

# **The Knowledge Growth and Clinical Decision Making of Student and Experienced Midwives: A Comparative Study**

NERIDA C. AMBLER

# **The Knowledge Growth and Clinical Decision Making of Student and Experienced Midwives: A Comparative Study**

Nerida C. Ambler

RN, RM, DIP. (Teach) Nursing, B. Ed, MN (thesis).

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## **Declaration**

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

Signed

Nerida C. Ambler

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## ABSTRACT

A midwife is a professional who assists women to birth and is legally accountable within her scope of practice. Midwives are faced with potential clinical problems at every birth they attend and their ability to deal with these problems is essential in safe and effective midwifery practice.

The aim of this study was to examine the knowledge growth and clinical decision making of student and experienced midwives performing a normal birth task. In order to understand how students' knowledge develops compared with midwives' knowledge the study investigated the following questions:

What is the nature of the differences between midwifery students (after their first and twentieth birth) and experienced midwives in their use of declarative, procedural and conditional knowledge when making clinical decisions during a normal birth?

What is the nature of midwifery students' discipline specific knowledge after their first and twentieth birth when making clinical practice decisions?

What is the nature of experienced midwives' discipline specific knowledge?

This qualitative study used the protocol analysis method. There were two groups in the study. In group one the student midwives (N=15), were interviewed on two separate occasions; after their first birth, at the beginning of a Graduate Diploma of Midwifery program and again after the twentieth birth, at the end. Group two were the experienced midwives (N=12) working in a delivery suite.

Retrospective data was collected using a structured interview designed to mirror the chronology of the birth process. The data was categorised using a coding scheme constructed from the research literature that links the structure of knowledge and the development of expertise (Boshuizen and Schmidt, 1992; Cantwell, 2004; Ericsson and Simon, 1993), with the *National Competency Standards for the Midwife* (ANMC, 2006), and declarative, procedural and condition knowledge types (Alexander and Judy, 1988). A series of Wilcoxon Signed Ranks Tests on the students' data (after their first and twentieth birth) and a series of Mann-Whitney Tests on the students' data (after their twentieth birth) and experienced midwives' data to examine all group differences across the coding categories.

The results demonstrated that the difference between students and experienced midwives was in the quality and structure of their declarative, procedural and conditional knowledge. Students (after the first birth) displayed knowledge gaps as a result of their limited prior knowledge and practice experiences and minimal engagement with the complexities of the birth task. The thinking and knowledge development in students' after their twentieth birth was similar to that of the midwives. The students' and midwives' declarative, procedural and conditional knowledge was linked to the complexities of the task. This enabled quick and more accurate identification of data cues and expertise in birthing. The change in the quality of knowledge was evident in the transition from students' first to their twentieth birth however the midwives' knowledge was found to be structurally more sophisticated.

In the qualitative analysis the differences between the structure and quality of each groups' knowledge were examined using the Structure of the Observed Learning Outcome taxonomy (Biggs and Collis, 1892). The results indicated students' knowledge after their first birth reflected a uni-structural and beginnings of a multi-structural level of understanding. With increased depth and breadth to their knowledge and experiences by the twentieth birth the students' knowledge had reached the relational level of understanding and the first cognitive shift in thinking. The midwives knowledge and experiences were at the extended abstract level of understanding.

The students' (after their first birth) loosely structured knowledge indicated gaps that limited their decision making ability but by the twentieth birth knowledge and experiences had transformed demonstrating a qualitative shift in thinking. The integration of their declarative and procedural knowledge had formed conditional knowledge. On the other hand the experienced midwives had a well-structured discipline specific knowledge base linked to sophisticated decision making abilities.

In the discipline of midwifery the cognitive and metacognitive knowledge are the scaffolds inherent in knowledge development and decision making. Implications of the findings are important for midwifery education and the professional development of midwives.