



Developing graduate attributes in an open online course

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Conflict of interest

I confirm that there is no competing or conflicts of interest.

Data sharing statement

The original audio files and transcripts from the focus group discussions will be made available for download alongside the article – provided the copyright policy of the journal allows it – in my institutional repository at <http://www.repository.uwc.ac.za>. Once the article has been published I will be able to open a new submission with the details of the paper, including the data from which the conclusions were drawn. The URL to this data can be shared with BJET, should the journal wish to link directly to it.

Abstract

In an increasingly connected world where solving complex problems is not possible by solitary experts, educators and learners need opportunities to develop ways of thinking in order for them to participate in dynamic and complex situations. The development of graduate attributes has been suggested as one way in which students can be prepared as active agents of social good.

The use of collaborative technologies that are informed by authentic learning enable new forms of communication that allow students to fully engage with the academic process in ways that are difficult to achieve with traditional teaching methods. The aim of this study was to determine if students' activities in an open online course – designed using principles of authentic learning – could help them develop graduate attributes.

The study used an interpretive, qualitative design that gathered data via focus group discussions. Transcripts were analysed inductively in order to determine themes, which were then analysed in relation to a set of graduate attributes. Student responses suggested that they had developed an approach to learning that was personal and self-directed, the ability to consider alternative points of view and acknowledge differing perspectives, the confidence to challenge knowledge and authority, and skills as empathic communicators.

Background

Higher education institutions from around the world have begun emphasising that their graduates should be able to do more than simply reproduce the discipline-specific knowledge and skills that form the core of most university courses (Barrie, 2007). Higher education must be about more than an accumulation of facts used to pass a test; they can be used to make sense of something that is of human importance (Ovens et al., 2011). In an increasingly connected world where solving complex problems is not possible by solitary experts, educators and learners need opportunities to develop the skills, knowledge, and mindsets that are necessary for them to participate in dynamic and complex situations (Cormier & Siemens, 2010).

One way of thinking about the development of graduate attributes is as a process of engagement by the student with the activities within a course (Barrie, 2007). In this conception of development there is a shift in emphasis from the teacher to the student. At the level of *engagement*, it is not the course content or even the graduate attributes that are the focus of the teaching process but rather the way that students engage in learning. In this characterisation the development of graduate attributes is not separate to the students' learning but is a product of how they engage with the curriculum (ibid.). Graduate attributes are therefore not additive curriculum outcomes that are supplemental to more important disciplinary content, but rather are integrated into higher level learning outcomes that are transformative in nature.

The integration of graduate attributes into professional courses challenge us to rethink what we mean by a course, and to ask where its value lies (Cormier & Siemens, 2010). As free, high-quality content becomes increasingly available online there is a shift away from thinking of a course in terms of its content. Rather, the benefit of higher education is in the opportunities for interaction, debate and the negotiation of knowledge (ibid.). In other words, a university course has value if we consider it as a space for student engagement rather than as a container of information, which has implications for how we think about teaching and learning in these spaces. With the emergence of social networks and collaborative technologies, this “negotiation of knowledge” can be scaled beyond the walls of the classroom and the restrictions of physical space. This enables new forms of communication and collaboration, allowing students and educators to fully

engage with the academic process and enabling new forms of teaching and learning practices (ibid.).

Open online courses are the subject of increasing attention in higher education, as they introduce broader learning connections, opportunities for enhanced collaboration and exposure to different perspectives, all of which change the learning context in ways that may improve student learning. The benefits of OOC include the development of skills that exist “outside” the formal curriculum, including lifelong learning in relation to open education, personal knowledge management and the effective use of web-based platforms and services as part of the learning process (Fini, 2009; Cormier & Siemens, 2010). Through the broader social connections, opportunities for collaboration, and exposure to many different perspectives, the learning environment is significantly altered and made increasingly complex, which enhances the potential for meaningful learning (Parker, Maor & Herrington, 2013). Open online courses therefore have the affordances necessary to develop the kinds of graduate attributes that have value in an increasingly complex and globally connected world.

It was in this context that an OOC in Professional Ethics was designed by the author in collaboration with two colleagues from Physiopedia, a non-profit organisation based in the United Kingdom. The aim of this study was to determine if students' activities in an OOC – designed using principles of authentic learning – could help them develop graduate attributes that went beyond their discipline-specific knowledge and skills.

Method

Research design

The study used an interpretive, qualitative design that gathered data via focus group discussions. Focus group discussions were identified as an appropriate method for gathering data as they encourage participants to make meaning through the emergence of concepts during the process that individuals may not have developed in isolation (Cohen, Manion & Morisson, 2007).

Research setting and sample

This study took place in October, 2013 at a South African university physiotherapy department. The population included 52 third year undergraduate physiotherapy students, as well as 28 qualified physiotherapists from around the world (Canada, Estonia, India, New Zealand, Saudi Arabia, South Africa, United Kingdom, and United States). These qualified physiotherapists were recruited via various social media channels, as well as the Physiopedia mailing list. They were not interviewed for this study. Nineteen students made themselves available for the focus group interviews and eight were purposively selected to provide a diverse sample.

Course design

The main aim of the Professional Ethics course is to help students learn how to engage with, and negotiate, the complex ethical dilemmas that they may encounter in clinical practice. The course was previously taught with a combination of lectures, small group work, classroom discussion and debate. The final assessment consisted of a learning portfolio that students had developed over the course of the year, providing for a presentation of a variety of evidence of learning. Changes to the module were informed by Barrie's (2007) categorisation of the conceptions of graduate attribute development, as well as principles of authentic learning. According to the *Engagement* understanding of developing graduate attributes, they are “learnt through the way students engage with the course's learning experiences” (Barrie, 2007, 445).

These learning experiences were in turn informed by principles of authentic learning, which provided a structured way to design the learning environment. Authentic learning is informed by situated cognition, which suggests that, when knowledge and context are separated, knowledge is seen as a product of learning, rather than as a set of tools that can be used to solve problems (Herrington & Oliver, 2000). Student activity within an authentic context was therefore emphasised during the course, rather than the content or teaching methods used. It was important to avoid a rigid framework of educator-sanctioned content and to rather design an environment that enabled a “multifaceted web of intersecting concepts, ideas, and connections” (Cormier & Siemens, 2010, 36). Students were therefore able to actively create a dynamic curriculum via their own conversation, discussion and interaction. There is evidence that the integration of emerging technology and authentic learning principles can be used to develop graduate attributes in physiotherapy students (Bozalek & Watters, 2014) and this course therefore made use of a range of social media platforms (primarily in the form of WordPress blogs) to develop their own public learning portfolios for the course.

The Ethics course ran over a six week period from August – September, 2013. The module outline was

1 posted on Physiopedia, using a Creative Commons license that made the course content open to anyone in
2 the world. The module included a variety of topics but no specified content. In other words, broad topics were
3 introduced for discussion but students were required to find their own content to bring into the course. These
4 topics included Equality, Ethics and morality, Meaningful life and death, and Empathy in professional
5 practice. The topics were arranged in a weekly schedule that provided structure for those students who
6 needed assistance with time management. However, they were able to work through the topics at their own
7 pace and in whatever order they preferred. In other words, students decided when and how they would
8 participate in the course.
9

10 In order to address a topic, which was presented as a reading, video, image, or combination, students
11 needed to first review it and write – but not publish – a reflective blog post representing their understanding
12 of the topic. In order to develop their thinking around the topics, they were then encouraged to develop their
13 own line of inquiry. This included developing research questions, conducting searches to find additional
14 resources, and integrating those resources into a final synthesis of the topic, which was then published as a
15 public blog post. In addition, students were encouraged to incorporate the blog posts of other students into
16 their writing, as well as comment on each others work. The international therapists introduced their own local
17 context and understanding into the online discussion by writing their own reflections and commenting on
18 students blogs. This lead to a significant number of shared experiences and diversity of opinion and
19 perspective on various ethical dilemmas in the health context.

20 *Data collection*

21 Focus group discussions were conducted one week after the Professional Ethics course concluded and all
22 students who completed the course were invited to participate, with eight eventually volunteering. As a result
23 of the logistical challenges around getting four students in two groups, the researcher conducted one focus
24 group, consisting of four students, and two group interviews consisting of two students each. All discussions
25 lasted about one hour and were recorded. The audio recordings were sent away for transcription, during
26 which they were anonymised. The anonymised transcripts were sent to student participants for member
27 checking.
28

29 *Data analysis*

30 The transcripts were analysed inductively in order to determine the themes that emerged from the student
31 discussion (Cohen, Manion & Morisson, 2007). This was done by identifying phrases with similar meanings,
32 coding, and then organising them into themes. The emergent themes were then discussed in relation to the
33 University of the Western Cape Charter of Graduate Attributes in order to determine if the student responses
34 provided any evidence of the development of graduate attributes.
35

36 *Ethics considerations*

37 The project received ethics clearance from the university's Research Committee (project registration:
38 13/05/18) and permission to conduct the study was obtained from the Registrar of the University and the
39 Head of the Physiotherapy Department. Students were invited to participate in the focus group discussions
40 one week after the course was completed and also offered the option of withdrawing from the study at any
41 stage. The data collected were anonymous and students were asked to sign a confidentiality binding form,
42 agreeing not to discuss other participants outside of the study.

43 **Results and Discussion**

44 This study aimed to determine if participation in this OOC helped student to develop generic graduate
45 attributes. While specific causal relationships were not investigated, it was possible to make certain
46 inferences regarding the influence of the course activities on the develop of different ways of thinking about
47 professional development and learning. The following themes were identified: self-directed learning; dealing
48 with difference; challenging knowledge and authority; and empathic communication. These themes are
49 presented below, along with supporting quotes, and then discussed in relation to the UWC graduate
50 attributes.

51 *Self-directed learning*

52 In response to a question related to the role of the course in changing how students' thought about learning,
53 they reported that the approach to the learning tasks encouraged them to take responsibility for their own
54 learning, rather than to take a passive role in the process. The following quotes are presented in support of
55 the claim.

56 S1: I think if you learn to think for yourself you'll find it easier to challenge different opinions – so this
57 course helped me to think for myself...because it's more about knowing yourself and knowing why
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1 you think the way you do – so you'll be more confident in expressing yourself to someone else.”

2
3 S2: “I think it just made me feel responsible for my own learning. I could chose how much input I
4 wanted to put in and that would determine how much I actually got out from the course. At the same
5 time people that don't put in the effort don't realise what they're missing out on – but I guess that's
6 their own fault. I think you can get a lot out of things when you can chose how much effort you want
7 to put into it.”

8
9 S3: “You had to put it into your own life context. You never really could understand what the next
10 topic was unless you thought back onto a time where you experienced it...and then it started to make
11 sense to me – just having the word up there [on the screen] wasn't helping too much; so you still
12 have to provide your own context and your own information.”

13 Lifelong learning, as described in the UWC Charter of Graduate Attributes, states that *UWC graduates*
14 *should be confident lifelong learners, committed to and capable of continuous collaborative and individual*
15 *learning and critical reflection for the purpose of furthering their understanding of the world and their place in*
16 *it*. The students in this project reported that the way the course was structured encouraged them to take
17 responsibility for their learning. They noted that the course structure required them to actively engage in the
18 learning process by putting it in their “own life context”. It is important to note that there is some evidence to
19 suggest that students who do not have the relevant participatory literacies and who lack self-determination
20 may not benefit as much from task-based online courses – such as this one – compared to content-based
21 courses (Beaven, Hauck, Comas-Quinn, Lewis, de los Arcos & Arcos, 2014). Course designers developing
22 these kinds of open online courses must therefore be aware of the assumptions they make about their
23 student participants and ensure that adequate support is provided for students.

24 *Dealing with difference*

25 When students were asked if the course changed the way they thought about other people's opinions and
26 points of view, they reported that the variety of perspectives allowed them to reflect on their own thinking.
27 However, it did not necessarily lead to a change of opinion; just an acknowledgement that other world views
28 exist.

29
30 S1 : “...when you see a topic you immediately form this opinion, and when I read [the] other blogs
31 you just calm down and you kind of expand your thinking, just open-minded, and then you write from
32 both sides. So a lot of the time... you say this is your opinion – that didn't really change; but... having
33 read other people's different opinions you can see that there is another side, so [you're] not so one-
34 sided.”

35
36 S2 : “I think a lot of the concepts we had never thought of before; and that was challenging when
37 you're not sure what to say about something. [Sometimes] I felt like I wanted to say more than what I
38 actually wrote in fear of someone going, oh, well, that's wrong... . So that was initially quite scary.”

39
40 S3: “...some people do have good experiences, so when you read that you're like, okay, there is
41 another side; it's not only you in the world. There's also other people and they've experienced
42 different things.”

43 *Interpersonal flexibility and the confidence to engage across difference* is a UWC graduate attribute that
44 describes an ability to interact with people from different backgrounds and for students to have the emotional
45 insight and imagination to understand the viewpoints of others. During this course students were confronted
46 with topics and reflections from peers and professional colleagues that challenged their ways of thinking and
47 allowed them to consider alternative points of view. As part of holistic and meaningful learning practices,
48 students must not only develop their confidence but also their ignorance and doubt, in order to better inform
49 and guide their own learning. Through reflecting on their understanding of the world, they are forced to ask
50 questions that deepen their understanding (Ovens et al., 2011). This is not always easy and students found
51 themselves in uncomfortable positions that challenged their understanding and ways of thinking.

52 *Challenging knowledge and authority*

53 When students were asked if participation in the course changed how they thought about challenging ideas
54 and people, they reported that it was liberating to know that they were free to challenge and to think for
55 themselves; that they did not have to believe something simply because someone in authority said it.

56
57 S1: “It just emphasised the importance of having evidence to your opinion in some way, so if you
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1 would like to challenge someone's view you need to present some form of evidence, and I think
2 that's what I learned, one of the things from the course, that you can't just say, oh, I disagree and
3 this is what I would do, but to provide them with good evidence and backing to your thoughts so that
4 they can actually absorb that."
5

6 S2: "It was the way in which people commented and responded that made me realise that they're not
7 going to take offence if you challenge their idea; they really do want to discuss and learn."
8

9 S3: "It's thinking about the topic and going through all the different viewpoints in your mind and
10 figuring out which one suits you best in a way; not just going through the positive points and the
11 negative points and what other people say about it. I think it's really important to develop your own
12 opinion about something and not just rely on what other people say."
13

14 S4: "I felt free to think for myself. Instead of being told: This is what you need to think, I could form
15 my own opinion."
16

17 The UWC Charter of Graduate Attributes says that *students should adopt a critical attitude towards*
18 *knowledge, and should have the ability to actively engage in the generation of innovative and relevant*
19 *knowledge and understanding through inquiry, critique and synthesis*. The innovative use of emerging
20 technology, informed by a teaching framework like authentic learning, has been demonstrated to help
21 physiotherapy students develop critical attitudes towards knowledge and authority (Rowe, Bozalek & Frantz,
22 2013; Bozalek & Watters, 2014), and this study has provided additional evidence to support those findings.
23 The learning environment must therefore be an open space where students are equipped with the
24 knowledge and skills that are necessary for them to question authority and take control of their own learning
25 experiences.
26

27 *Empathic communication*

28 In response to a question regarding communication in the course, students reported the development of an
29 empathic approach to communicating with others, allowing themselves to be more open and less
30 judgemental.

31 S1: "I'm more willing to listen to other people's opinions and actually absorb them and think and
32 analyse what they're saying, which I think is a really good thing because then you're not just shutting
33 their opinions out, you care for the person and their opinion is important."
34

35 S2: "For me it made me more aware of how to go about approaching a topic with someone else. But
36 if it was a patient asking me a question, how do I go about answering them without imposing my
37 opinion on them, because it needs to be an informed decision from the patient's side, how do they
38 decide that if you give them only your opinion? You need to give them both sides of a story so they
39 can process it for themselves and actually decide."
40

41 S3: "We have to start by sharing something of the self before other people will give you something
42 back. So I think that's what we're trying to say: it takes one person with the courage to really think
43 deeply and write something honest and then maybe perhaps other people would open up a bit
44 more."
45

46 S4: "I found that I'm more willing to listen to other people's opinions and think and analyse what
47 they're saying. You're not just shutting their opinion out... Too often we're listening to other people
48 with one ear, waiting for that pause to say, 'Yes, but...', to attack their opinion without really listening."
49

50 The UWC Charter of Graduate Attributes states that *graduates should recognise and value communication*
51 *as a tool for negotiating and creating new understanding, interacting with diverse others, and furthering their*
52 *own learning*. It seems clear from the student responses that they were able to consider alternative points of
53 view that they encountered during the course, and then using those different perspectives to stimulate a
54 reflection on their own communication.
55

56 The evidence and resulting discussion seem to clearly demonstrate that participation in this open online
57 course provided students with opportunities to develop a range of generic attributes that were not discipline-
58 specific. This provides further evidence that a well-designed open online course, informed by authentic
59 learning, has the potential to facilitate student learning in innovative ways. However, it is also clear that
60 developing these generic attributes places additional responsibilities on teachers that are significantly more

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challenging than simply teaching students the knowledge and skills required for their disciplinary contexts (Laurillard, 2012).

Limitations

One of the important limitations of the study was that the researcher who conducted the focus group discussion and interviews was also the facilitator of the online course. This may have influenced students' responses and interaction during the discussions. Another important limitation was the fact that few students volunteered to participate, owing to the fact that the discussions were scheduled at a time of year when students were on clinical rotations and distributed across a large region. This made it difficult to get them together in the same place, and there is a concern that the small second and third group may have affected the depth of discussion that occurred.

Conclusion

This OOC presented students with opportunities to develop ways of thinking that went beyond their discipline-specific knowledge and skills. This included the development of an approach to learning among participants that is personal and self-directed, the ability to consider alternative points of view and to acknowledge differing perspectives, opportunities to challenge the idea of knowledge and authority, and growing as empathic communicators. Open online courses therefore have the potential to facilitate the development of generic graduate attributes, especially when the course design makes use of a theoretically informed teaching framework, such as authentic learning. Participants interacted with each other in ways that would be difficult to achieve in a traditional university course and different ways of thinking and being emerged as participants explored complex topics related to ethical and clinical practice.

Open online courses offer innovative teaching and learning opportunities that can enhance the student learning experience, especially as it relates to the development of non-cognitive skills and graduate attributes. As social media and other online technologies become increasingly embedded in higher education, health care professionals and educators will need to be familiar with the context of learning in open online spaces.

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What is already known about this topic

- Open online courses are increasingly being explored as alternatives to traditional methods of higher education provision
- The development of generic graduate attributes is both important in higher education and difficult to achieve
- Teaching frameworks like authentic learning offer theoretically-informed models for teachers to design courses that prepare students

What this paper adds

- The integration of authentic learning and emerging technology in order to develop graduate attributes within a professional programme is an innovative approach
- Open online courses in professional degree programmes are limited, and even fewer are designed with theoretically-informed teaching models
- This paper demonstrates that the integration of authentic learning with emerging technology can facilitate the development of graduate attributes

Implications for practice and / or policy

- Educators who are interested in creating open online courses that aim to develop graduate attributes should consider using authentic learning in their designs
- The development of higher level outcomes must be facilitated with task-based activities; open online courses must therefore do more than make content available

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Abstract

In an increasingly connected world where solving complex problems is not possible by solitary experts, educators and learners need opportunities to develop ways of thinking in order for them to participate in dynamic and complex situations. The development of graduate attributes has been suggested as one way in which students can be prepared as active agents of social good.

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27 with a combination of lectures, small group work, classroom discussion and debate. The final assessment
28 consisted of a learning portfolio that students had developed over the course of the year, providing for a
29 presentation of a variety of evidence of learning. Changes to the module were informed by Barrie's (2007)
30 categorisation of the conceptions of graduate attribute development, as well as principles of authentic
31 learning. According to the *Engagement* understanding of developing graduate attributes, they are "learnt
32 through the way students engage with the course's learning experiences" (Barrie, 2007, 445).
33

34 These learning experiences were in turn informed by principles of authentic learning, which provided a
35 structured way to design the learning environment. Authentic learning is informed by situated cognition,
36 which suggests that, when knowledge and context are separated, knowledge is seen as a product of
37 learning, rather than as a set of tools that can be used to solve problems (Herrington & Oliver, 2000).
38 Student activity within an authentic context was therefore emphasised during the course, rather than the
39 content or teaching methods used. It was important to avoid a rigid framework of educator-sanctioned
40 content and to rather design an environment that enabled a "multifaceted web of intersecting concepts,
41 ideas, and connections" (Cormier & Siemens, 2010, 36). Students were therefore able to actively create a
42 dynamic curriculum via their own conversation, discussion and interaction. There is evidence that the
43 integration of emerging technology and authentic learning principles can be used to develop graduate
44 attributes in physiotherapy students (Bozalek & Watters, 2014) and this course therefore made use of a
45 range of social media platforms (primarily in the form of WordPress blogs) to develop their own public
46 learning portfolios for the course.
47

48 The Ethics course ran over a six week period from August – September, 2013. The module outline was
49 posted on Physiopedia, using a Creative Commons license that made the course content open to anyone in
50 the world. The module included a variety of topics but no specified content. In other words, broad topics were
51 introduced for discussion but students were required to find their own content to bring into the course. These
52 topics included Equality, Ethics and morality, Meaningful life and death, and Empathy in professional
53 practice. The topics were arranged in a weekly schedule that provided structure for those students who
54 needed assistance with time management. However, they were able to work through the topics at their own
55 pace and in whatever order they preferred. In other words, students decided when and how they would
56 participate in the course.
57

58 In order to address a topic, which was presented as a reading, video, image, or combination, students
59 needed to first review it and write – but not publish – a reflective blog post representing their understanding
60 of the topic. In order to develop their thinking around the topics, they were then encouraged to develop their
own line of inquiry. This included developing research questions, conducting searches to find additional

resources, and integrating those resources into a final synthesis of the topic, which was then published as a public blog post. In addition, students were encouraged to incorporate the blog posts of other students into their writing, as well as comment on each others work. The international therapists introduced their own local context and understanding into the online discussion by writing their own reflections and commenting on students blogs. This lead to a significant number of shared experiences and diversity of opinion and perspective on various ethical dilemmas in the health context.

Data collection

Focus group discussions were conducted one week after the Professional Ethics course concluded and all students who completed the course were invited to participate, with eight eventually volunteering. As a result of the logistical challenges around getting four students in two groups, the researcher conducted one focus group, consisting of four students, and two group interviews consisting of two students each. All discussions lasted about one hour and were recorded. The audio recordings were sent away for transcription, during which they were anonymised. The anonymised transcripts were sent to student participants for member checking.

Data analysis

The transcripts were analysed inductively in order to determine the themes that emerged from the student discussion (Cohen, Manion & Morisson, 2007). This was done by identifying phrases with similar meanings, coding, and then organising them into themes. The emergent themes were then discussed in relation to the University of the Western Cape Charter of Graduate Attributes in order to determine if the student responses provided any evidence of the development of graduate attributes.

Ethics considerations

The project received ethics clearance from the university's Research Committee (project registration: 13/05/18) and permission to conduct the study was obtained from the Registrar of the University and the Head of the Physiotherapy Department. Students were invited to participate in the focus group discussions one week after the course was completed and also offered the option of withdrawing from the study at any stage. The data collected were anonymous and students were asked to sign a confidentiality binding form, agreeing not to discuss other participants outside of the study.

Results and Discussion

This study aimed to determine if participation in this OOC helped student to develop generic graduate attributes. While specific causal relationships were not investigated, it was possible to make certain inferences regarding the influence of the course activities on the develop of different ways of thinking about professional development and learning. The following themes were identified: self-directed learning; dealing with difference; challenging knowledge and authority; and empathic communication. These themes are presented below, along with supporting quotes, and then discussed in relation to the UWC graduate attributes.

Self-directed learning

In response to a question related to the role of the course in changing how students' thought about learning, they reported that the approach to the learning tasks encouraged them to take responsibility for their own learning, rather than to take a passive role in the process. The following quotes are presented in support of the claim.

S1: I think if you learn to think for yourself you'll find it easier to challenge different opinions – so this course helped me to think for myself...because it's more about knowing yourself and knowing why you think the way you do – so you'll be more confident in expressing yourself to someone else.”

S2: “I think it just made me feel responsible for my own learning. I could chose how much input I wanted to put in and that would determine how much I actually got out from the course. At the same time people that don't put in the effort don't realise what they're missing out on – but I guess that's their own fault. I think you can get a lot out of things when you can chose how much effort you want to put into it.”

S3: “You had to put it into your own life context. You never really could understand what the next topic was unless you thought back onto a time where you experienced it...and then it started to make sense to me – just having the word up there [on the screen] wasn't helping too much; so you still have to provide your own context and your own information.”

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Lifelong learning, as described in the UWC Charter of Graduate Attributes, states that *UWC graduates should be confident lifelong learners, committed to and capable of continuous collaborative and individual learning and critical reflection for the purpose of furthering their understanding of the world and their place in it*. The students in this project reported that the way the course was structured encouraged them to take responsibility for their learning. They noted that the course structure required them to actively engage in the learning process by putting it in their “own life context”. It is important to note that there is some evidence to suggest that students who do not have the relevant participatory literacies and who lack self-determination may not benefit as much from task-based online courses – such as this one – compared to content-based courses (Beaven, Hauck, Comas-Quinn, Lewis, de los Arcos & Arcos, 2014). Course designers developing these kinds of open online courses must therefore be aware of the assumptions they make about their student participants and ensure that adequate support is provided for students.

Dealing with difference

When students were asked if the course changed the way they thought about other people's opinions and points of view, they reported that the variety of perspectives allowed them to reflect on their own thinking. However, it did not necessarily lead to a change of opinion; just an acknowledgement that other world views exist.

S1 : “...when you see a topic you immediately form this opinion, and when I read [the] other blogs you just calm down and you kind of expand your thinking, just open-minded, and then you write from both sides. So a lot of the time... you say this is your opinion – that didn't really change; but... having read other people's different opinions you can see that there is another side, so [you're] not so one-sided.”

S2 : “I think a lot of the concepts we had never thought of before; and that was challenging when you're not sure what to say about something. [Sometimes] I felt like I wanted to say more than what I actually wrote in fear of someone going, oh, well, that's wrong... . So that was initially quite scary.”

S3: “...some people do have good experiences, so when you read that you're like, okay, there is another side; it's not only you in the world. There's also other people and they've experienced different things.”

Interpersonal flexibility and the confidence to engage across difference is a UWC graduate attribute that describes an ability to interact with people from different backgrounds and for students to have the emotional insight and imagination to understand the viewpoints of others. During this course students were confronted with topics and reflections from peers and professional colleagues that challenged their ways of thinking and allowed them to consider alternative points of view. As part of holistic and meaningful learning practices, students must not only develop their confidence but also their ignorance and doubt, in order to better inform and guide their own learning. Through reflecting on their understanding of the world, they are forced to ask questions that deepen their understanding (Ovens et al., 2011). This is not always easy and students found themselves in uncomfortable positions that challenged their understanding and ways of thinking.

Challenging knowledge and authority

When students were asked if participation in the course changed how they thought about challenging ideas and people, they reported that it was liberating to know that they were free to challenge and to think for themselves; that they they did not have to believe something simply because someone in authority said it.

S1: “It just emphasised the importance of having evidence to your opinion in some way, so if you would like to challenge someone's view you need to present some form of evidence, and I think that's what I learned, one of the things from the course, that you can't just say, oh, I disagree and this is what I would do, but to provide them with good evidence and backing to your thoughts so that they can actually absorb that.”

S2: “It was the way in which people commented and responded that made me realise that they're not going to take offence if you challenge their idea; they really do want to discuss and learn.”

S3: “It's thinking about the topic and going through all the different viewpoints in your mind and figuring out which one suits you best in a way; not just going through the positive points and the negative points and what other people say about it. I think it's really important to develop your own opinion about something and not just rely on what other people say.”

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2 S4: "I felt free to think for myself. Instead of being told: This is what you need to think, I could form
3 my own opinion."

4 The UWC Charter of Graduate Attributes says that *students should adopt a critical attitude towards*
5 *knowledge, and should have the ability to actively engage in the generation of innovative and relevant*
6 *knowledge and understanding through inquiry, critique and synthesis*. The innovative use of emerging
7 technology, informed by a teaching framework like authentic learning, has been demonstrated to help
8 physiotherapy students develop critical attitudes towards knowledge and authority (Rowe, Bozalek & Frantz,
9 2013; Bozalek & Watters, 2014), and this study has provided additional evidence to support those findings.
10 The learning environment must therefore be an open space where students are equipped with the
11 knowledge and skills that are necessary for them to question authority and take control of their own learning
12 experiences.

13 *Empathic communication*

14 In response to a question regarding communication in the course, students reported the development of an
15 empathic approach to communicating with others, allowing themselves to be more open and less
16 judgemental.

17
18 S1: "I'm more willing to listen to other people's opinions and actually absorb them and think and
19 analyse what they're saying, which I think is a really good thing because then you're not just shutting
20 their opinions out, you care for the person and their opinion is important."

21
22 S2: "For me it made me more aware of how to go about approaching a topic with someone else. But
23 if it was a patient asking me a question, how do I go about answering them without imposing my
24 opinion on them, because it needs to be an informed decision from the patient's side, how do they
25 decide that if you give them only your opinion? You need to give them both sides of a story so they
26 can process it for themselves and actually decide."

27
28 S3: "We have to start by sharing something of the self before other people will give you something
29 back. So I think that's what we're trying to say: it takes one person with the courage to really think
30 deeply and write something honest and then maybe perhaps other people would open up a bit
31 more."

32
33 S4: "I found that I'm more willing to listen to other people's opinions and think and analyse what
34 they're saying. You're not just shutting their opinion out... Too often we're listening to other people
35 with one ear, waiting for that pause to say, 'Yes, but...', to attack their opinion without really
36 listening."

37 The UWC Charter of Graduate Attributes states that *graduates should recognise and value communication*
38 *as a tool for negotiating and creating new understanding, interacting with diverse others, and furthering their*
39 *own learning*. It seems clear from the student responses that they were able to consider alternative points of
40 view that they encountered during the course, and then using those different perspectives to stimulate a
41 reflection on their own communication.

42 The evidence and resulting discussion seem to clearly demonstrate that participation in this open online
43 course provided students with opportunities to develop a range of generic attributes that were not discipline-
44 specific. This provides further evidence that a well-designed open online course, informed by authentic
45 learning, has the potential to facilitate student learning in innovative ways. However, it is also clear that
46 developing these generic attributes places additional responsibilities on teachers that are significantly more
47 challenging than simply teaching students the knowledge and skills required for their disciplinary contexts
48 (Laurillard, 2012).

49 *Limitations*

50 One of the important limitations of the study was that the researcher who conducted the focus group
51 discussion and interviews was also the facilitator of the online course. This may have influenced students'
52 responses and interaction during the discussions. Another important limitation was the fact that few students
53 volunteered to participate, owing to the fact that the discussions were scheduled at a time of year when
54 students were on clinical rotations and distributed across a large region. This made it difficult to get them
55 together in the same place and affected the depth of discussion that occurred.

56 **Conclusion**

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This OOC presented students with opportunities to develop ways of thinking that went beyond their discipline-specific knowledge and skills. This included the development of an approach to learning that is personal and self-directed, the ability to consider alternative points of view and to acknowledge differing perspectives, opportunities to challenge the idea of knowledge and authority, and growing as empathic communicators. Open online courses therefore have the potential to facilitate the development of generic graduate attributes, especially when the course design makes use of a theoretically informed teaching framework, such as authentic learning. Participants interacted with each other in ways that would be difficult to achieve in a traditional university course and different ways of thinking and being emerged as participants explored complex topics related to ethical and clinical practice.

Open online courses offer innovative teaching and learning opportunities that can enhance the student learning experience, especially as it relates to the development of non-cognitive skills and graduate attributes. As social media and other online technologies become increasingly embedded in higher education, health care professionals will need to be familiar with the context of learning in open online spaces.

Peer review only

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