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Theory, a lost character? As presented in General Practice education research papers

Header

Theory, a character cast in the research story

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Abstract

Objective

The use of theory in research is reflected in its presence in research writing. Theory is often an ineffective presence in medical education research papers. To progress effective use of theory in medical education, we need to understand how theory is being presented in its research papers. This study aims to elicit how theory is being written into general practice(GP) vocational education research papers to understand how theory might be more effectively used. This has relevance for the field of GP and for medical education more broadly.

Methods

This is a scoping review of the presentation of theory in GP vocational education research published between 2013 and 2017. An interpretivist approach is taken. We frame research papers as a form of narrative and draw on the theories of Aristotle's poetics and Campbell's

monomyth. We seek parallels between the roles of theory in a research story to theories of characterisation.

Results

23 papers were selected. Theories of 'reflective learning', 'communities of practice' and 'adult learning' were most used. Six tasks were assigned to theory: alignment with a position; identifying a research problem; a vehicle for an idea; a methodological tool; interpretation; and an object of examination. The prominence of the theory in the papers ranged from cameo to major roles. Depending on the way theory was used and the audience, theory had a different impact. There were parallels between the tasks assigned to theory and the roles of four of Campbell's archetypal characters. Campbell's typology offers guidance on how theory can be used in research paper 'stories'.

Conclusions

Theory can be meaningfully present in the story of a research paper if it is assigned a role in a deliberate way and that this is articulated. Attention to character development of theory and its positioning in the research story is important.

Introduction

Alice: ...'Who in the world am I?' Ah, that's the great puzzle! ... "Would you tell me, please, which way I ought to go from here?"

The cat: That depends a good deal on where you want to get to,

Alice in wonderland. Lewis Carroll.

Sword makes a compelling argument for research papers to be viewed as stories with abstract concepts as 'characters in a drama'(1). She bases this on an extensive review of academic writing. From this perspective, *theory* is often a lost character in the stories of medical education research papers. Scholars identify *theory* as frequently absent(2), underdeveloped(3, 4) and awkward or trivial in its role(5, 6). The Cheshire cat, in 'Alice in wonderland', has sage advice for the lost; knowing who we are and which way to go, depends on where we want to get to. This research paper is a story about where we might want to get to in casting a role for *theory* in the story telling of general practice(GP) educational research.

In crafting this paper as a story we draw on Aristotle's ancient theory of tragedy as the most noble form of story(7) and Campbell's more modern theory of the 'monomyth'(8). Both

Aristotle and Campbell describe story in terms of a journey starting with a challenge, followed by an entry into the unknown resulting in a discovery and concluding in a change for both the story's protagonist and for the audience or reader. Aristotle prescribes a protagonist that is known and a setting that is meaningful to the audience. We therefore first introduce our protagonist, *theory*, in the narrating of medical education research broadly, and GP educational research specifically.

Hodges and Kuper(2012) define *theory* as; 'an organised, coherent, and systematic articulation of a set of issues that are communicated as a meaningful whole'(9). The character of *theory* can be viewed from three different perspectives. The first perspective, scope, ranges from grand unifying theories, to macro theories pertaining to a system, to micro or programme theories pertaining to particular interventions(2, 10). The second perspective is the position of the theory with respect to a research paradigm. For example, from a post-positivist paradigm, *theory* can be positioned as an expression of an external immutable truth(3). Theories that align with culturally accepted beliefs, such as adult learning theory and its alignment with humanism(11), lend themselves to be positioned in this way. On the other hand, from a constructivist paradigm, *theory* can be positioned as one of any number of useful lenses on a phenomenon of interest(12). This view has a more utilitarian approach to *theory* where a theory is cast a role because it fits a purpose(10, 13). The third perspective is the lens taken on what it is to be a human. From this perspective, Bleakley et al(2011) identify three prevalent lenses in medical education(5). These are; a *cognitive-behavioural* mechanistic lens focusing on processes of thinking, emotion and behaviour(14, 15), a *humanistic* lens focusing on an individual realising their potential(16, 17), and a *socio-cultural* lens focusing on the social context of learning(18).

The writing of *theory* into a research story is necessarily entwined with conceptions of the role of *theory* in medical education research. Rees and Monrouxe(2010) recommend *theory* as a frame to provide a priori orientation and for making meaning(2). As a frame, *theory* can provide coherence in advancing understanding of educational phenomena across multiple programs of research(19). Biesta et al(2011) cast *theory* in a role in making meaning. In this role they identify three possible tasks for *theory*: causal explanation, interpretation for plausibility, and emancipation by making the hidden visible(20). Malterud et al(2016) highlight the importance of *theory* for credibility(21). Nestel and Bearman(2015) suggest that *theories* provide illumination as 'understandings of how people learn and how teaching is enacted'(10).

As well as contributing to the research story, *theory* should be an object of change as it is subjected to the research itself(6, 22).

Scholars call for educational researchers to enrol *theory* in their work and in the literature they generate for the purpose of enhancing quality(4, 9, 19). Key medical education journals expect research papers to include a meaningful role for *theory*(23, 24). A 2007 examination of research papers published in leading medical education journals indicated that close to half of papers did not explicitly include either a theory or a conceptual framework(25).

The call for better engagement of *theory* in research publications suggests a need for greater understanding amongst researchers of the nature of *theory* and how to use it(9). Biesta et al(2011) identify skilled use of *theory* as theoretical connoisseurship(20). This is the capacity to recognise which theory might serve the research purpose in a given context and how that theory might be used for that purpose. They suggest that to progress theoretical connoisseurship, we need first to know what and how *theory* is currently being used in educational research. One of the only ways that we know how theory is used in research, is through the way it is written into research narratives.

Our research team has an interest in educational theory, the writing of research stories and GP/family medicine vocational education research. GP is situated in the ordinary world of day to day living where the work is defined by personal and community narratives(26, 27). GP vocational education is principally work-based(28). In line with the call for greater inclusion of *theory* in medical education research literature broadly, Webster et al identify ‘the need to incorporate more theoretical frameworks into family medicine education research’(29). Our overall aim with this literature review is to develop theoretical connoisseurship in GP vocational education research through exploring how *theory* can be written into its research narratives. We also suggest that understanding the use of *theory* in the literature of GP vocational education research is relevant to medical education more broadly.

To guide our investigative journey, we ask three related questions which frame the challenge. In GP vocational research stories:

What theories are being given an explicit role?

What tasks and roles are being assigned to *theory*?

What impact does the way *theory* is presented in the research story have on the reader?

Methods

Study design

In order to address the challenge of what and how *theory* was being represented in GP vocational research, we chose a systematic scoping literature review(30). We took a systematic rather than a hermeneutical approach(31) to paper selection to ensure that our selected papers covered the uses of *theory* in research stories by those in the field rather than by those that aligned with preferences of the research team. We used three analytic approaches to our sample of papers; content analysis for the descriptive component, thematic analysis for identifying the roles assigned to theory and the way this was done(32) and heuristic analysis for considering the impact of the representation of theory on the reader(33). The heuristic analysis involved: engagement with an article; individual reflection on our experience as a reader; explication of this experience independently and then in conversation with another researcher. Our thematic and heuristic analyses were interpretative and constructivist in approach drawing on the insights and experiences generated by our research team as they interacted with the data. We therefore reflexively(34) present the relevant perspectives of each author.

JB is a general practitioner and involved in GP vocational education delivery and research. He is involved in building research capacity in GP vocational education. JB is currently a PhD candidate with a focus on work-based learning in GP using an interpretative approach. In this context, he is interested in *theory* use and *theory* building.

DN is a health professions educationist and researcher with over 30 years' experience. She has a particular interest in educational theory and faculty development. She mainly adopts an interpretative stance in research and has contributed to a program of research in GP education with a focus on identity development of trainees and supervisors.

MB is an educationalist and educational researcher with many years' experience in health professional education, and particularly qualitative research. She has a keen interest in *theory*, most recently practice theorists. She is also fascinated by literature review methodology.

CK is an interdisciplinary researcher with quantitative and qualitative research experience in GP, psychology and education. CK has a strong interest in GP educational research and professional development, and seeks to draw on knowledge, ideas and expertise from across disciplines.

EM is a physiotherapist and has worked in health professions education for over 15 years. EM has research interests in workplace learning, professional transitions and the role of feedback and assessment in promoting learning. She is interested in the role of *theory* in illuminating socially embedded phenomena in education.

DC is an experienced practicing clinician, clinical educator, and scholar, seeking to better integrate many socio-cultural theories, including feminism/s, into her own teaching practices, including GP education in the topic of ophthalmic surgery.

Paper selection

We followed the PRISMA guidelines(35) to select our papers (see Figure 1). We searched Medline OVID, Psychinfo OVID and ERIC using the search terms detailed in Table 1. These terms were designed to capture published research papers in GP postgraduate vocational education that explicitly referred to *theory*. We limited our search to January 2013 to June 2017 as this represented recency. We examined the '*theory*' terms used in recent publications on *theory* use in medical education to identify search terms. Known papers that fulfilled our criteria were used to judge the adequacy of the search. The team read a selection of papers to develop inclusion and exclusion criteria that would achieve our purpose of collecting papers from our intended literature. The exclusion criteria are detailed in Figure 1. We excluded papers when *theory* was used to frame only the content of an educational intervention and not used to frame the educational process of the intervention. Adhering to the PRISMA guidelines, two researchers (JB and CK) screened papers by title, by abstract and then by full paper read. Where consensus could not be reached on inclusion of a paper, a third member of the research team (MB) was engaged for a final decision.

Figure 1: Summary of paper selection

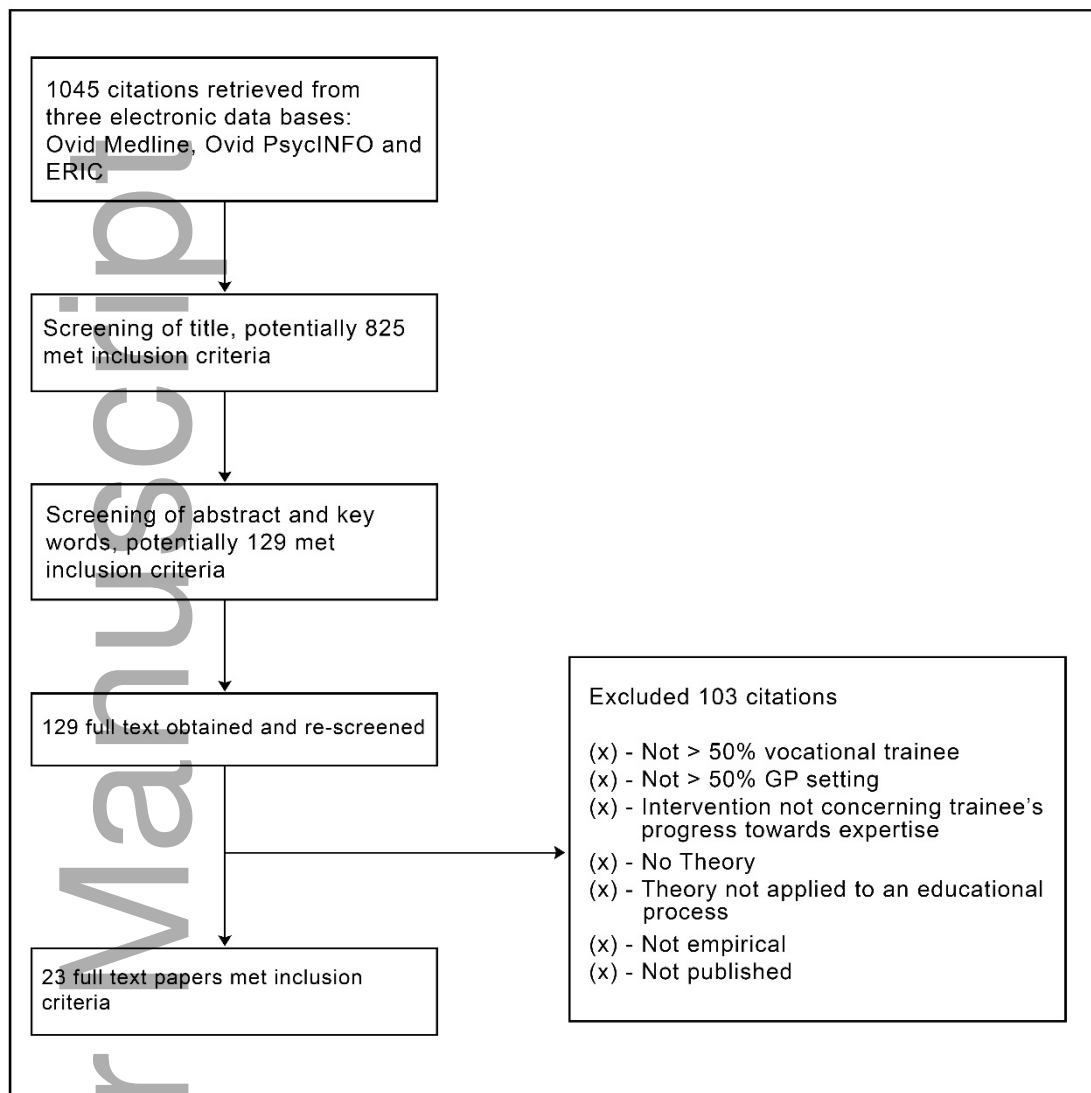


Table 1: Search strategy and terms

Online databases	Ovid Medline, Ovid PsycINFO, ERIC		
Time period	Jan 2013 – June 2017		
Types of literature	Peer reviewed empirical research papers		
Language	English only		
Search Fields	All fields		
Search terms			
What activity?	What theoretic framing?	Where?	Who?
An educational intervention with an	Educational theory. Social theory. Psychological theory.	Work-based clinical learning. General	Postgraduate medical.

evaluation. Research into the manner of an educational process.		practice.	Pre-fellowship.
SEARCH TERMS:			
Educat* Supervis* Teach* Learn* Train* Mentor* Skill Knowledge Performance Assessment Test	Theor*, Pedagog*, Framework, Concept*, Hypoth* Mainstream theories: • Adult+learn* • Learning+style* • Experiential+learning • Communit*+of+practice • Actor+network • Activity+theory • Zone+of+proximal+development • Reflective+practice or learning • Situat*+learning • Self-directed+learning • Cognitive+apprenticeship • Transformative+learning • Work-based+learning • Work-place+learning • Social+construct*	General+practi* GP Family+medic* Primary+Care Family+physician Primary+physician	Resident* Registrar* Trainee* Post+graduate* Post-graduate* Intern Interns

Analysis

Our analysis was done from interpretivist and constructivist perspectives(34). We built an analytic framework iteratively as we interacted with the data and developed our conceptualisation. Our categories were developed using a synthesis of both deductive and inductive inquiry(36); our development of categories being framed by our questions, informed by our reading of recent literature on the role of *theory* in educational research and by the way theory was represented in our selected papers. We first read six papers and, as a team, developed an initial list of analytic categories. These categories were descriptive, interpretative and heuristic and were refined over a series of nine meetings informed by our progressive analysis of the data and by the areas of expertise we each brought. The component parts of

our final analytic framework are detailed in Table 2. Each paper was analysed by at least two of the team with JB analysing all papers except two that he had authored.

Having identified the theories used we grouped these to Bleakley's et al's(2011) typology of three theoretical perspectives taken in medical education(5); cognitive-behavioural, humanistic and socio-cultural. While we grouped theories to their dominant perspective, we recognised that theories may take more than one perspective(19, 37).

We determined the tasks assigned to *theory* in each paper either by what the authors said they were assigning *theory* to do or, more often, by identifying what *theory* was actually doing. Then we developed our conceptualisation of *theory* as a character with a role within a research story by looking for parallels with the tasks assigned to *theory* in our papers with the tasks of Campbell's archetypal characters from his theory of the 'monomyth'(8). He theorises that great stories have archetypal characters each with a role and a set of tasks. The characters that held roles with parallels to the tasks we identified were: the 'Hero' or protagonist, who takes up a challenge and embarks on a journey of change and enlightenment; the 'Harbinger' who brings the challenge to light; the 'Ally' who supports the 'Hero' on their journey; and the 'Mentor' who provides guidance and tools for the journey.

Finally, following Aristotle's view that the measure of a story is its impact on its audience(7), we heuristically considered the impact of the way *theory* was used in each paper on how we, as readers, reacted to the story of the paper(33).

Table 2: Analytic framework

Descriptive	Interpretative	Heuristic
• Authors • Primary theory • Other theories • Domain of educational interest • The parts of the paper where theory was used • Methodology	• Task assigned to <i>theory</i> • Prominence of <i>theory</i> • Audience	• The impact of the use of theory on us as readers

Findings

Theory was explicitly present in 23 papers. The papers secured at each stage of our selection process are detailed in Figure 1. The papers in which *theory* was found are listed by author in Table 3 with elements of our findings. Thirteen papers used a qualitative methodology, six used a quantitative methodology and four used mixed methods.

Table 3: Papers with selected findings

<u>Author(s)</u>	<u>Domain(s) of interest</u>	<u>Methodology</u>	<u>Primary theory</u>	<u>Secondary theories</u>
Brumpton K. et al(38)	An initiative of vertically integrated workshops Learning styles and level of education	Quantitative	Experiential learning – learning styles	Adult learning
Shaughnessy A. et al (39)	An educational initiative of a written reflective exercise	Qualitative	Reflective learning	Cognitive scripts Diffusion of innovation
Govaerts M. et al(40)	Cognitive process in performance rating	Mixed	Social cognition	Naturalistic decision making
Pelgrim E. et al(41)	Feedback in the workplace A theoretical proposition from reflective theory	Quantitative	Reflective learning	
Barnett S. et al(42)	Interest in on-line group education	Quantitative	Communities of practice	Technology acceptance model
Barnett S. et al(43)	Perceived usefulness of an on-line group education proposed initiative	Qualitative	Technology acceptance model	Communities of practice
Wiener-Ogilvie S. et al(44)	Preparedness for independent practice Training placements	Qualitative	Situated learning	Communities of practice
Pelgrim E. et al(45)	Personality traits of trainers and the impact of their feedback on trainees	Quantitative	The Big Five	
Barnett S. et al(46)	An on-line group education initiative	Mixed	Communities of practice	
Stone L.(47)	Learning how to work with patients with unexplained symptoms	Qualitative	Symbolic interactionism	
Van den Eertwegh V. et al(48)	Communication skills development in two different training contexts	Qualitative	Transformative learning	
Van Roermund T. et al (49)	Learner centredness in a group education initiative	Qualitative	Adult learning	
Nothnagle M. et al(50)	A group education initiative to foster professional development	Qualitative	Professional formation	Communities of practice
Walters L. et al(51)	Trainee resilience	Qualitative	Transformative learning	
Grierson L. et al(52)	Curriculum impact on future practice intentions	Quantitative	Theory of planned behaviour	
Cote L. et al(53)	Use of conceptual frameworks in feedback by preceptors	Mixed	Multiple theories, none used as a primary theory	Experiential learning Theory of expertise development Reflective practice
Ingham G. et al(54)	Motivation to supervise. Supervisory practice	Qualitative	Adult learning	
Duggan A. et al(55)	Reflection and communication. Theory of reflective practice	Qualitative	Reflective learning	
Garth B. et al(56)	Learning plans	Mixed	Adult learning	Social learning theories

Clement T. et al(57)	Ad Hoc supervisory encounters. Wenger's theory of Communities of Practice	Qualitative	Communities of practice	Social learning theories
Veen M. et al(58)	Group reflective practice. Conversational analysis	Qualitative	Epistemics of knowledge	Reflective learning
Cote L. et al(59)	Advice giving by non-physician educators Feedback processes and content	Qualitative	Multiple theories, none used as primary theory	Experiential learning Theory of expertise development Situating learning Reflective practice Cognitive apprenticeship
Keister D. et al(60)	A mentorship initiative Self-assessment	Quantitative	Self-determination theory	Dreyfus model of skills acquisition Reflective practice

What *theory* and what type of *theory* was used?

Theory used in our selected papers was both as a discrete theory such as Wenger's 'Communities of Practice'(61), and areas of theorising such as 'theorising on reflective practice'. Some papers engaged a single theory, others primarily engaged one theory with other theories used for secondary purposes. Two papers used constructs and ideas drawn from multiple theories without one theory being emphasised (53, 59). Eighteen discrete theories and three areas of theorising were used. These are detailed in Table 4 with each theory categorised to Bleakley et al's(2011) typology of a theory's primary perspective – cognitive-behavioural, humanistic or socio-cultural(5). Perspectives, and then theories, are listed in order of frequency of use as the primary perspective or primary theory. The most frequently taken perspective was a humanistic one. The most commonly used theories were 'Reflective learning', 'Communities of Practice' and 'Adult learning'.

Table 4: Perspectives and Theories used

Perspective	Papers where used as primary perspective	Theory	Papers where used as primary theory	Papers where used as secondary theory
Humanistic (Focus on the individual and how they might be assisted in realising their potential(Maslow))	11	'Reflective learning'	3	4
		'Adult learning principles'	3	1
		Transformative learning	2	
		Learning styles	1	
		Self-determination theory	1	
		The 'Big Five'	1	
		Dewey's Experiential learning		2
		Dreyfus model of stages of skill acquisition		1

Socio-cultural (Focus on the social and cultural context(ref))	7	Communities of practice	4	1
		Situated Learning	1	1
		Conversational analysis - Epistemics of knowledge	1	
		Symbolic interactionism	1	
		'Social learning theories'		2
		Diffusion of innovation		1
Cognitive - behavioral (focus on the individual's processes of thinking, emotion and behaviour(ref))	3	Technology Acceptance Model	1	1
		Social cognition and person perception	1	
		Theory of planned behaviour	1	
		Cognitive scripts		1
		Cognitive apprenticeship		1
		Ericsson's theory of expertise development		1
		Naturalistic decision making		1

Note: Two papers did not have a primary perspective or theory but took an eclectic approach(53, 59).

Tasks assigned to *theory*.

We identified six different tasks assigned to *theory* in the research stories of our selected papers. This finding was largely an interpretative one derived by what we saw *theory* doing in the paper; few papers were explicit in assigning a task to *theory*. The six tasks were to: 1) align with a position taken by the author; 2) identify the research problem; 3) be a vehicle for an idea; 4) provide a methodological tool; 5) interpret the findings; 6) be an object of examination. Within a given paper, *theory* might have been assigned multiple tasks, sometimes in using more than one theory. In detailing the tasks assigned to *theory*, we reference articles within our set that provide examples of *theory* undertaking that task.

Theory for alignment

The most frequent task assigned to *theory* was to align *theory* with a perspective taken in the paper. Theoretical alignment might be done for: the context of the research(40); the choice of research methodology(57); and conclusions made(59). As readers, we experienced alignment as a positioning manoeuvre, either to sensitise the reader to the author's perspective(60), or to give credibility to a stance(38). In this positioning, language could be used to give the theory

the status of 'accepted orthodoxy' or an 'ideal'(41). Ingham et al(2015) opened their paper with:

'The application of adult learning theory, with its emphasis on a learner-centred approach, has for some decades in medical education been considered essential to facilitate deeper learning' (54)

With this opening, they align the aim of their paper with the tenets of adult learning theory as a sensitising manoeuvre and in using the adjective 'essential' position adult learning theory as an ideal to strive for. Later in the paper, conclusions are justified by aligning them with adult learning theory:

'This behaviour is consistent with a learner-centred adult education approach.'

Theory to identify the research problem

Some papers used *theory* to identify their research problem. Brumpton et al(2013) used *experiential learning theory* in this way by drawing on theories of learning styles to flag that there may be a problem with a mismatch between teaching and learning styles in their vertically integrated educational program(38). Van Roermund et al(2014) use the tenets of adult learning theory to flag the problem of matching expectations and beliefs of educators with those of the trainees in their peer debriefing workshops(49).

Theory as a vehicle for an idea

Discrete theories were sometimes tasked to be a vehicle for an idea or concept. Theories assigned this type of task were theories with broad currency. *Adult learning theory* was used as a vehicle for the idea of learner centredness(49, 54); *experiential learning* was used as a vehicle for learning in the context of doing(53, 58); and *communities of practice theory* was used as a vehicle for the idea of people working together with a common purpose(42, 43, 46, 50).

Theory providing a methodological tool

Some authors gave *theory* the task of introducing or crafting methodological tools. These included tools for collecting data, tools for typology and tools for analysis. Grierson et al(2015) used the theory of planned behaviour to design a questionnaire to collect data on intentions

for future clinical practice by GP registrars(52). Keister et al(2017) used Dreyfus's model of skills acquisition for grading registrar progress(60).

Theory for interpretation

Biesta et al(2011) suggest that *theory* is given interpretative tasks in educational research as a way of providing an answer to 'why people are saying and acting in the way that they are'(20). An example of this interpretative function was Stone's(2014) use of symbolic interactionism as a means of understanding the way that doctors and supervisors dealt with unexplained medical symptoms(47).

This study is grounded in the symbolic interactionism tradition with its fundamental assumption that reality and the self are known through interaction and expressed through communication and language.

Theory as an object of examination

We identified two ways in which *theory* was used as an object of examination. The first was global in assessing the overall utility of a theory for a research purpose and the second was particular in testing a theoretical proposition and to build and extend a theory. Van den Eerwegh et al(2014) determined that their findings on learning communication skills were consistent with 'transformative learning theory' thus concluding that the theory had utility for framing further research in the communication skills domain(48). Testing of a theoretical proposition was undertaken by Pelgrim et al(2013) who examined the proposition from 'Theories of Reflection' that reflection leads to change in action(41). Duggan et al(2015) endeavoured to *theory* build using an examination of trainee reflections on doctor-patient communication(55). They used their research to advance a metaphor of an angler's float as a representation of how reflection sits at the interface between the explicit and the tacit and the tensions that can occur in this context.

Characterisation of the role of *theory*

In our conception of a research paper as a story with *theory* as a character in that story, we looked for parallels with the tasks assigned to *theory* in our sample with the tasks and roles assigned to Campbell's archetypal characters in his 'monomyth theory'(8). We found meaningful parallels with four of Campbell's eight archetypal characters. These are detailed in table 5.

Sometimes *theory* occupied two character roles in the one paper. Clement et al *placed communities of practice theory* both as the ‘protagonist’ and as the ‘mentor’. As the ‘protagonist’, the theory was tested by the data; as the ‘mentor’, the theory was used to interpret the data. This accorded with the imperative for *theory* to inform research and research to inform *theory*.

Table 5: Tasks assigned to *theory* matched to Campbell’s archetypal story characters.

Campbell’s Archetypal Character	Role	Our identified tasks assigned to <i>theory</i>	Example
Protagonist	The main character of the story	<i>Theory</i> as the object of examination	Testing of a theoretical proposition was undertaken by Pelgrim et al(2013) who examined the proposition from ‘ <i>Theories of Reflection</i> ’ that reflection leads to change in action(41).
Harbinger	To introduce the challenge	<i>Theory</i> to identify the research problem	Brumpton et al(2013) used <i>experiential learning theory</i> drawing on theories of learning styles to flag that there may be a mismatch between teaching and learning styles in an educational activity(38).
Ally	To be a companion and support for the hero	<i>Theory</i> for: • Alignment • A vehicle for an idea	Walters et al(2015) aligned their findings with <i>transformative learning theory</i> (51). Barnett et al(2014) used <i>communities of practice</i> as a vehicle for the idea of a group with a common purpose(46).
Mentor	To provide wisdom and advice to the hero	<i>Theory</i> for: • interpretation • Providing a methodological tool	Stone(2014) used the <i>theory of symbolic interactionism</i> for interpretation of how supervisors and trainees dealt with patients presenting with medically unexplained symptoms(47). Griesen et al(2015) used the <i>theory of planned behaviour</i> to develop a tool to measure future practice intentions(52).

Prominence of the role given to *theory*

In examining the role taken by *theory*, we identified the 'prominence of the role' assigned to a theory as an important theme. We graded role prominence from 'cameo character' through to 'major character'. When more than one theory was used in a paper, each theory may be given a different degree of prominence. A theory as a 'cameo character' typically appeared in one or two sentences in either the introduction or the discussion. A theory as a 'major character' was a significant presence throughout the paper. Prominence was related to the role and tasks assigned to *theory*. Cameo roles were mostly as an 'ally' in the tasks of 'alignment for credibility' or to be 'a vehicle for an idea'. Walters et al(2015) gave transformative theory a cameo role with a brief mention of this theory to add credibility to a finding(51):

'This study also demonstrated that individuals can be stretched by supervisors to expand their limits of comfort at managing the key tensions. This finding is consistent with Mezirow's Transformative Learning Theory which recognises that taking people to their 'edge of knowing' can result in growth,'

Use of *theory* as a source for a methodological tool or use of *theory* as an object of examination matched with greater prominence.

Audience stance

We identified the theme of 'audience stance' as significant towards considering impact of the use of theory. We identified five audience stances; educator practitioner, faculty, policy maker, researcher, and theorist. Some papers were explicit about their intended audience, most were not. When the paper was not explicit about its intended audience, we used the focus or main domain of interest of the paper(Table 3) as indicator of the intended audience. If the focus was a discrete intervention, such as an Nothnagle et al's(2014) examination of a facilitated discussion group, we identified the audience as educator practitioners(50). If the domain of interest was a phenomenon from a practical perspective, such as Walter et al's(2015) examination of resilience(51), we identified the audience as faculty or policy maker. If the domain of interest was a methodological issue, we identified the audience as researcher. For example Grierson et al(2015) used *theory of planned behaviour* to develop a tool to measure 'intention to engage in comprehensive practice'(52). If the domain of interest was *theory* development, such as Pelgrim et al's(2013) examination of theories of reflection(41),

we took the audience to be theorists. Some papers took more than one focus or claimed to speak to more than one audience.

What was the impact of the role assigned to *theory* on us as readers?

In line with Aristotle's imperative that the measure of a story is its impact on its audience, we examined the impact of the way *theory* was used in each paper on us, as an audience. The impact we experienced was a confluence of; the role of *theory* and the way that that role was assigned, the prominence of the role, and the stance we took as the audience.

Impact in relation to clarity of role assigned to *theory*

We engaged more easily with *theory* when its role was articulated. It was more difficult when we were left to guess what role was being assigned which was the case with most of the reviewed papers. The Govaerts et al(2013) paper was a good example of articulating the roles that *theory* would take in the paper. This paper dedicated a section within the introduction to the 'conceptual framework'(40). Articulation of the philosophical assumptions behind the choice of theory was also a helpful orientating manoeuvre(3). This was done by Clement et al(2016) in their exploration of Wenger's theory of Communities of practice as a socio-cultural theory(57).

Impact in relation to prominence of role given to *theory*

Prominence of the role ascribed to *theory* had an important impact. As readers, the impact of *theory* on the story of the paper was most meaningful when *theory* was introduced early and was still an active character in the paper's concluding discussion as in the Van Roermund et al(2014) paper(49). In papers where *theory* was a cameo character, we experienced the fleeting presence of *theory* as a distracting diversion from the story. Some papers gave *theory* a strong role in the introduction which was not continued into the rest of the paper. We experienced this as a prospective companion for the story who then inexplicably vanishes.

Impact in relation to stance of audience

Audience stance determined the impact of the depth of development of the character of *theory* in the research story. Complex character development of a theory was valuable when the focus was *theory* and the audience theorists, this however could be alienating with a focus on an educational intervention and the audience of educational practitioners. The Veen, de la

Croix(2016) paper was an example of this tension(58). This paper examined the transition between case presentation and group reflection in facilitated peer debriefing groups. In doing so they tested the theory of 'epistemics of knowledge' for its utility and also engaged in building theory on reflection. This second endeavour involved complex exploration of *theory*. While the paper explicitly claimed to address educators as an audience, we found the paper a challenging read from the perspective of an educator practitioner. It was however engaging to read from the perspective of a theorist.

Discussion

We sought to uncover what *theories* are being assigned a role in GP vocational education research papers, what these roles are and how the way this is done impacts on the reader. Twenty-one different theories or areas of theorising were used in our 23 selected papers. Prominent amongst these were 'adult learning theory', 'communities of practice' and 'reflective learning', all macro or middle range theories(2, 10). *Theories* with a humanistic perspective were dominant. This suggests that these theories and this perspective have particular currency in GP educational research. Theories were enlisted for the roles of: achieving theoretical alignment for sensitising or justifying credibility; being a vehicle for an idea; providing a methodological tool; giving interpretation; and being an object of examination. These roles aligned with those suggested by others, in particular, alignment for credibility(21), as an interpretative tool(22) and as an object of examination(6, 22). We identified that the impact of *theory* in its allocated role depended on clarity about its role, how prominent *theory* was in the research story and the stance of the reader.

We aimed to progress theoretical connoisseurship by identifying the ways in which *theory* could be used. By applying Campbell's archetypal characterisation of roles in a story, we offer a framework for how a role might be assigned to *theory* and how this role might be integrated into the story of a research paper. In broad terms, characters in a story require an entry, development and an exit. Cameo appearances risk being meaningless or a distraction. When *theory* is the object of the research it is the protagonist. Both Aristotle and Campbell recommend that protagonist be made familiar to the audience before the journey commences. We suggest that the introduction is where this is done. The journey should bring a change or new insight which should become clear in the discussion. When *theory* is used for credibility or as a vehicle for an idea, it functions as an 'ally'. As an 'ally' *theory* is a companion

for the protagonist in the research story. Therefore, it should appear in the scene setting of either the introduction or the methods and be present in the conclusion. When *theory* is used in identifying the challenge or problem it functions as 'the harbinger'. 'Harbingers' need a strong presence in the introduction and a presence in the conclusion. When *theory* is used as either an interpretative or a methodological tool it functions as a 'mentor'. A mentor character needs reason to be trusted and therefore needs development when it is first introduced to the research story.

The choice of theory for a particular role and how to use it depends on the field and the audience. If *theory* is to be used for credibility or as a vehicle for an idea, the theory requires currency with the target audience. The impact of *theory* used is supported by articulating the philosophical assumptions behind the theory(3). These are different depending on whether the theory comes from a cognitive behaviour perspective, a humanistic perspective or a socio-cultural perspective(5). The depth of theoretical conceptualising should also be dictated by the intended audience recognising that an educational practitioner may not be engaged in the same way as a theorist by a theoretically dense exploration.

Our paper, in itself, is an example of the characterisation of *theory* in a research story. *Theory* as a generic construct was our '*protagonist*'. We gave depth to her character in our introduction. Through our journey of exploration and discussion we endeavoured to gain a view on how she might be a character in other research stories. We recruited Aristotle's poetics as an '*ally*' to give credibility to our approach and our conclusions. This theory was introduced and made familiar in the introduction to then be a presence in the subsequent sections of the story. Campbell's theory of the 'monomyth' was our '*mentor*' providing interpretation, guidance and a framework(2). This theory was introduced in the introduction, made familiar in the methodology and appeared as a significant character in the findings and discussion. Our '*harbinger*' was the literature on use of *theory* in medical education. This had its prominence in the introduction and appeared briefly in our discussion. Our field was GP educational research and our audience those who would use *theory* in their research, particularly GP educational research. GP is an eclectic discipline drawing on a broad palate of perspectives to serve its ends. It is also a discipline where the narrative of the patient is paramount(56). We therefore chose the story metaphor and drew on more than one theory to meet our ends.

The strengths of this research journey are also its limitations. We chose GP educational research as our setting and confined our examination to the past five years. This limited our sample so that we could pursue analytical depth. GP education research inevitably has its own contextual characteristics that may or may not pertain to other areas of medical education. We believe that GP education research is an important field in itself and also that conclusions drawn from research in this area have relevance more broadly. By choosing only five years we are unable to comment on changes in what is likely to be a changing environment. A more longitudinal view on the use of *theory* may offer insights to future directions of the use of *theory*. Our search terms required explicit mention of a theory for the paper to be included. This meant that implicit theoretical orientations were not examined. This is likely to have resulted in weighting our sample away from quantitative papers in a positivist paradigm where theoretical underpinnings are more likely to be assumed(2). Qualitative papers dominated our selection. We took an interpretative approach in examining the use of *theory* and this enabled us to draw on the perspectives we held and on our reactions to reading the papers. However, this may not align with the interpretations and reactions of others. It is for others to judge the veracity and usefulness of our interpretation against their own experiences of the use of *theory* in the literature. The recommendations we make are drawn from our interpretation of the findings. In line with our constructivist approach, we recognise that our conclusions come from one of many justifiable perspectives. Our interest was the way that theory was represented in research writing. We did not examine the way that *theory* was used in the research itself nor the rigour with which it was used. This would be a useful area for further research.

Conclusion

"Begin at the beginning," the King said, very gravely, "and go on till you come to the end: then stop."

Alice in wonderland. Lewis Carroll.

Our focussed review suggests that *theory* does not need to be a lost character in our research stories. By casting *theory* meaningfully, it can take a significant role. For *theory* to have impact on the research story we need to be: deliberate about the role we choose to give *theory*; explicit about the reasons for our choice of theory; and attend to characterisation of *theory* in our research story. By being explicit across these dimensions, educational researchers can both add to the cohesive quality of their research writing and provide insights to help others in

writing *theory* into their research stories. Through this, theoretical connoisseurship may be progressed.

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References:

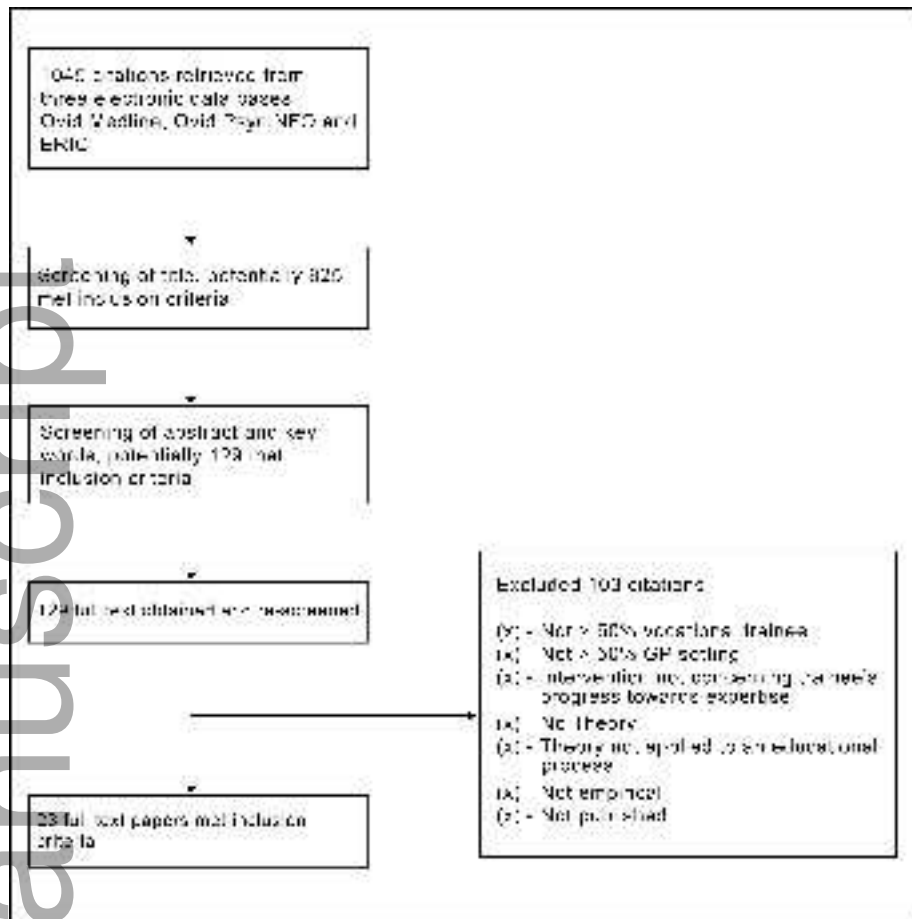
1. Sword H. *Stylish academic writing*. Cambridge, Massachusetts: Harvard University Press; 2012.
2. Rees CE, Monrouxe LV. Theory in medical education research: how do we get there? *Med Educ*. 2010;44(4):334-9.
3. Bunniss S, Kelly DR. Research paradigms in medical education research. *Med Educ*. 2010;44(4):358-66.
4. Rees C, Francis B, Pollard A. The state of medical education research: what can we learn from the outcomes of the UK Research Excellence Framework? *Med Educ*. 2015;49(5):446-8.
5. Bleakley A, Bligh J, Browne J. *Medical education for the future: Identity, power and location*. Hamstra SJ, editor. London: Springer Science & Business Media; 2011.
6. Norman G. Editorial—Theory Testing Research Versus Theory-Based Research. *Adv Health Sci Educ*. 2004;9(3):175-8.
7. Aristotle. *Poetics*. Appelbaum S, editor. Mineola, New York: Dover Publications, Inc.; 1997.

8. Campbell J. *The Hero With a Thousand Faces*. 3rd ed. Novator, California: New World Library; 2008.
9. Hodges BD, Kuper A. Theory and practice in the design and conduct of graduate medical education. *Acad Med*. 2012;87(1):25-33.
10. Nestel D, Bearman M. Theory and simulation-based education: Definitions, worldviews and applications. *Clin Simul Nurs*. 2015;11(8):349-54.
11. Norman GR. The adult learner: a mythical species. *Acad Med*. 1999.
12. Taylor DC, Hamdy H. Adult learning theories: Implications for learning and teaching in medical education: AMEE Guide No. 83. *Med Teach*. 2013;35(11):e1561-e72.
13. Kilminster S. Off the peg or made to measure: how does this theory fit? *Med Educ*. 2017;51(4):342-3.
14. Skinner BF. *Science and human behavior*. New York: Macmillan; 1953.
15. Sweller J. Cognitive load theory. *Psychology of learning and motivation*. 55: Elsevier; 2011. p. 37-76.
16. Maslow AH. *Motivation and personality*. 2nd ed. New York: Harper & Row; 1970.
17. Rogers CR. *Freedom to learn*. Columbus, Ohio: C.E. Merrill Pub. Co.; 1969.
18. Vygotsky LS. *Mind in society: The development of higher mental process*. Cambridge, MA: Harvard University Press; 1978.
19. Gibbs T, Durning S, Van Der Vleuten C. Theories in medical education: Towards creating a union between educational practice and research traditions. *Med Teach*. 2011;33(3):183-7.
20. Biesta G, Allan J, Edwards R. The theory question in research capacity building in education: Towards an agenda for research and practice. *Br J Educ Stud*. 2011;59(3):225-39.
21. Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies: guided by information power. *Qual Health Res*. 2016;26(13):1753-60.
22. Kaufman DM, Mann KV. Teaching and learning in medical education: How theory can inform practice. In: Swanwick T, editor. *Understanding medical education: Evidence, theory and practice*. 2nd ed. West Sussex, UK: Wiley-Blackwell; 2013. p. 7-29.
23. Medical Education Author Guidelines: John Wiley & Sons Ltd and The Association for the Study of Medical Education; 2018 [Available from: [http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1365-2923/homepage/ForAuthors.html](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2923/homepage/ForAuthors.html)].
24. Advances in Health Science Education: Springer; [Available from: <http://www.springer.com/education+%26+language/journal/10459>].

25. Cook DA, Beckman TJ, Bordage G. Quality of reporting of experimental studies in medical education: a systematic review. *Med Educ.* 2007;41(8):737-45.
26. Greenhalgh T. *Primary health care: theory and practice*. Oxford, UK: Blackwell Publishing; 2007.
27. Zaharias G. Narrative-based medicine and the general practice consultation: Narrative-based medicine 2. *Can Fam Physician.* 2018;64(4):286-90.
28. Hays RB, Morgan S. Australian and overseas models of general practice training. *Med J Aust.* 2011;194(11):S63.
29. Webster F, Krueger P, MacDonald H, Archibald D, Telner D, Bytautas J, et al. A scoping review of medical education research in family medicine. *BMC Med Educ.* 2015;15(1):79.
30. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci : IS.* 2010;5:69.
31. Boell SK, Cecez-Kecmanovic D. A hermeneutic approach for conducting literature reviews and literature searches. *CAIS.* 2014;34:12.
32. Miles MB, Huberman AM. *Qualitative data analysis: An expanded sourcebook*. 2nd ed. Thousand Oaks, California: Sage Publications; 1994.
33. Moustakas C. *Heuristic research : design, methodology, and applications*. Thousand Oaks, California: SAGE Publications; 1990.
34. Cresswell JW. *Qualitative Inquiry & Research Design*. 3rd ed. Thousand Oaks, California: Sage Publications; 2013.
35. Moher D, Liberati A, Tetzlaff J, Altman DG, Group P. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med.* 2009;6(7):e1000097.
36. Ratcliffe JW. Notions of validity in qualitative research methodology. *Knowledge.* 1983;5(2):147-67.
37. Dennick R. Twelve tips for incorporating educational theory into teaching practices. *Med Teach.* 2012;34(8):618-24.
38. Brumpton K, Kitchener S, Sweet L. Learning styles in vertically integrated teaching. *The Clin Teach.* 2013;10(5):282-6.
39. Shaughnessy AF, Duggan AP. Family medicine residents' reactions to introducing a reflective exercise into training. *Educ Health.* 2013;26(3):141.

40. Govaerts JM, Van de Wiel WM, Schuwirth WL, Van der Vleuten PC, Muijtjens MA. Workplace-Based Assessment: Raters' Performance Theories and Constructs. *Adv Health Sci Educ.* 2013;18(3):375-96.
41. Pelgrim E, Kramer A, Mokkink H, Van der Vleuten C. Reflection as a component of formative assessment appears to be instrumental in promoting the use of feedback; an observational study. *Med Teach.* 2013;35(9):772-8.
42. Barnett S, Jones SC, Bennett S, Iverson D, Bonney A. Perceptions of family physician trainees and trainers regarding the usefulness of a virtual community of practice. *J Med Internet Res.* 2013;15(5).
43. Barnett S, Jones SC, Bennett S, Iverson D, Bonney A. Usefulness of a virtual community of practice and web 2.0 tools for general practice training: experiences and expectations of general practitioner registrars and supervisors. *Aust J Prim Health.* 2013;19(4):292-6.
44. Wiener-Ogilvie S, Bennison J, Smith V. General practice training environment and its impact on preparedness. *Educ Prim Care.* 2014;25(1):8-17.
45. Pelgrim EA, Kramer AW, Mokkink HG, van der Vleuten CP. Factors influencing trainers' feedback-giving behavior: a cross-sectional survey. *BMC Med Educ.* 2014;14(1):65.
46. Barnett S, Jones SC, Caton T, Iverson D, Bennett S, Robinson L. Implementing a virtual community of practice for family physician training: a mixed-methods case study. *J Med Internet Res.* 2014;16(3).
47. Stone L. Managing the consultation with patients with medically unexplained symptoms: a grounded theory study of supervisors and registrars in general practice. *BMC Fam Pract.* 2014;15(1):192.
48. van den Eertwegh V, van Dalen J, van Dulmen S, van der Vleuten C, Scherpbier A. Residents' perceived barriers to communication skills learning: comparing two medical working contexts in postgraduate training. *Patient Educ Couns.* 2014;95(1):91-7.
49. van Roermund TA, Mokkink HG, Bottema BJ, van Weel C, Scherpbier AJ. Comparison of expectations and beliefs about good teaching in an academic day release medical education program: a qualitative study. *BMC Med Educ.* 2014;14(1):211.
50. Nothnagle M, Reis S, Goldman RE, Anandarajah G. Fostering professional formation in residency: Development and evaluation of the "forum" seminar series. *Teach Learn Med.* 2014;26(3):230-8.
51. Walters L, Laurence CO, Dollard J, Elliott T, Eley DS. Exploring resilience in rural GP registrars—implications for training. *BMC Medical Education.* 2015;15(1):110.

52. Grierson LE, Fowler N, Kwan MY. Family medicine residents' practice intentions. *Can Fam Physician*. 2015;61(11):e524-e31.
53. Côté L, Gromaire P, Bordage G. Content and Rationale of Junior and Senior Preceptors Responding to Residents' Educational Needs Revisited. *Teach Learn Med*. 2015;27(3):299-306.
54. Ingham G, Fry J, O'Meara P, Tourle V. Why and how do general practitioners teach? An exploration of the motivations and experiences of rural Australian general practitioner supervisors. *BMC Med Educ*. 2015;15(1):190.
55. Duggan AP, Vicini A, Allen L, Shaughnessy AF. Learning to See Beneath the Surface: A Qualitative Analysis of Family Medicine Residents' Reflections About Communication. *J Health Commun*. 2015;20(12):1441-8.
56. Garth B, Kirby C, Silberberg P, Brown J. Utility of learning plans in general practice vocational training: a mixed-methods national study of registrar, supervisor, and educator perspectives. *BMC Med Educ*. 2016;16(1):211.
57. Clement T, Brown J, Morrison J, Nestel D. Ad Hoc Supervision of General Practice Registrars as a "Community of Practice": Analysis, Interpretation and Re-Presentation. *Adv Health Sci Educ*. 2016;21(2):415-37.
58. Veen M, de la Croix A. Collaborative Reflection Under the Microscope: Using Conversation Analysis to Study the Transition From Case Presentation to Discussion in GP Residents' Experience Sharing Sessions. *Teach Learn Med*. 2016;28(1):3-14.
59. Côté L, Rocque R, Audétat M-C. Content and conceptual frameworks of psychology and social work preceptor feedback related to the educational requests of family medicine residents. *Patient Educ Couns*. 2017;100(6):1194-202.
60. Keister DM, Hansen SE, Dostal J. Teaching Resident Self-Assessment Through Triangulation of Faculty and Patient Feedback. *Teach Learn Med*. 2017;29(1):25-30.
61. Wenger E. *Communities of Practice. Learning, meaning, and identity*. New York: Cambridge University Press; 1998.



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