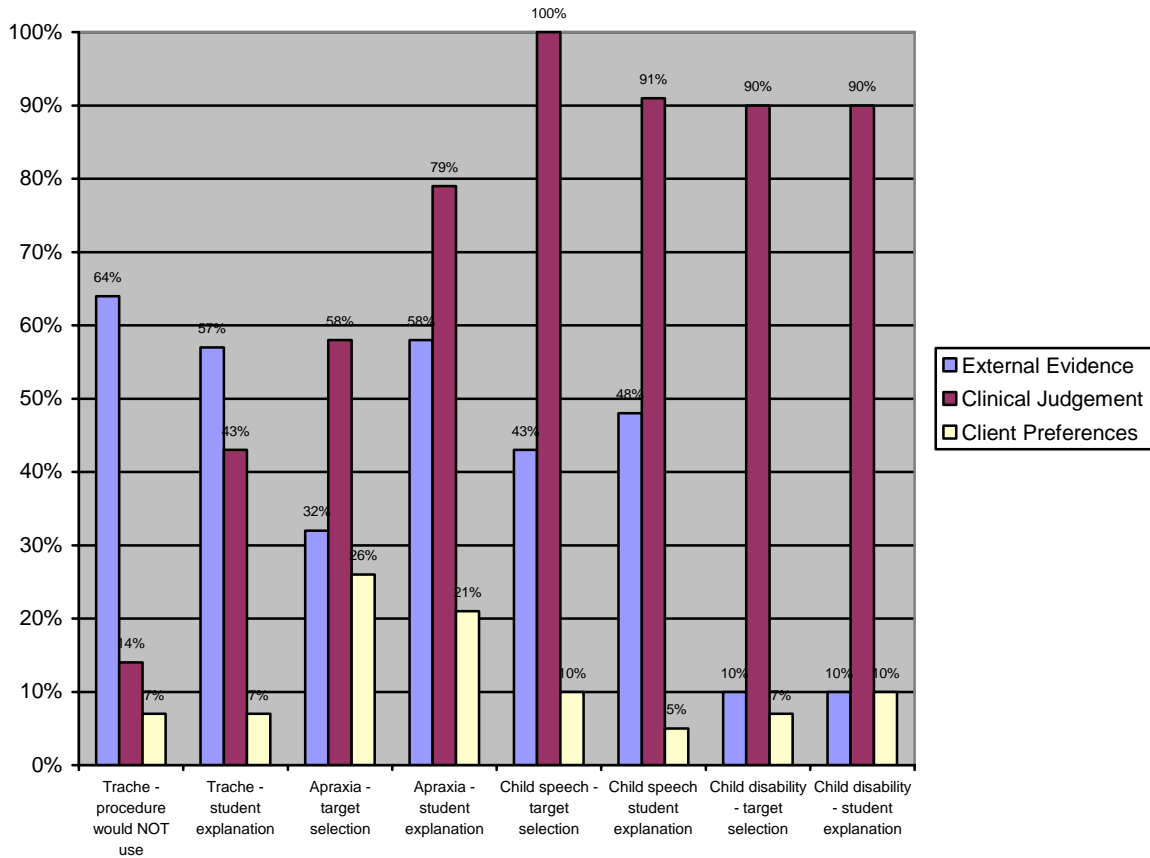
Challenges

A series of challenges have arisen from these surveys in facilitating EBP teaching and learning in Australian Speech Pathology programs. These challenges relate to designing and implementing efficient EBP solutions and change management at a national level. The specific challenges are:

1. Overcoming the perceived gaps and barriers listed above;
2. Addressing the implementation research gap i.e. we have evidence for how we should change our clinical practice, but this does not translate into changing our professional behaviour. The literature related to knowledge transfer and change management should be taken into consideration to address this challenge;
3. Taking several factors into account with EBP resource development in order to achieve efficient, positive outcomes. These factors include:
 - Not duplicating existing EBP resources, but integrating these with those resources survey respondents suggested will help them and with the knowledge transfer literature of what EBP resources and strategies would most effectively support professional behaviour change.
 - Making resources flexible and useful nationally, including integration across
 - Individuals e.g. academic staff, off-campus clinical educators, students, clinicians
 - Stages of student learning i.e. novice to entry level students
 - Settings/contexts
4. Enlisting the support of all Australian Speech Pathology programs for the next stage. This may involve perceptions of a prescriptive EBP curriculum, and homogenised EBP teaching and learning subjects/practica, strategies and resources. The proposed EBP solutions have to be useful for different philosophies and teaching processes.
5. Enabling and supporting the use of different EBP resources, not a singular resource.
6. When facilitating EBP teaching and learning so that we produce graduates who are lifelong evidence based practitioners we need to consider the following:
 - Do we prepare for current or future workplace needs?
 - Are we responsive to current professional needs? Do we lead the way?

7. Our Survey 2 data indicate a current overestimation or reliance on clinical judgment (internal evidence), instead of balancing the three types of evidence outlined in Dollaghan's (2007) E³BP model. There also seemed to be little consideration of client preferences and values, but this might be due to the way the case studies were constructed, or it could be part of the respondents' perceptions of EBP. There is possibly some stigma attached to EBP by professionals, with qualitative data from Survey 1 indicating some clinical educators believe EBP overestimates the importance of external evidence.

Table 4. Survey 2 Case Study Responses



Section 3. Key Future Recommendations

In terms of future recommendations, the Project Team took into account the following sources of information:

1. Findings from the online surveys - *Australian Speech Pathology academic staff and clinical educators' knowledge, attitudes and feedback about EBP*
2. Available EBP resources – *a comprehensive list of currently available worldwide EBP health resources*
3. Transformational ('knowledge transfer') literature – *evidence of how to change professional behaviour*

By considering these three sources, the Project Team established:

- Consultation with Australian Speech Pathology educators who would ultimately be the key 'end users' of the recommendations.
- Availability of EBP resources as a tool for Speech Pathology educators, and in order to find what, if any, gaps existed in EBP resources.
- An evidence-based approach to our recommendations for maximum impact in the field, and for related health professions in the future.

The Project Team have the following key recommendations regarding the facilitation of EBP teaching and learning into Australian Speech Pathology Programs nationally.

1. Changing Competency-Based Occupational Standards

An overarching approach was adopted to changing EBP curriculum through changing Speech Pathology professional standards. The Project Team sent a recommendations report to SPA proposing changes in relation to EBP to their Competency Based Occupational Standards for Entry Level Speech Pathologists (CBOS) document. By changing the competency standards document of our profession, the changes in EBP curriculum must follow-on from this at every Australian Speech Pathology program. This will provide a more explicit, clearer set of guidelines for Speech Pathology educators and students, the future health professionals.

2. A national plan of action for EBP curricula and resources

- More deeply embed EBP into Speech Pathology curricula by proposing changes to the CBOS document and participating in the CBOS Review Panel
- Devise learning objectives for Speech Pathology students at novice, intermediate & entry levels in collaboration with different stakeholders
- Develop written and online teaching and learning modules
- Develop EBP teaching and learning resources
- Develop strategies and tools for the assessment of EBP
- Evaluate the new curricula, teaching modules and resources

3. Knowledge Transfer Literature

The transformational (knowledge transfer) literature was used when considering the future recommendations of this scoping project. On the whole, Speech Pathology and other health professions are positive and enthusiastic about EBP (Pain et al., 2004; Salbach et al., 2007). This positive attitude is also born out in survey results from this scoping project. However, a change in professional behaviour does not immediately follow on from a positive attitude, with or without the required knowledge to change (Soper & Hanney, 2007; Wensing et al., 2006). A pilot project among members of the NSW EBP Network Child Speech Group found that even with up-to-date external research knowledge, practitioners did not always use this evidence (Murray, Baker & McCabe, *unpublished thesis*). Professor Jeremy Grimshaw, Canadian Research Chair in Health Knowledge, Transfer and Uptake, stated that changing professional behaviour is facilitated by change at four levels:

- Individual health professional
- Health care teams (e.g. Speech Pathology hospital department)
- Organisations providing health care (e.g. Royal Prince Alfred Hospital)
- Health care systems (e.g. NSW Health)

(Grimshaw, 2008; Grol & Grimshaw, 2003)

Curriculum Change

The medical literature supports curriculum change in order to change professional behaviour (for a systematic review, see Coomarasamy & Khan, 2004). In a seminal article in this area, Green & Ellis (1998) undertook a controlled trial of a seven-week EBP curriculum with medical students in which the students worked through a tutorial, facilitated EBP techniques and undertook the EBP process with real patient decisions. The authors concluded that this EBP curriculum, which is based in adult learning theory, improved medical students' skills and some EBP related behaviours (Green & Ellis, 1998).

Wensing and colleagues (2006) undertook a systematic review and stated that strategies targeting implementation of best evidence to improve clinical practice have mainly targeted improvement in the behaviour, attitude and knowledge of health care professionals. However, according to these authors, these strategies appear to achieve about 10% absolute change of professional performance; for the other 90%, they suggest organisational change as the mechanism of greater change. The Project Team therefore firstly recommended changing EBP curriculum at the organisational level. As a first step in this process, a recommendations report was sent to SPA suggesting changes in relation to EBP to their competency standards document. There would be additional implications for the COMPASS™ assessment tool, which would make organisational change evident in the evaluation of students' use of EBP in the clinical decision making process.

Individual Change: Discourse between clinical educators and students

In light of our survey results from our case studies, as well as feedback from clinical educators in our first survey, we also recommend a change at the level of the individual. Specifically we recommend changing the discourse between clinical educators and students so that EBP is considered consistently, explicitly, meaningfully and in a balanced manner when making clinical decisions. There is evidence in the literature to support focus on changing the behaviours of clinical educators and students, largely from the nursing literature (e.g. Eaton et al., 2007; Mohide & Matthew-Maich, 2007; Tilley et al., 2007).