

# **MESH Guides - Bringing Research to Practice in Education of the Deaf**

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## *Abstract*

***Knowledge management is a growth industry though still emergent for education of the deaf. This paper investigates use of MESH (Mapping Educational Specialist knowHow) Guides to support evidence-based teaching practice. MESH Guides are ‘a sustainable system using resources already available in education’ (MESH, 2015). Literature review revealed a very current knowledge and research base underpins education of the deaf and is currently managed through a few main peer-review journals and websites. Focus group findings were generally positive though cautious in their view toward engaging with MESH Guides as a postgraduate learning and teaching activity. Findings from the literature revealed a significant evidence base for education of the deaf, but without yet having significant knowledge management vehicles available such as exist in other disciplines. A significant opportunity exists for education of the deaf as a discipline to move forward in access to evidence-based practice in the vehicle of MESH Guides.***

## **1. Introduction**

Nearly every sector of professional and commercial life is viewing the management of related knowledge and research as an imperative (Nutley, Walter, & Davies, 2003). Fields such as medicine have had robust systems in place since before the world wide web -- PubMed for example (2015). Other fields, such as education, are further behind. The Organisation for Economic Co-operation and Development cites the increasing attention that governments are paying to international educational comparisons. They are looking for effective social and economic policies to meet rising demands and

targeting education as key. This suggests that educational practitioners should help their profession become a ‘knowledge industry in the sense that its own practices are transformed by knowledge about the efficacy of those practices’ (OECD, 2014). Built on extensive investment of taxpayer money, strong evidence exists for teachers’ desire to and difficulties in accessing research relevant to practice (Leask, 2015b). MESH Guides (MESH, 2015) and their innovators aspire to be to educational practitioners what NICE guidelines (National Institute for Health and Care Excellence, 2015) in the UK or NIH Consensus Statements (National Institutes of Health, 2015) in the USA are to clinical practitioners -- a means of translational research for the busy practitioner to help readily develop evidence-based teaching practice. They are embryonic at present; and thus there is little published on MESH Guides themselves, and none related to education of the deaf.

Healey (2005) describes a nexus featuring teaching and research where subjects ideally move from passive observer to active user of research for the sake of better practice. She is touching on the rationale behind MESH Guides as does Simon Sintek (2011) in his motto and book title ‘Start with Why’. He proposes that this question should be the starting point of any worthwhile product or idea for robust processes and to attract significant uptake. This rationale resonates with the author’s own work in training Teachers of the Deaf and Educational Audiologists for whom access to and currency of translational research is imperative. It also resonates with such access challenges in the education profession; and with MESH Guides development aim of ‘supporting professional judgment with evidence from the science of learning’ MESH (2015). Several entities in education of the deaf are looking to address this and these are taken up later in the literature review. Together they imply that the imperative to which Nutley (2003) refers applies to any professional who wishes to ‘secure the future for deaf children and young people’ (Mary Hare, 2015).

This paper attempts to answer the research question: Can MESH Guide development be used to rigorously support evidence-based

teaching practice in education of the deaf and teacher training? After a review of pertinent literature, methodology used to complete the review is outlined, followed by a discussion of findings, and finishing with conclusion and recommendations.

## 2. Literature Review

The key aim of this review was to investigate the merits and feasibility of use of readily accessible translational research in a time-efficient manner to promote evidence-based practice in education of the deaf. This was achieved by examining two aspects: research in the field of education of the deaf, and the broader 'knowledge management' body of research.

The first aspect revealed several categories of information management in education of the deaf; namely peer-reviewed journals, specific articles or studies, charities' and professional bodies' positions, quality standards, practice guidance and new efforts at making this information available online. Peer-reviewed education journals specifically for Teachers of the Deaf include many pedagogical topics, such as literacy. Watson (2009) in *Deafness and Education International*, demonstrates that deaf children had internalised print concepts. In the *Journal of Deaf Studies and Deaf Education*, Apel (2009) analyses spelling ability in children with hearing loss. *American Annals of the Deaf* produced a special issue on English reading development for individuals who are deaf and hard of hearing (Wang & Andrews, 2014). Luckhurst, *et.al.* (2013) conjectures in *Volta Review* about lexical skills in children who use cochlear implants. Additionally, articles in journals of other disciplines or unpublished studies sometimes address practice in education of the deaf as it applies to teacher training. Swanick, *et.al.* (2014) suggest a flexible framework of principles, finding it a robust model for development of critical thinking based on evidence for trainee Teachers of the Deaf. Positive Support (Bamford, *et al.*, 2009) set out with one of its several aims to find the most effective strategies in education of the deaf and early intervention. Teachers of the Deaf also access the medical literature (e.g., Bond *et al.* (2009) who selected from 1580 abstracts for his review on cochlear implants) and audiology

research (e.g., The Nottingham Hearing Biometric Research Unit (NIH, 2015) whose commitment is 'to pursue research ... that can be translated into practical benefits'.

Professional bodies and charities supporting education of the deaf maintain that research is a prime concern. The British Association of Teachers of the Deaf (BATOD, 2015) national executive committee campaign included the aim to support evidence-based and reflective practice of its membership; and the purpose of the Council on Education of the Deaf (CED, 2015) includes 'reflecting current research' in its mission statement, although neither website includes a bespoke specific tool or database for doing so. The National Deaf Children's Society (NDCS, 2015) publish position statements and quality standards on a variety of matters from inclusion to FM, all reference-based to current literature. Quality standards and practice guidance, also reference based, have been established by other bodies for areas such as early intervention (NHSP, 2015) and paediatric tinnitus management (Kentish, *et al.*, 2015); though not held centrally in one access point.

More recently new efforts to provide online resource and access to deaf-education-specific research have begun to develop. The National Sensory Impairment Partnership website (National Sensory Impairment Partnership, 2015) has had a government grant, one objective of which was to create an online resource portal for sensory impairment. A website operating in association with the *Journal of Deaf Studies and Deaf Education* (Raising and Educating Deaf Children, 2015) 'seeks to provide objective, evidence-based information for policy-making and practice' with e-bulletins.

The second aspect of the literature review examined knowledge management and translational research more generally. The pioneering work of the medical field in the area of translational research is fairly well known. PubMed, NICE guidelines and NIH position statements have already been mentioned. Additional insight is available from Cochrane (Cochrane, 2015) who set a high standard. Their contributors are world leaders from 120 countries who work together to produce credible, accessible health information. Their work 'is recognised as

representing an international gold standard for high quality, trusted information’.

In the education discipline, Davies (1999) argues along with OECD (see introduction) that education should become more evidence-based, while distinguishing between existing research and establishing new (by virtue in part of reviewing the literature). He calls evidence-based education a set of principles for enhancing educational policy and practice. Subscribing to this argument (It would be very difficult to find arguments to the contrary.) that striving for a rationale behind practice related to evidence will produce better outcomes, then the question becomes how to go about doing so. The Association for Information Technology in Teacher Education exists in part to help answer Davies argument and the critical question that arises, with an aim to impact teacher education for effective use of digital technology providing tools and support for the dissemination of the results as key to improving educational outcomes.

There is little to no controvertible evidence against using evidence-based practice, controversies do arise, however, around the use of evidence. Cooper’s article (2009) explores these controversies, and examines the education profession’s use of the emerging ‘knowledge mobilisation’ field to address research and practice and close the gap. They look at both international initiatives and discuss related challenges, the one most notable for this article’s purposes being that of dissemination with rigour and accessibility. Besides controversies, concerns are identified (Nutley, Walter, & Davies, 2003) related to forming strategies to manage knowledge: types of knowledge, ways and models of use and implementation, and interventions to increase uptake. Teachers do use many if not all of these strategies as they plan interventions, curriculum or lessons, but developing the criticality to manage these well take time and thought. Another challenge to using evidence in practice is that judging the quality of knowledge (research synthesis) is complex and another reason why teachers face time constraints in terms of readily implementing research findings, as Gough (2007) acknowledges. He suggests empirical study of how judgements are made, and that greater clarity will enable greater participation and implementation of research findings or impact on decision-making bodies.

To help evaluate some of the debates and inform the judgements, the British Educational Research Association (Brown, et al., 2015) describe a pyramid model of educational research with each level appealing to different audiences, and on this basis explore the research ethic of respect for persons and respect for academic integrity. This ethic underpins the framework for teaching, for evidence-based practice in education and for provision of tools to such practice to take place efficiently and effectively.

In short then, this literature review has revealed that the very current knowledge and research base underpinning education of the deaf and teacher training in this field is a highly valuable cache currently managed through a few main peer-review journals and websites. The growth industry of translational research and knowledge management is well-established in some fields and embryonic in others.

### **3. Methodology**

The methods employed for this study were a literature review and focus groups.

#### *3.1 Literature Review*

The literature review search strategy examined three main databases (PubMed, ERIC and EBSCO) and identified 47 sources as being most relevant and fitting with the dual topics of translational research and education of the deaf. These included not only peer-reviewed journal articles and books but also in keeping with an information-age-related aim, websites that produce or disseminate some of the evidence and/or reviews. The search terms used included ‘knowledge management’, ‘translational research’, ‘knowledge mobilization’, ‘evidence-based classroom teaching’, ‘research utilization’, ‘informed practice’, ‘teacher training’, ‘education of the deaf, hearing-impaired or hard of hearing’, and ‘teacher of the deaf, hearing-impaired or hard of hearing’ without using abbreviations. Boolean operators were used in respect of the last two terms to broaden the search.

Quality, relevance and robustness was considered on the following bases where applicable:

- Hierarchy of evidence based on four levels of qualitative evidence (Daly, Willis, & Small, 2009)

- Research Evidence Framework's 4 star quality profile (REF, 2015)
- Reporting Guidelines from EPPI (Evidence for Policy and Practice Information and Co-ordinating Centre) (UCL, 2015)

### 3.2 Focus Groups

Additionally, focus groups were employed. Group members included stakeholders, service-users, module leaders and link tutor for master's level programmes training Teachers of the Deaf; as well as Higher Education professionals from other disciplines. Groups were convened as an assessment strategy meeting (5 participants); a course development meeting (8 participants); a module leaders' working party (6 participants); and a continuing professional development course small group (8 participants). Overall, the participants were mixed in terms of gender (90% male), race (95% white British) and adult middle age. They came from a homogenous social class, and were acquainted with one another. The recruitment source limited the nature of the data due to its inherent bias toward academics, which was viewed as beneficial to the purpose of the study. The number of groups was judged adequate for saturation (*i.e.*, the point after which no further new insight is likely to be gained).

The chosen question paradigm was open-ended with limited structure, as this was exploratory research, in order to allow discussion to develop. They focused on

- the potential benefits and disadvantages of development of MESH Guides as a learning and teaching activity in higher education which can then be disseminated to the profession at large, and
- the benefits of and barriers to integration of research to education practice.

Data/discussions of the focus groups were recorded in written notes. Consensus confirmed verbally and also recorded. Classical content analysis was applied, adapted to allow placing chunks of data into themed similar groupings.

## 4. Results and Discussion

### 4.1 Focus Groups

Focus group consensus revealed a generally positive view of MESH Guide use as a

learning and teaching activity for Teachers of the Deaf as follows: It lends itself readily to the type of critical thinking necessary in postgraduate work, and contributes to the development of the profession. The need for literature review as part of the work, and the critical judgement that could be evidenced in the production were deemed merit-worthy aspects. It promotes collaborative thinking and working across the profession, and could be valuable for inset training. Concerns enumerated related to intellectual property in light of the creative commons attribution non-commercial international license; to keeping data and implications current, to quality assurance of the editorial board, to cost implications for authors and institutions and to impact on recruitment and enrolment for fee bearing courses. As mentioned in the literature review, there is a paucity of studies about MESH Guides, so focus group participants did not have references upon which to rely but instead used their experience to infer positive expectations and concerns. Personal integrity, the development of new knowledge, public safety, quality assurance and a competitive current edge were all cited as reasons for educators to base their practice on sound research. Certain complexities proved obstructive to utilizing research regularly in the classroom, including disinterest, time constraints, complex terminology, workload and priorities clashes (Barefoot, 2015).

### 4.2 Literature Review

Literature Review results revealed that a significant valuable evidence base exists in various forms and from various sources for education of the deaf, that successful models exist for translational research such as NICE guidelines, and that knowledge management is a growth industry in which the embryonic MESH Guide development sits.

MESH Guides aim to help provide some of the clarity to which Gough (2007) refers, by virtue of the structures and the editorial boards. Nutley's (2003) concerns for managing knowledge are factors considered in MESH Guides concept map development within which editors work with authors to take a well-researched text document and to an editorial board where after approval it is published online in an easily navigable layout and slated for regular updates. Comparatively, the strength of clinical guidelines to influence practice (Woolf, 1999) is rooted in the desire to resolve challenges

that healthcare systems face such as costs, demand, expensive technologies, variations in service delivery and the very human desire of healthcare professionals to provide the best care possible. Very similar factors impact education of the deaf, and teachers partnering with parents also have an intrinsic aim of doing what is best for children who are deaf. For these children the advent of new technologies in early identification and intervention have heralded a paradigm shift and the potential for much better outcomes and quality of life. Still, professionals would be better able to empower children and families to realise that potential, if they had more pragmatic access in a timely way to translational research.

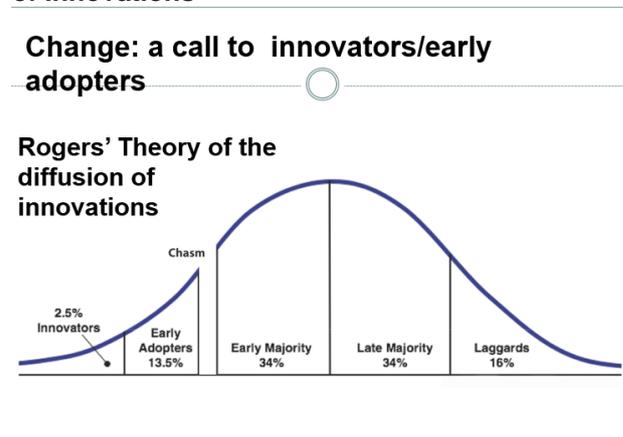
**Figure 1.**  
**Knowledge Management paradigm shift**

Capel, et.al. (2013) outline forms of professional knowledge to include content, curriculum, general pedagogy, educational contexts and ends, learner characteristics, and finally pedagogical content knowledge (i.e. 'how to teach specific concepts effectively so all learners can progress'). It is this last form especially that stands to benefit most from the advent of a tool like MESH Guides. The advent of this tool is fitting to the age that Tabberer in Leask (2011) modelled, illustrating a paradigm shift from 19<sup>th</sup> to 21<sup>st</sup> century information development and exchange as seen in Figure 1, used with permission from Leask (2015a).

Roger's theory of Diffusions of Innovations (Rogers, 2003) seeks to explain the spread through societies of new ideas and technologies by looking at how and why. He used a bell curve to illustrate, it with innovators being the first 2.5% of take-up, as seen in Figure 2, used with permission from Leask (2015a). Although MESH Guides are very much in the

innovators stage, nevertheless a start has been made on which all future developments can now build.

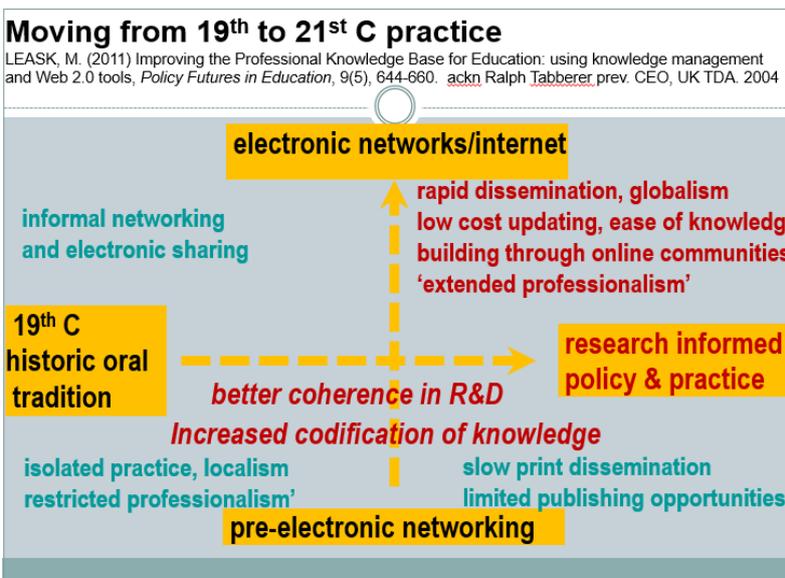
**Figure 2. Roger's Theory of the Diffusion of Innovations**



Considerations for future work in this area include establishing new focus groups as well as working parties for specific tasks. These could be related to using MESH Guide development as an actual learning and teaching activity for training Teachers of the Deaf and for classrooms with deaf children. Data that could be considered in future can be collected from MESH Guides themselves, as the databases can be interrogated for different purposes relating to such parameters as the number of users over a given period of time, the countries from which they come, the feedback provided in open-ended surveys, and impact ratings.

**Conclusion**

'The last decade of education change has been characterised by the rise of evidence-based policy and practice agendas. Internationally, we are witnessing efforts to increase and incorporate research use in public services' (Cooper, Levin, & Campbell, 2009). Now more than ever before with a constantly growing body of evidence and knowledge being published at an accelerating rate, Teachers of the Deaf have the opportunity to make an even more significant difference in the lives and outcomes of children and young people who are deaf, if they can access the evidence in a timely way for regular use as a basis for their



teaching. Current knowledge and research underpinning education of the deaf is highly valuable and currently managed mainly through a few main peer-review journals and websites. A step further for these valuable contributions collectively would be to engage with the particularly pragmatic aim of MESH Guides which is to make the implications of the evidence for education practice very readily available globally to classroom practitioners who have significant time constraints. Limitations of this study as well as of MESH Guides themselves is essentially that not enough longitudinal data yet exists to draw authoritative conclusions without some amount of speculation. Nevertheless, sufficient potential exists so that BATOD Foundation Trustees (BATOD Foundation, 2015) have formed a subject editorial board within MESH Guides on Deafness and Hearing Impairment with the stated aim of providing easily accessible and robust information for creating good listening and learning environments.

The growth industry of translational research and knowledge management is well-established in certain disciplines and just emergent in others such as education. MESH Guides, in its embryonic stage, stand at the juncture between these two as an opportunity and vehicle to move the wealth of the existing and growing underpinning research for education of the deaf, very actively and pragmatically into the minds and hands of those who are at the chalk face. Adapting a line from the medical field (Cochrane, 2015) 'MESH Guides exists so that education decisions get better'.

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