



Using computer aided case based reasoning to support clinical reasoning in community occupational therapy

Bruce Taylor^{a,*}, David Robertson^b, Nirmalie Wiratunga^c, Susan Craw^d, Dawn Mitchell^b, Elaine Stewart^b

^a Scott Sutherland School, Faculty of Design and Technology, The Robert Gordon University, Garthdee Road, 10 7QB, Aberdeen, UK

^b School of Health Sciences, The Robert Gordon University, Garthdee Road, 10 7QB, Aberdeen, UK

^c Research Fellow, School of Computing, The Robert Gordon University, Garthdee Road, 10 7QB, Aberdeen, UK

^d Head of Research and Graduate Studies, Faculty of Design and Technology, The Robert Gordon University, Garthdee Road, 10 7QB, Aberdeen, UK

ARTICLE INFO

Article history:

Received 15 November 2006

Received in revised form

19 April 2007

Accepted 14 May 2007

Keywords:

CBR

Clinical reasoning

Occupational therapy

Assistive

ABSTRACT

Community occupational therapists have long been involved in the provision of environmental control systems. Diverse electronic technologies with the potential to improve the health and quality of life of selected clients have developed rapidly in recent years. Occupational therapists employ clinical reasoning in order to determine the most appropriate technology to meet the needs of individual clients. This paper describes a number of the drivers that may increase the adoption of information and communication technologies in the occupational therapy profession. It outlines case based reasoning as understood in the domains of expert systems and knowledge management and presents the preliminary results of an ongoing investigation into the potential of a prototype computer aided case based reasoning tool to support the clinical reasoning of community occupational therapists in the process of assisting clients to choose home electronic assistive or smart house technology.

© 2007 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

In the UK occupational therapists work mainly in the national health service or for local authorities. Their clients or patients are people of all ages who have problems with occupational performance. Examples of problems with occupational performance might be impairments in the ability to mobilise, to perform self care activities such as washing, feeding or dressing, to undertake domestic activities such as food preparation or laundry or to access employment and leisure activities. An occupational therapist will work on specific activities with individuals or small groups of clients in order to limit or reduce the effects of occupational performance deficits on

their everyday life and to enable optimal health and quality of life.

Occupational therapists who are employed by local authorities are traditionally referred to as community occupational therapists (COTs), although this is something of a misnomer as, with the ongoing devolution of healthcare from hospital to community settings, other professional groupings of occupational therapists, such as those employed in community mental health teams or rapid response teams, are increasingly employed exclusively in the community. COTs, somewhat confusingly, sometimes may be referred to as domiciliary occupational therapists, local authority occupational therapists or social work occupational therapists but for the purpose

* Corresponding author. Tel.: +44 1224 263541; fax: +44 1224 263777.

E-mail address: b.taylor@rgu.ac.uk (B. Taylor).

0169-2607/\$ – see front matter © 2007 Elsevier Ireland Ltd. All rights reserved.

doi:10.1016/j.cmpb.2007.05.007

of this paper will be referred to as COTs. They are, in general, occupational therapists employed by local authorities in an effort to fulfil the duties and obligations of the local authority to its disabled citizens, under the terms of various pieces of legislation such as the chronically sick and disabled persons Act 1970, the disabled persons (Services, consultation and representation) Act 1986 and the national health service and community care Act 1990.

In Scotland, one role of COTs is in the assessment of the needs of individuals who have been formally referred to them and the subsequent recommendation, installation and demonstration of equipment and adaptations to enable these individuals to remain in their own homes or to return home after a period of time spent in hospital. The provision of equipment and adaptations to enable people to achieve independent living is a central part of community care [1]. COTs will work with an individual client, relevant carers, other healthcare professionals, building and housing professionals, equipment providers and manufacturers and other statutory and voluntary agencies as required. The COT has a complex and multifaceted role in the provision of equipment and adaptations which may at different times require affective, cognitive, professional, managerial and practical skills as well as knowledge relating to the client's condition, housing construction and equipment specifications and applications. The range of complexity and diversity of client needs dealt with by COTs are graphically described by Fortune and Ryan [2] in their description of a caseload management system. The thinking and decision making process, utilised by COTs and other health professionals which allows them to negotiate complex practice situations, is called clinical reasoning.

This paper describes a number of the drivers that may increase the adoption of information and communication technologies in the occupational therapy profession. It outlines case based reasoning as understood in the domains of expert systems and knowledge management and presents the preliminary results of an ongoing investigation into the potential of a prototype computer aided case based reasoning tool to support the clinical reasoning of community occupational therapists in the process of assisting clients to choose home electronic assistive (smart home) technology.

2. Clinical reasoning in occupational therapy

Although a number of other definitions exist, Higgs and Jones [3] defined clinical reasoning as being the

“thinking and decision making process associated with clinical practice, a critical skill central to the practice of professional autonomy. It is a thinking process, incorporating elements of cognition, knowledge and metacognition, directed towards enabling the clinician to take the best judged action in a specific context”.

Although the process of clinical reasoning in occupational therapy and other healthcare professions has been extensively investigated over the past 25 years [4], [3] it has been suggested by Chapparo and Ranka that

“current explanations and descriptions of clinical reasoning in occupational therapy are incomplete” [5].

They summarised the status of contemporary notions of clinical reasoning as being

“a highly individualistic mode of operation that is based in scientific knowledge and method, creative imagination, intuition, interpersonal skill and artistry”.

Harries and Harries [6] critically reviewed the ethnographic and process tracing methodologies used in previous research studies that aimed to elicit the clinical reasoning utilised by occupational therapists in practice contexts and raised a number of concerns. They suggest that since experts' thinking is largely automatic, research techniques such as concurrent verbal reporting (thinking out loud) and retrospective reporting of thinking and decision making will lead to both incomplete and inaccurate data. One concern raised that is particularly relevant to this paper is the tacit nature of a great deal of expert therapists' thinking. Experts in familiar situations do not use deductive reasoning but use more intuitive strategies, for example drawing on their mental store of “scripts” [7] and retrieving appropriate practice strategies almost automatically without conscious effort. It may be that there is an analogy that can be drawn between the “scripts” used intuitively by expert therapists and the “cases” upon which computer aided case based reasoning relies.

3. Evidence based practice

There are a number of political, economic and technological forces acting on the health professions, including occupational therapy, encouraging them to explore the potential of computer based tools to assist in the complex processes of clinical reasoning. The specific forces acting on the professions include the move for services to more efficiently delivered, evidence-based practice (EBP), demographic shifts and the rapid development of new technologies. Sackett et al. [8] define EBP as

“the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients”.

They go on to suggest that in practice this means incorporating the best available external clinical evidence from systematic research with individual clinical expertise. Clinical expertise in medicine, as described by Sackett et al. [8] is analogous, but not identical, to expertise in clinical reasoning described in the occupational therapy literature.

The problem for COTs, in common with many other healthcare practitioners, is that there is a relative paucity of good quality evidence to support their practice. This is not to say that community occupational therapy is not effective in, for example, maintaining people in their own homes, preventing hospital admission and readmission and health improvement, it is simply that very few researchers have undertaken studies of community occupational therapy practice. The reasons for this lack of evidence are multifaceted but may include a deficiency in research funding and culture in local authorities

Download English Version:

<https://daneshyari.com/en/article/467228>

Download Persian Version:

<https://daneshyari.com/article/467228>

[Daneshyari.com](https://daneshyari.com)