

Fictions of work-related learning: how a hit television show portrays internship, and how medical students relate to those portrayals

Kaela Jubas* and Patricia Knutson

Faculty of Education, University of Calgary, Calgary, Canada

(Received 23 May 2012; final version received 5 October 2012)

This article proceeds from three main premises. First, we assert that popular culture functions pedagogically and helps cultural consumers learn about work, even before they enter educational programs or workplaces. Second, we argue that exploring portrayals of internship is useful in understanding the ‘attributes of formality and informality’ that are present in any learning context. Third, we view internship not as a singular pedagogical strategy, but rather as a complex of pedagogical and learning approaches. We use the American television show *Grey’s Anatomy*, set in a teaching hospital and focused on surgical residents, as a case of cultural representation of the internship process. We identify six approaches that are portrayed in the show: question-and-answer, experiential learning, mentoring, networking, peer learning and learning/teaching. These approaches illustrate how multiple strategies are developed and adopted by learner-workers and teacher-supervisors. We then explore how undergraduate medical students who participated in our study anticipated their own internship experiences and made sense of portrayals of it in the show.

Keywords: medical internship; learning strategies; pedagogies; popular culture

Introduction

Built on the understanding that valuable learning occurs outside the classroom, internship is commanding increasing attention among post-secondary educators and students. Conceptually, one interesting characteristic of internship is that it exemplifies the blurriness of the line between ‘formal’ and ‘informal’ learning. Along with an explicit curriculum, formal education is a site of unplanned, unassessed, unfacilitated learning about issues such as the politics of higher education, dynamics between instructors and students, and manifestation of social identities among groups of students. On the flip side, workplace learning, normally considered informal, is influenced by social structures which help determine how learning priorities are set, how learning opportunities are apportioned, and how learning is assessed and recognised. As Malcolm, Hodkinson, and Colley (2003) suggest, it might be more useful to think about the ‘attributes of formality and informality’ that are present in any learning context than to continue dividing

*Corresponding author. Email: kjubas@ucalgary.ca

This article is based on a presentation delivered at Celebrating Lifelong Learning in our Communities, March 29–30, 2012, Faculty of Extension/University of Alberta.

learning experiences into the formal and informal. This is one central conceptual point in this paper.

A second conceptual point is that popular culture operates pedagogically. Following a constructivist understanding of adult learning, we assert that audience members learn something through the popular culture that they consume and enjoy. Recognising multiple perspectives on mass media and culture, Tisdell (2008) draws on Galician's writing and advises:

To be sure, the media are a mixed bag, and it's fruitless for educators to argue the evils of media consumption; what's far more important is to teach critical media literacy – to teach people to critically analyze the media they are exposed to on a daily basis. (49)

In this article, we highlight the blurriness of formality and informality, as we combine interests in culture-as-pedagogy and workplace learning. We focus on how popular culture represents teaching approaches employed in professional, specifically medical, internship and how undergraduate medical students juxtapose those cultural representations with their own educational experiences and learning expectations. We use the American television show *Grey's Anatomy* to illustrate the range of pedagogical and learning strategies in surgical internship, referred to commonly as residency, and present responses to the show among undergraduate medical students who were anticipating their own internship processes.

Culture-as-pedagogy: previous research

Our inquiry focused on how medical students learn something from the popular culture that they consume, rather than how they learn in clinical placements. For that reason, the literature reviewed here concentrates on culture-as-pedagogy. Wright and Sandlin (2009) outline various ways that adult educators use popular culture in their work. Two ways seem especially relevant to this article: explorations of how adult learning is represented in popular culture, and inquiry into how cultural consumption influences adult learners and learning. We explore how adult learning is portrayed in a television show, how popular culture functions pedagogically and how cultural consumers understand their own resultant learning.

Some adult educators interested in popular culture share our focus on work-related learning. In his comparison of various versions of the television show *The Office*, Armstrong (2008) concludes that differences in tone and focus reflect varied discourses of work and teach audience members about culturally specific assumptions and practices even before they enter the workplace. In their analysis of *Wicked*, Kruse and Prettyman (2008) outline how this musical both challenges and reiterates gender stereotypes about leadership. Female characters in the play who aspire to leadership positions face the choice of adopting masculine habits or maintaining a stereotypically female demeanour and style. Although leadership itself is gendered as a masculine pursuit, the female characters and, presumably, audience members are reminded that women who defy hegemonic gender binaries stand little chance of success. Fisher, Harris, and Jarvis (2008) explore the American television show *Buffy the Vampire Slayer*, which provides a critical view of education, learning and work, and blurs the distinction between formal and informal learning. Buffy learns crucial lessons about herself and her life's purpose through her work, and her most

important school-based learning is unrelated to the curriculum but illuminates power dynamics between young, low income students and older, wealthier faculty.

There has been little participant-based research undertaken by adult educators in this area. For that reason, Wright's (2010) study of responses to an early season of the 1960s British show *The Avengers* is notable. Wright explored how that season's main female character, secret agent Cathy Gale, influenced female fans' sense of themselves and the expanding feminist project. The Gale character helped fans imagine new options for themselves as women, citizens and workers. Wright's dual emphasis on the show's messages and audience members' learning from it resembles our own methodological approach, a point to which we return in the methodology section below.

With her colleagues, Tisdell (2008) studied how instructors can insert popular culture into critical media literacy curriculum. She concludes that, by bringing popular culture into the classroom, adults can learn to consume cultural products more critically and can deepen their critical understanding of social issues. These aims are important, Tisdell argues, because popular culture resonates with people on an emotional level. It brings pleasure to audience members, even if it reinforces problematic, hegemonic ideologies and, in the Gramscian sense, their associated 'common sense'. What becomes important, then, is to help people develop a more critical approach and response to cultural texts. Popular culture portrays social relations and, in so doing, teaches consumers something about social life. The ability for consumers to engage with these texts more critically increases the likelihood that they will question hegemonic assumptions and representations, and contribute to social critique and transformation.

The literature reviewed here connects adult learning, work and popular culture. It informs our understanding that popular culture teaches people something about the work that they will undertake and that popular culture can both reiterate and challenge hegemonic social relations that surface within and beyond the workplace. As we establish in our discussion below, our own conversations with participants confirmed that cultural consumers are also always learners.

Methods and participants

Our qualitative case study involved two stages. In stage 1, the principal investigator conducted a textual analysis of two shows, *Grey's Anatomy* and *Scrubs*. Analysis was organised around the themes of ethics, identity and pedagogy/learning, which later informed development of guidelines for stage 2. Because of the volume of data produced from this process, we limit our discussion here to the former show, which has had a much larger viewing audience. Stage 2 involved conversations with a total of 41 participants in selected Canadian centres (Victoria/Vancouver, British Columbia; Calgary, Alberta; and Toronto, Ontario). Participants were studying to be nurses ($n=20$) or doctors ($n=21$); again, we limit our discussion to medical student participants. In keeping with standard research protocol, pseudonyms were assigned to all participants and are used here.

Most participants, 36 of 41, were female, and all five male participants were medical students. This is not entirely surprising. Nursing remains a highly feminised field of study and work, and medicine is now a gender-balanced field. The pool of prospective participants, then, was highly feminised. In terms of ethno-racial

affiliation, most participants self-identified as white or Caucasian, with varied ethnic identities. Twelve participants described themselves as Chinese or Asian, Indo-Canadian or Hispanic. With regards to socio-economic class, the medical student participants were most likely to describe themselves as coming from a middle- or upper-class background, and having a family member in the medical profession was not uncommon; in contrast, nursing students were more likely to note a broader range of class identities.

Although we intended to conduct small focus groups with participants, sometimes only one person could meet for a session; often, we received little notice about cancellations. Aware that medical and nursing students have hectic, unpredictable schedules, we decided to meet with participants individually if there was no other option. Whether they involved one-on-one or group conversations, sessions used the same guidelines and basic structure: After introducing themselves, participants discussed four sets of questions about the thematic areas outlined above. Each set of questions was separated by a series of clips from the shows that were selected for viewing because we thought they highlighted the themes. Conversations with participants were held between 2010 and 2011 and were transcribed and analysed with the help of NVivo software. In the remainder of the article, we discuss findings related to the theme of pedagogy/learning from both stages of the study.

Grey's Anatomy: synopsis

Grey's Anatomy is a long-running show set in Seattle Grace, a fictional private teaching hospital in Seattle, Washington, and focused on surgical residents and surgeons. The original central team of first-year residents includes Meredith Grey, the show's namesake, her best friend Cristina Yang, George O'Malley, Izzie Stevens and Alex Karev, and their initial supervisor, Miranda Bailey. Neurosurgeon Derek Shepherd romances and eventually marries Meredith. Chief of Surgery Richard Webber oversees these residents and surgeons. Other main characters include Preston Burke, Erica Hahn and Teddy Altman who sequentially fill the role of cardiothoracic surgeon; trauma surgeon Owen Hunt, who replaces Richard as Chief and marries Cristina; orthopaedic resident Callie Torres and her partner paediatrician Arizona Robbins; and Meredith's estranged half-sister Lexie, Jackson Avery and other surgical residents.

In terms of genre, *Grey's Anatomy* is a prime time drama. It plays up melodrama among its characters and highlights urgent, often exotic cases. The show is noteworthy not just for its long-standing success but also for its portrayals of diversity. Aside from the presence of several women in the historically masculine domain of surgery, there is the Korean-American character of Cristina, the Latina Callie, and several African-Americans occupying important positions, Chief Webber, Miranda and Preston among them. A lesbian relationship between Callie and Arizona is accepted by other characters and figures centrally in the show. The residents and surgeons hold a range of socio-economic class affiliations. All in all, the characters' backgrounds and identities suggest that Seattle Grace is a site of social diversity and tolerance.

Pedagogical models in the show

There are explicit reminders that Seattle Grace is a teaching hospital, that residents are there to learn how to practise medicine competently, and that attending physicians are responsible for helping residents develop their professional knowledge, capacities and identities. Traditional pedagogical and learning strategies such as reading textbooks or journals and attending lectures remain present, but additional approaches broaden, deepen and contextualise learning. Such portrayals reflect the real-life aims of internship. According to Paré and Le Maistre (2006), 'Ideas must move out of books and become actions in the material world. Moreover, and very importantly, they must be enacted or performed in cooperation with others' (367). In this section, we identify several approaches that are enacted in *Grey's Anatomy* and in participants' lives.

Experiential learning

Drawing on the writing of Usher, Miller (2000) distinguishes between 'experiential learning' and 'learning from experience'. Experiential learning refers to learning which is somewhat formalised; in contrast, learning from experience refers to learning which is unplanned and unfacilitated. We adopt the social constructivist understanding that knowledge is built up by learners through their collective, contextualised experience. Based in real-life settings and presenting real-life problems, experiential learning enables the development of 'tacit and explicit, theoretical and practical, and individual and collective knowledge in a work context' (Poell, Yorks, and Marsick 2009, 78). As Guile and Griffiths (2001) note, 'Instead of viewing work solely as a context which students learn *about*, it is important to appreciate that work, like education, is a context *through which* students can learn and develop' (emphasis in original) (117). Even if it includes structured, purposeful teaching and learning, experiential learning is often difficult to recognise and evaluate because of the ever-present potential for unanticipated learning and the possibility that different individuals will learn different lessons (Marsick 2009).

Within medicine, experiential learning is an essential part of initial and continuing education. For doctors, 'Learning from practice enhances understanding, performance, and motivation' (Barr 2009, 148). Having followed 51 medical residents, Teunissen and others (2007) conclude that a good deal of their learning begins with daily work-related tasks and interactions. One participant in their study confirmed, 'You learn by doing things and then upon your action follows a reaction from somebody else, a faculty member, or a patient' (766).

In *Grey's Anatomy*, residents engage in book- and lecture-based learning, try out procedures under the watchful eyes of experts and reflect on what they are seeing and doing. Experiential learning enables characters to apply knowledge gained from books and lectures to clinical situations and to understand that real-life scenarios often do not correspond exactly to what they have been taught in classes. Moreover, one person's experiential learning can contribute to other people's learning through experience, as knowledge is shared in situations that emerge unexpectedly. For example, in one episode the residents encounter a young female patient with her husband and baby at the hospital. When they learn that the woman has come to Seattle Grace for a mastectomy, they are surprised that her breast cancer could have progressed so dramatically with no obvious symptoms. Having spent time on the

obstetrical and gynaecological service, Alex shares some recently gained knowledge with his peers: 'It's a new baby. Probably thought the lump was a milk duct. You learn things on the vagina squad' ('Oh, the Guilt'; Melman 2006).

Participants in our study agreed that experiential learning was vital to the internship process that they would begin after their undergraduate programs. Even as students, they were involved in clinical rotations. Holly's comments were typical of participants' enthusiasm for experiential learning. For her, 'experiential learning is the only way to learn, because health care is hands on. You are working with people hands on so the only way to learn that is hands on. So I think that is very realistic [in the show]'. Madeleine, a second-year medical student, described the impact of having a preceptor, or clinical tutor, who 'was amazing and got me to do all kinds of stuff with my hands, [and] I realized that I really liked the procedures'. Gyan, another second-year student, chuckled as she recalled having to do a particular procedure for the first time: 'Yeah, like I've had to do a DRE without knowing how to do them, you know, like the digital rectal exam, so I find that to be very realistic'. Participants recognised that experiential learning might involve some discomfort and unpredictability, but saw its frequent portrayal on *Grey's Anatomy* as one of show's more authentic aspects.

An important element of experiential learning is the possibility of learning from mistakes. In one episode of the show, Chief Webber shares a memory of his own experience with Izzie:

Richard: My first year as an intern, I had a stable cardiac patient who blew out his lung while I was transporting him to CT. I called in a code. By the time everyone got there, he was dead. If I'd put a chest tube in right away –

Izzie: You made a mistake.

Richard: But I stayed. I worked. I learned. I never made that mistake again. ('Oh, the Guilt')

Although discouraged, mistakes often are recognised in the show as learning opportunities.

Participants in our study recognised that they were not perfect and would make mistakes in clinical settings, as they did in classroom settings. Apple, a second-year medical student, worried that the perception of mistakes as learning opportunities evident in *Grey's Anatomy* might not be found in her internship experience. 'How do we feel safe about making a mistake?' she wondered. Likewise, Brian considered the stress of having to learn on the job and on his feet, sometimes with an attending physician who might be a quick and harsh critic, all the while knowing that some mistakes were inevitable. Still, he recognised that experiential learning is:

Effective, you learn fast I have heard other students, for example, have been . . . in the OR. They'll be going with the surgeon to suture and it's their first time in the OR. 'Suture this.' What are you talking about?! But then you have that chance to do it and if you fail you might be able to get a chance to do it again so you are kind of thrown into that high pressure situation and it works.

Mistakes might be a part of real-life learning and work, but participants appreciated the potential gravity of their mistakes. They hoped that they would have teachers and

supervisors who were as understanding, supportive and helpful as Seattle Grace's Chief Webber.

Question-and-answer

Question-and-answer is a second pedagogical approach evident in *Grey's Anatomy*. During rounds, a group of residents visits patients with a senior resident or surgeon. The following excerpt from the show exemplifies how the supervisors and teachers review details of a case with novices and reward those who respond quickly and accurately to their questions:

Preston: Why keep the heart beating...?...O'Malley?

George: Scar tissue's too deep. Heart's too weak to start up again. So you only immobilize the portion you're working on and you leave the rest of the heart on its own.

Preston: Welcome to the case. ('Something to Talk About'; Davidson 2005)

At other times, a surgeon might question an individual resident who accompanied a patient through a diagnostic procedure. Whether employed in a group or individualised setting, question-and-answer complements experiential learning by giving attending surgeons an opportunity to check residents' knowledge before they are entrusted with patient care. As they answer questions reasonably and thoughtfully, residents are reminded of the knowledge and skill that they have developed, and build up their own self-confidence as novice practitioners.

Participants such as Tim and Alex who grew up with relatives in the medical field were especially likely to see *Grey's Anatomy's* portrayal of the question-and-answer approach as realistic, and accepted the prospect of being questioned both publicly and privately. Although they could see the value of this strategy, others felt apprehensive about having their knowledge tested in front of teachers/supervisors, peers and patients. This point was articulated in the following conversation between two participants:

Madeleine: ...And in Grey's Anatomy they have the gallery where you can watch the surgeries which I had never heard of before, I don't know if they have them here or not. And I hate the idea of having those people there staring at you and evaluating you, and I hate those small groups because all the people are sitting there staring at you and their attention is on you...I don't even really understand the concept of rounds, I mean I see it on the show, but I have never seen that in a hospital. Does it actually happen like that?

Alex: It does, just like that, and the group is probably bigger.

It seems, though, that medical students and junior residents become accustomed to being watched and quizzed as they approach and progress through their internships. MJ, a participant still in first year, recalled witnessing a group of upper year students, known as clerks, while she was shadowing staff in a clinical setting. According to her:

There was, like, an attending physician who was quizzing the clerks, and they were sort of, like, okay [with it]. ‘Well, what drug would you give them?’ And it was something regarding . . . the cardiovascular system and we just had an exam on that and I was, like, ‘Wow, like I really can see how all of this knowledge is so applicable in this case because it wasn’t just, like, what drug would you give them it was also, like . . . how does this drug act, what are you worried about in terms of other systems and so on’.

In the fictional life of Seattle Grace and the real-life anticipations of participants, this particular kind of question-and-answer might take some getting used to, but as an approach it complements both classroom-based and experiential learning.

Mentoring

Especially in a profession such as medicine, which encompasses so many specialities and sub-specialities, and demands that practitioners exhibit a sophisticated breadth and depth of conceptual knowledge and technical ability, mentorship seems like a useful strategy. For learners, it offers opportunities to further their own development in and socialisation into the field. Mentorship helps novices bridge the gap between what they cannot accomplish even with assistance and what they already know how to do on their own (Paré and Le Maistre 2006). For experienced physicians, the idea of mentorship holds out the promise of a constant stock of competent, trustworthy assistants, as well as building posterity and their own reputations.

In *Grey’s Anatomy*, mentorship is embraced commonly by residents and many surgeons. Determined to specialise in cardiothoracic surgery, Cristina looks to Preston for dedicated guidance, teaching and clinical opportunities. Unfortunately, she and Preston cross a boundary between mentor and mentee, surgeon and resident, and teacher and learner when they become lovers. After Preston leaves her and Seattle Grace, she continues to pursue mentoring relationships with his replacements, first Erica and then Teddy. Likewise, Meredith shows potential in neurology, and Derek takes her under his wings. Again, though, the waters of mentorship become muddied, as their on-again/off-again romance complicates the mentoring relationship and appearances of favouritism develop.

Participants were quick to point to the tendency for residents and surgeons in *Grey’s Anatomy* to violate mentorship standards. The romantic relationships that develop in the show between residents and surgeons were seen as illustrations of the show’s soap opera quality and its aim to entertain rather than educate. Nonetheless, participants appreciated the recognition in the show that mentorship offers important personal and career-related learning and development opportunities. Madeleine, one of the participants who was anxious about the thought of being put on the spot and making mistakes described herself as ‘a much more mentor person, I like being one on one or one on two When you have a mentor, you can see them do it, practice one and then when you generally know enough you can teach someone’. We return to the progression implied here in the section on Learning/Teaching.

Some participants talked about growing up with a family member or close acquaintance who had acted as a long-time mentor for them as they entered medical school and imagined their journeys through residency and into medical practice. For example, Crystal described:

One physician who is in my life because she is a family friend and is also my GP [i.e., general practitioner or family doctor]. Her life is something I would like to emulate. She's very driven, she's very into her career, but she's got this great family life and she's always the life of the party outside of her job as well. And that's something I could identify with, that's something I would aspire to as well.

Even before individuals enter medical education programs, they go through rather unique application procedures involving panel interviews. Understanding how to dress, speak and behave with panel members infers a degree of cultural comfort and facility which mentoring helps foster. Those expectations continue throughout undergraduate medical education, and students are assessed informally by residents and attending physicians, as they extend their learning through mentoring to learning through networking.

Networking

Mentors, if they can be found and fostered, become a crucial part of medical students' and residents' social networks; however, networking is a teaching and learning strategy that extends beyond the dedicated relationship between a mentor and a mentee. Networking becomes a strategy for teaching and learning about the social politics and cultural mores of medicine, and operating within them. In *Grey's Anatomy*, some characters begin their residencies with well-developed connections and networks in the medical field. Meredith's mother was a brilliant surgeon who practised at Seattle Grace; Cristina's stepfather is a wealthy cardiologist; and Jackson's mother is a successful physician and his grandfather was a renowned medical researcher. Being surrounded by relatives and acquaintances in the medical profession teaches these characters about the demands and the rewards of medical education and practice, introduces them to important figures in the field and helps them learn how to enact the cultural norms of this profession. Meanwhile, other characters in the show, especially those who have come from a working-class or impoverished background – notably, Izzie, Alex and George – must learn about the importance of networking and how to build and use a professional network.

Although not all medical school participants described their backgrounds as middle or upper class, the vast majority of them did so. Several came from medical families, and most had university-educated parents. Only one person described herself as 'lower-middle class', and although some participants had parents who had immigrated to Canada, most were at least second-generation Canadians. There was a shared perception that people who could position themselves as close to the top social tier in Canadian society and the medical profession had distinct advantages in terms of applying to and getting through medical school and eventually securing their residencies.

As we noted above, even the application process for medical school is uniquely strenuous, and it is easier to navigate if applicants understand the importance of networks and how to engage in them. Once accepted into a program, medical students are encouraged to continue their networking, in order to learn 'who's who' in the specialities that interest them, and how medicine is practised culturally as well as clinically. This point was raised clearly in one session:

Marie: If you know the right people and you've impressed the right people, you're guaranteed a spot. Or...you're more favoured than a person they don't know....

Brooke: Earlier in the year I met with one of the chief residents...for lunch with a friend of mine. He said to me, 'You shouldn't be spending your time going to class, you should be networking and shadowing'.... A lot of it is a letter of reference, and they sit around a table and [ask], 'Who's heard of this person?'...That's the message that's starting to resound with people. It is networking. And it's competitive.

As a member of a racialised minority group and working-class family that had immigrated to Canada, Brooke was acutely aware of the disadvantages – whether material, social or cultural – that she faced as a medical student. She was also concerned about their potential impacts as she moved forward in her education and career.

Participants who came from medical families understood the importance and value of connections and networks in the medical field and were able to capitalise on them in deciding to study medicine. Emily, who had several family members in the medical field, explained:

My dad is also a doctor as are both my grandparents and my aunt, so I am a third generation doctor in my family. So I have a pretty good idea of what the profession is like. And it is the things that I like, and some of the characteristics about myself...fit in quite well with medicine. So it was a positive experience having a lot of family members to follow.

The use of networking in medical education and practice is, among other things, a reminder of the suggestion by Malcolm, Hodgkinson, and Colley (2003) that people consider the attributes of formality and informality in any learning setting. *Grey's Anatomy* illustrates how popular culture can convey important messages about formal medical education and practice. On the flip side, social relations such as class or race are active in formal education. These relations become apparent in real-life learning and practice, even though they are absent from official curriculum.

Peer-based learning

Historically, formal education and learning have been conceptualised not only as intellectual processes but also as individualised process. As we have noted above, adult educators increasingly attend to the sociocultural context in which any learning occurs, its multidimensionality and the possibility of a collective aspect of learning. Whether they are formalised and encourage planned learning or they remain informal and the learning that they encourage is largely unplanned, peer-based teams and learning reflect the sociocultural context that every workplace has. Affirming the importance of teams and peers as sites and sources of learning, Poell, Yorks, and Marsick (2009) state that 'effective workplace learning cannot focus only on individual learning gains' (78).

Grey's Anatomy juxtaposes the advantages of peer-based, team-based learning with the individualised, competitive approach to learning and practice. As peers, the residents in the show help one another study for important examinations and share

their experiences with and enthusiasm about sophisticated procedures. The excerpt in the section on Experiential Learning above, in which the Alex character explains why a new mother did not recognise her symptoms of breast cancer, exemplifies how residents can pass along topical, useful information when it becomes relevant to what they see in the clinical setting, rather than according to a prescribed sequence or plan.

Like mentors, peers are regarded as crucial emotional supports in a learning process which is stressful and demanding. That was as true for participants as it is for characters in the show. In Holly's words, 'Just talking to each other, I think other students are probably the best source of comfort. And preceptors, people who have gotten through it, people you can relate to, who have been through it before and got through it'. These points reiterate the importance of feelings such as comfort, solidarity and empathy and of the emotional dimension of adult learning, in any context.

Learning/teaching

Although commonly seen as a process separate from learning, teaching can be understood as another step in a learning process. Teaching is a way of confirming, articulating and solidifying one's knowledge. The residents in *Grey's Anatomy* understand that medicine relies on the expectation that more senior residents and attending physicians will share their knowledge and skills with students and junior residents. In one of the first season's episodes, Miranda Bailey uses a phrase to summarise this expectation: 'See one, do one, teach one' ('The Self-destruct Button'; Martin 2005).

As *Grey's Anatomy* moves from one season to another, the residents introduced at the beginning of the show take on new responsibilities. They continue their own learning about how to become skilled, knowledgeable surgeons, while they begin to teach the incoming group of interns. The sentiment behind Miranda's statement and the responsibility to incorporate teaching into their internships is exemplified in the following exchange between two characters:

Meredith: Lexie, let's go! Open the intubation tray . . . Push another epi. You know how to intubate?

Lexie: I've never done it.

Meredith: But you've seen it done?

Lexie: A couple of times.

Meredith: Okay, come do one now.

Lexie: Are you sure?

Meredith: Visualize the cords, pull straight up, watch the tube, go through the cords.

Lexie: I can't see the cords. You should do this.

Meredith: Okay, you can do it. Just don't rock up against the teeth. Just pull straight up. ('Let the Truth Sing'; Minahan 2007)

This portrayal of internship as a liminal space of learning and teaching, and the simultaneity of learning and teaching is an aspect of *Grey's Anatomy* that rang especially true for and was highly appreciated by participants. Gyan explained that 'one of the things that I connect with on *Grey's Anatomy* at least, and I think is super realistic, is the whole progression of these students from first year where they are watching a lot and they don't do much, and then start doing and then they start teaching'. Other participants, such as Tim and Brooke, agreed with the underlying sentiment behind the 'see one, do one, teach one' dictum, although they offered a bit of qualification or refinement to it:

Tim: It's a little tongue-in-cheek. It's not necessarily one and one and one. You'll often see for two years, like you start a surgical residency and you're like 'What am I even doing?' for year one. It's not entirely true.

Brooke: It's not so immediate.

Tim: It seems cavalier when people say that, and it is meant to be that way . . . Like for some things, for simpler things it can be as simple as that if it's like, I don't know, taking blood or doing like a basic physical exam it may very well be see one, do one, teach one. But I mean, people are then, 'Is that how it works for heart surgery?' As the stakes are raised, it becomes less like that.

One of the realisations that the residents in *Grey's Anatomy* make is that, even for attending surgeons, learning is on-going. The most senior, expert professionals are also learners. At one point, Preston, regarded as a top cardiothoracic surgeon in America, confesses to Cristina that he feels ignorant about doing a bovine heart valve replacement, a procedure that he is considering. Never afraid of confronting a new challenge and always eager to learn something new, Cristina understands that work-related learning is on-going and that part of being an effective teacher and practitioner is a willingness to engage in continual learning. To Burke, this scenario reminds him of his own fallibility and limitations; to Cristina, the lack of knowledge is a short-term, solvable problem. In this scene, Cristina assumes a momentary role of teacher to Preston and articulates an important message about the importance of accepting that learning is never done, even for expert teachers.

Individual participants in our study were drawn to medicine for different reasons. Some looked forward to participating in sophisticated procedures, while others appreciated the opportunities to make a difference in people's lives. For everybody, though, the prospect of entering a profession which requires a commitment to on-going, lifelong learning held great appeal. Melanie, a first-year student, enjoyed the 'cerebral aspect of being a physician' and Zoe, also in first year, 'chose medicine for the intellectual challenge'. Like Cristina in *Grey's Anatomy*, they looked forward to a career that promised unending opportunities for learning, even as they practised and taught.

From fiction to reality

As Teunissen and others (2007, 763–764) write, 'There is no single theory explaining the processes at work as a resident gradually develops into a proficient medical specialist. Rather, a range of educational theories and principles can be applied to

this transition'. The preceding discussion illuminates the variety of pedagogical and learning strategies adopted during and preceding formal internship in the medical field. Through internship and earlier clinical rotations, medical learning, as it is portrayed for *Grey's Anatomy* audience members and experienced by participants in our study, does not correspond to the either/or binary which seems to pervade everyday parlance about work-related learning. Instead, learning is portrayed as formalised and informal, individual and collective, intellectual and emotional, immediate and delayed, specific and generalisable, and concrete and abstract. Shared, contextualised experience is one dimension of learning but does not replace individualised learning through classes, lectures and books. As Eraut (2004, 263) clarifies, 'Both knowledge and learning can be examined from two perspectives, namely the individual and the social. These can be considered as analogous to the particle and wave theories of light'. The discussion above bears out these claims about the multidimensionality of work-related teaching and learning during medical residency and, presumably, other internship settings.

Medical student participants thought that the show's singular focus on surgery was artificial, a ploy used to heighten dramatic effect and build audience interest. They spoke about shifts towards inter-professional education and teams. Among clinical benefits, participants hoped that such efforts were improving historically hierarchical, disrespectful relations between doctors and nurses, an issue that we cannot explore here but one that is evident in *Grey's Anatomy* and was discussed in all of our sessions. As Bleakley (2006) notes, though, 'Despite an emphasis in health care upon the benefits of interprofessional teamwork, systems-based patient safety and organisational learning, individualistic models of learning continue to be privileged within medical education' (152). Even if the focus in *Grey's Anatomy* on learning and work among surgical residents and surgeons is somewhat artificial, it is also rooted in historically prevalent relations between doctors and other groups of healthcare professionals. Its portrayals of social life in the medical field resonated with participants and, presumably, with other audience members, despite obvious points of departure from reality.

While participants recognised the fictional nature of *Grey's Anatomy*, as Armstrong (2008) would argue, the show helped them imagine what lay ahead of them in terms of learning and work. Even if they had not had direct experience with surgical services or counted surgeons among their acquaintances, participants found the show's portrayal of surgery as hyper-competitive and excessively demanding of time realistic. For some participants, that image discouraged them from choosing a surgical speciality. In MD's words, 'The lifestyle's a bit of a turn-off . . . Maybe more than a bit'. As Gyan explained, '[I've] never shadowed a surgeon . . . I think I form most of my opinions off these shows, and that just makes me think I do not want to go into a profession where I am at the hospital like 80 hours a week or 90 hours a week. That does not appeal to me at all'. Although nobody attributed reluctance to specialise in surgery to the show alone, the show illustrated the speciality's less desirable side and, in so doing, confirmed what participants 'knew' about surgery.

Some participants noted other aspects associated with the speciality and featured in the show. The show helped them envision a professional future which seemed challenging, exciting and rewarding. For example, several people, including Madeleine, were attracted by the speciality's fast pace and emphasis on problem-resolution:

To be able to see somebody come in with some sort of trauma and they go into surgery and you can fix them and they heal and then they're better and they keep going . . . to me is a lot more satisfying . . . I did see that on *Grey's* and obviously it's not a complete reflection of how things would be in reality. I'm sure they have much more success than most people would but . . . it definitely made me see surgery in a totally different light.

Participants watched *Grey's Anatomy* while they were preparing to study medicine and after they began their medical studies. It is, therefore, impossible for us to say with certainty where, when and how their ideas about medical education and practice emerged. What matters is that the show functioned together and resonated with information presented and knowledge generated from formal education, practical experience and conversations with other students and acquaintances, to help participants develop understandings of their options and experiences.

As adult educators, we are struck by how *Grey's Anatomy* represents the breadth of pedagogical and learning strategies associated with medical education and practice. Excerpts from the show provided above suggest and comments from participants confirm that medical education and residency are characterised by a complex combination of pedagogical and learning strategies. Internship, then, is best understood as a multi-strategy model, rather than a strategy in and of itself.

To return to the central conceptual points that we outlined earlier in this article, we note that participants did not watch *Grey's Anatomy* because it could teach them something; rather, they watched the show because they enjoyed it. This sense of enjoyment is consistent with Tisdell's (2008) assertion that it is popular culture's emotional appeal rather than its intellectual strength that explains its pedagogical sway. Gyan was clear that she watched the show for its entertainment value; interestingly, that quality had increased since she started her medical program. In her words:

It's kind of interesting to see what my life could be like I suppose, but it's [about] . . . entertainment value. I understand some of the things that are going on, and as I go through school I understand more and more, so it is just kind of fun to watch.

Moreover, the presence and acceptance of a lesbian couple on the show extended the show's value for Gyan, who self-identified as lesbian, in envisioning a future for herself in medicine.

This does not mean that participants, including Gyan, found the relative lack of social discrimination at Seattle Grace to be realistic. When asked about this matter, participants concurred that the show's tendency to present difference in an unproblematic manner was aspirational, rather than reflective of current real-life. They were also inclined to consider this positive portrayal of difference an indication of popular culture's ability to model tolerance¹ and to educate audience members about how they could build similarly positive social relations. In this way, popular culture can reflect *and* mask aspects of reality, as well as provide a commentary on and suggest an alternative to it. Furthermore, the ability for popular culture to operate pedagogically and in relation to formal education illustrates Malcolm, Hodkinson, and Colley's (2003) point that attributes of formality and informality are evident in all adult learning contexts. In this case, attributes of formality in participants' informal learning include learning about how aspects of social identity influence educational and professional opportunities and, potentially, outcomes.

Participants recognised the ability of *Grey's Anatomy* to both reflect and deviate from real-life experience. Crystal spoke to this point in one of her comments:

Before I got into medicine, there's some things [sic] about it that are farcical, you're like 'That would never happen, right?' But there's some things [sic] about it that seem fairly realistic, the way they put it together. And now that we're here, I know what of that is realistic and what of that is completely ridiculous in and of itself. And that's kind of interesting to watch.

For participants, watching the show helped them form ideas of what it would be like to embark on the medical internship process. At the same time, going through medical education helped them watch the show in a more informed, critical way.

Also of interest to us is the extent to which our discussions with participants were more than data gathering sessions; they were opportunities for participants to continue reflecting on what they knew and build new awareness. Responding to comments made by others in her session, Apple said, 'If I were to watch this [segment] by myself I would not have thought too much about it'. Several other participants noted, similarly, that discussions with us and other participants helped them understand cultural portrayals and their own experiences in new ways. Classroom teaching and discussion, practical experience and cultural consumption combined to help participants learn something about themselves and their chosen profession; conversations conducted as part of this study gave them an opportunity to learn or, at least, articulate, something else – about how they and their profession are connected to broader social relations. This supports Tisdell's (2008) conclusions about the potential for organised, classroom discussions of popular culture to deepen the critical engagement of adults with the culture that they consume, and her calls for the insertion of popular culture into a range of adult education curricula.

One question that has emerged for us relates to the 'see one, do one, teach one' sequence that is presumed to unfold. One of the excerpts from the show that we viewed with participants presents the attending surgeon, Erica Hahn. Although her clinical and technical knowledge and skills are beyond reproach, her lack of patience with residents becomes problematic. Chief Webber reminds her about the importance of taking teaching responsibilities seriously at Seattle Grace. We viewed this segment with participants to prompt conversation about the premise that everybody progresses from learner to doer to teacher. During conversations on this issue, participants typically concluded that commitment to teaching, patience and caring about learners were as necessary as technical and clinical knowledge and skill in building credibility and respect as a teacher. Madeleine's thoughts about one of her teachers were especially heartfelt and poignant:

He was just amazing in the fact that he made a really safe environment for us and allowed us to do anything that came in the door. It built a lot of confidence to have someone trust me like that and make it safe for me ask questions, or do something wrong, or say something wrong and I wouldn't be yelled at.

Teaching, then, is a skill area unto itself and cannot be presumed to be either an innate ability or something that develops coincidentally with other professional skills. We are not arguing for a vision of the adult educator as a sort of Miss Congeniality. Indeed, in an age of creeping vocationalism and diminished space for radical

thought, we believe that adult learners ought to be willing to face challenge and a certain amount of disorientation. Our final point is simply that teaching is as much an emotional and relational process as an expression of content-related expertise. This, it seems to us, is an important realisation about adult education and learning, and deserves to be lifted from an implicit reference to an explicit statement in culture and the classroom.

Acknowledgements

The study discussed in this article was funded by the University of Calgary's Starter Grant and Social Sciences and Humanities Research Council of Canada's Standard Research Grant programs.

Note

1. The concept of tolerance, central in Canadian social discourse, itself is problematic in its assumption that the group at the social centre concedes something to members of minority groups by making room for them. Unfortunately, pursuit of this topic is well beyond the scope of this article.

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