

The nature and value of healthcare professional virtual communities: an exploration of the ICUConnect listserv

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Certificate of Original Authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as part of the collaborative doctoral degree and/or fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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'It takes a village to raise.. a doctoral student'.

Over the eight years that it has taken me to arrive here, my village, including family and friends, professional colleagues and employers, research students at UTS, the Academy, ICUConnectors and supervisor/mentors, have provided the bedrock upon which I have built this thesis. But first a story

In early 2004 my intensive care unit had a problem. In our enthusiasm to evaluate a patient's Glasgow coma score (i.e. how awake they were) and elicit the best motor response we had caused significant injury to the skin covering their sternum (breast plate). The collective wisdom was that sternal rub was the best method because orbital pressure (i.e. pressure to the upper bony part of the eye socket) was out of the question and, well, her nail beds were not in good shape either.

What were we to do?

I had recently joined a virtual community called ICUConnect. I posted an email and Wow the feedback was amazing! Within 24 hours I had 12 responses which included a complete lesson in how to do a Glasgow coma score and what it meant.

And so I was caught in ICUConnect web, hook line and sinker

My first thankyou goes to my ever-enduring husband Colin and sadly neglected children, Jack, David and Erin. Your willingness to put up with a wife and mother, often absent in mind if not body, enabled me to get through the hard work of these past eight years. A big thankyou to my parents for being my cheer squad even if they were

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List of Abbreviations

CoP	Community of practice
VCoP	Virtual community of practice
VC	Virtual community
DoI	Diffusion of innovations
EBP	Evidence based practice
HCP	Healthcare professionals
KB	Knowledge broker
KM	Knowledge management

Glossary

Word	Definition
Absorptive capacity	(in relation to an organisation) ability of an organisation to acquire, assimilate and exploit new knowledge for organisational advantage (Ehin 2004)
Actors 1	Are distinct individuals or collective units within a network (Hawe, Webster & Shiell 2004)
Boundary spanners	Individuals who have links across social systems including organisations or organizational units (Rogers 2003)
Centralisation	(in relation to an organisation) degree to which power and control are concentrated in few individuals (Rogers 2003)
Child email	Replies to an email (Kerr 2003)
Complexity	(in relation to an organisation) degree to which members possess a high level of knowledge and skill (Rogers 2003)
Cosmopile	An individual who has extensive communication channels outside usual social system (Rogers 2003)
Cosmopolitan	Individual positioned across multiple external communities (Dahlander & Frederiksen 2012)
Culture	'customs, traditions, heritage, habits, ways, mores, values' p 176 (The Australian Concise Oxford Dictionary 2004)
Digital immigrant	Person born before 1980 (Helsper & Eynon 2010; Margaryan, Littlejohn & Vojt 2011)
Digital native	Person born after 1980 (Helsper & Eynon 2010; Margaryan, Littlejohn & Vojt 2011)
Discussion thread	'as a collection of individual messages related to each other by the reply function in email' (Kerr 2003) p1
Emojis	A small digital image or icon used to express an idea or emotion (Dictionary 2017) https://en.oxforddictionaries.com/definition/emoji
External Orientation	(in relation to an organisation) Where organisational leaders have professional networks external to their workplace (Aarons, Hurlburt & Horwitz 2011; Purcell & McGrath 2013)
Flaming / trolling	Hostile and insulting online behaviour deliberately designed to offend and /or generate argument. Individuals who habitually engage in this behaviour are referred to as trolls. (Burnett 2000)
Formalisation	(in relation to an organisation) degree to which an organisation emphasises rules and regulation (Rogers 2003)
Heterophily	The degree to which two or more individuals who interact are different in certain attributes (Rogers 2003)

Word	Definition
Homophily	The degree to which two or more individuals who interact are similar in certain attributes (Rogers 2003)
Innovation	Process whereby disconnected chunks of knowledge are integrated & combined into novel products, concepts and practices to create value (Dahlander & Frederiksen 2012) p989
Inter-connectedness	(in relation to an organisation) Degree to which separate units within an organisation are linked by social networks (Nieves & Osorio 2012)
Knowledge broker	Are individuals who occupy positions across more than one knowledge network that affords them access to new knowledge(Burt 2009; Ziam, Landry & Amara 2009)
Knowledge worker	An individual who transfers, discovers or creates knowledge (Paul 2006)
Lurker	Silent majority, one who never or rarely posts (Neelen & Fetter 2010; Nonnecke, Andrews & Preece 2006)
Maven	High level of broad based market knowledge (Walsh, Gwinner & Swanson 2004)
Moderator	Individual/s who manage all or some aspects of a virtual community including authorization of new members, technology
Netiquette	A formal or informal list of rules governing acceptable online behavior(The Australian Concise Oxford Dictionary 2004)
Netiquette	accepted conventions of online behaviour for the purposes of promoting polite and civil interactions; Combination of ‘networks’ and ‘etiquette’ (Scheuermann & Taylor 1997)
Opinion Leaders	Individuals who are able to influence others within their social system (Rogers 2003)
Organisational slack	(in relation to an organisation) degree to which uncommitted resources are available (Rogers 2003)
Parent email	The message to which a reply is sent (Kerr 2003) p1
Social network	‘Finite set or sets of actors and the relation or relations defined on them’ (Wasserman & Faust 1994) p20
Thread thwacking	introduction of an unrelated subject or topic into a discussion thread
Watercooler	location in workplace where informal opportunistic conversations occurs(Siu 2015; Zhao & Rosson 2009)

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Abstract

Current organisational structures and cultures limit the social networks of healthcare professionals (HCPs) who facilitate translation of evidence into practice and consistency of patient care standards. ICUConnect, a listserv for intensive care clinicians, was explored as an exemplar to evaluate whether HCP virtual communities (VC) facilitate knowledge and clinical expertise exchange within a broader professional social network. A series of studies using multiple methods, underpinned by the Diffusion of Innovations and Community of Practice (CoP) theories, was conducted to address the thesis aim, focusing on 'who', 'what' and 'why' of VC membership and activity.

An integrative review (1990-2015) of findings from 72 studies demonstrated that HCPs primarily used VCs to exchange domain specific experiential knowledge with colleagues in their clinical specialty. Reliance on readily available data however meant that the perspective of the non-posting majority of users had not been explored.

A retrospective descriptive study of 'who' belonged to the social network revealed that 78% (n=1042/1340) of HCPs who joined remained members, with 'ICUConnect' evolving from a single state nurse-specific network to an Australian-wide multi-disciplinary and multi-organisational intensive care network.

A retrospective qualitative descriptive study explored the nature of 'what' knowledge was exchanged. Over ten years (2004-13) 133 members from 80 organisations posted 326 emails in the 40 discussion threads with nurses in clinical leadership roles contributing 55% of data. Knowledge exchanged was categorised as: experiential

(34%); experiential and explicit (20%); explicit (21%); know-how (20%); know-why (5%); no knowledge (6%). Thematic analysis revealed the central construct of virtual community work with six elements identified that worked synergistically to develop a collegial professional online environment, reflecting the activities of a virtual CoP.

A naturalistic qualitative study developed an understanding of 'why' HCPs belong to the VC. Twenty-three members participated in three asynchronous online focus groups (frequent-posters: 3; low-posters: 13; non-posters: 7) and four frequent posters were interviewed. The major emergent theme was that these participants joined and remained members because this broader community of intensive care clinicians provided them with enhanced access to credible best practice knowledge.

This evaluation of ICUConnect demonstrated that members belong to a virtual CoP with a diverse professional network to support their professional development and enable access to innovations in practice. It is recommended that healthcare organisations consider using virtual CoP to improve internal clinical practices. Further research is required to demonstrate if patient care and outcomes are improved by HCP participation in virtual CoPs.