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RESEARCH ARTICLE

Follow the policy: An actor network theory study of widening participation to medicine in two countries

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Abstract

Introduction: The slow pace of change in respect of increasing the diversity of medical students suggests powerful actors are reproducing practices to support the status quo. Opening up medicine to embrace diversity thus requires the deconstruction of entrenched processes and practices. The first step in doing so is to understand how the actor-network of widening participation and access to medicine (WP/WA) is constructed. Thus, here we examine how the connections among actors in WP/WA in two different networks are assembled.

Methods: A comparative case study using documents ($n = 7$) and interviews with staff and students ($n = 45$) from two medical schools, one United Kingdom and one Australian, was used. We used Callon's moments of translation (problematisation, interessement/operationalisation, enrolment, mobilisation) to map the network of actors as they are assembled in relation to one another. Our main actant was institutional WP to medicine policy (actor-as-policy).

Results: Our actor-as-policy introduced five other actors: the medical school, medical profession, high schools, applicants and medical school staff. In terms of problematisation, academic excellence holds firm as the obligatory passage point and focal challenge for all actors in both countries. The networks are operationalised via activities such as outreach and admissions policy (e.g., affirmative action is apparent in Australia but not the UK). High schools play (at best) a passive role, but directed by the policy, the medical schools and applicants work hard to achieve WP/WA to medicine. In both contexts, staff are key mobilisers of WP/WA, but with little guidance in how to enact policy. In Australia, policy drivers plus associated entry structures mean the medical profession exerts significant influence.

Conclusions: Keeping academic excellence as the obligatory passage point to medical school shapes the whole network of WP/WA and perpetuates inequality. Only by addressing this can the network reconfigure.

1 | INTRODUCTION

Globally, policy and investment efforts to minimise the barriers to entry into medicine have had mixed success.[1–10] The central reason for the slow pace of change is that prior educational attainment remains the first, and sometimes only, hurdle in medical school selection processes (see, e.g., MacKenzie et al.[11]), excluding students who do not "get the grades" even if they have the appropriate personal qualities to become doctors (e.g., previous works[4,5,11,12]). This dependence on academic achievement is problematic on grounds of fairness given differential attainment between groups associated with structural and societal issues such as under-resourced education, schooling that occurs within a culture of low aspiration and parental education (e.g., previous studies[12–18]).

Maintaining the practice of academic excellence as a keystone for entry to medical school while advocating increasing the diversity of medical students represents a tension between practice and policy, and hints at powerful actors reproducing practices that support the status quo.[17,19–22] Exploring the role played by policy in this area is thus essential to identify how it encourages certain practices over others. To do so requires acknowledging the agency of policy (a non-human actor), and how educational policy and practices relate.[23–26]

Yet, despite the importance of this space, there has been little attention paid to the role of policies and practices, which may affect the processes of increasing the diversity of medical students (see previous works[7,14,27] for exceptions). Instead, the literature is dominated by peoples' experiences, mostly, but not always (see, e.g., Cleland et al.[7] and Alexander et al.[17]), that of students—of considering medicine as an option (or not)[14–16] of applying to get into medicine,[5] and what it is like to be a medical student from a "non-traditional" background.[18,19,22,28] While useful, these studies provide only one perspective on the issue and focusing solely on human actors neglects the role material elements, other non-humans (e.g., processes and artefacts)[26] and the relationships between human and non-human[23–25] may play in the ways in which increasing the diversity of medical students is achieved. Moreover, where theoretical frameworks are limited so too will be explanations that can be elaborated and refined in future research.[5]

Addressing these gaps, we adopt a sociomateriality lens to examine widening participation (WP) and access to medicine. This lens acknowledges both the importance of the social context in which educational practices are enacted and the complexity of how processes and practices are enacted and constructed in the social—in this case educational—world. Specifically, we use actor-network theory (ANT)[26,29–31] to attend to what happens when disparate actors come together to perform WP and access policy-related tasks.

In this area of research and practice, the terms "widening access" and "widening participation" are used frequently and sometimes interchangeably. However, WP refers to the policy that people from under-privileged or minoritised groups should be encouraged to take part, and be represented proportionately, within higher education (HE). Widening access (WA), on the other hand, emphasises more the equity or fairness of the selection processes that act as a gateway to HE.[5]

In ANT, the people who enact a policy—as well as the policy itself and its attendant forms and documents—are considered equal and are thus granted equal analytical significance.[26–31] This assemblage thinking about the arrangements, and agency, of humans, materials, technologies, organisations, techniques, procedures, norms and events moves material objects (such as texts) from positions of passive artefacts to ones of cultural mediators. In turn, this leads us to consider how both the human and non-human affect current and future practice, how human and non-human actors are invited or excluded, link together or not, and how these connections make themselves stable by linking to other actors and networks.[31]

Our specific research question is: What are the connections among actors in WP/WA in two different networks, and how are these connections assembled within the networks?

2 | METHODS

We took a comparative case study approach[32,33] to explore the connections among actors in WP/WA in two medical schools, one in Scotland, UK, and one in Australia. The two countries have similar HE systems and a history of policy borrowing[21] as well as (different) under-represented groups, which are prioritised for improving access to the medical profession.[2,21]

The case study approach is compatible with a range of different epistemologies. Bringing a sociomaterial lens to our case allowed us to "carefully and deliberately theorize materiality" from a relational perspective (see MacLeod et al.[34] p. 178 and Coredella and Shiekh,[35]), in other words, assuming that actors achieve their form and attributes as a consequence of their relations with other actors, both human and non-human. Data were qualitative. We used policy documents (i.e., social and material artefacts) to provide data on the non-human actors, or context, then interviews as the primary tool for data gathering from human actors.

2.1 | Data sampling and collection

2.1.1 | Policy documents

We identified webpages with embedded links detailing policy on WP in medicine from university and medical school websites between June and August 2021. Via this process, we sourced seven key documents (four in the United Kingdom and three in Australia), detailed in Table 1.

It is worth noting here that WA is the term used within the UK documents, whereas WP is the dominant language in Australia. Thus, from this point onwards, we use WA and WP interchangeably or together (as WP/WA) to broadly refer to the "process of encouraging underrepresented socioeconomic groups to apply for higher education."[5]

TABLE 1 Document and webpage data sources at both sites.

Data source	Description	Details/characteristics
University policy on WA to medicine (UK)	University webpage	www.abdn.ac.uk. 2020. *Widening Access|Institute for Education in Medical and Dental Sciences|The University of Aberdeen*. [online] Available at: <https://www.abdn.ac.uk/iemds/study-here/widening-access-356.php> [Accessed 4 June 2021].
	University webpage	www.abdn.ac.uk. 2021. *Widening Access| The School of Medicine, Medical Sciences and Nutrition|The University of Aberdeen*. [online] Available at: <https://www.abdn.ac.uk/smmsn/undergraduate/medicine/widening-access.php> [Accessed 4 June 2021].
	Link to PDF document on university webpage	www.abdn.ac.uk. 2021. *Admissions Policy| The School of Medicine, Medical Sciences and Nutrition|The University of Aberdeen*. [online] Available at: <https://www.abdn.ac.uk/smmsn/undergraduate/medicine/admissions-policy.php#panel571> [Accessed 4 June 2021].
	Link to PDF document on university webpage	www.abdn.ac.uk. 2019. University of Aberdeen Outcome Agreement for 2019/20. [online] Available at: <https://www.abdn.ac.uk/staffnet/documents/policy-zone-governance-and-compliance/2019-20%20UoA%20Outcome%20Agreement.pdf>
University policy on WP to medicine (Australia)	Link to PDF document on University webpage	*University Access and Participation Plan*. 2021 [PDF] Perth: Curtin University. Available at: <https://about.curtin.edu.au/wp-content/uploads/sites/5/2021/06/2021AccessAndParticipationPlan-1.pdf> [Accessed 24 July 2021].
	Link to PDF document on University webpage	*Diversity and Equity Policy*. 2020 [PDF] Perth: Curtin University. Available at: <https://about.curtin.edu.au/wp-content/uploads/sites/5/2021/01/Diversity_and_Equity_Policy.pdf> [Accessed 24 July 2021].
	Link to PDF document on university webpage	*Admissions guide: Bachelor of medicine, bachelor of surgery*. 2021 [PDF] Perth: Curtin University. Available at: <https://study.curtin.edu.au/wp-content/uploads/sites/3/2021/05/4817HS_Medicine-Admissions-Guide-2021_PROOF4.pdf> [Accessed 17 August 2021].

2.1.2 | Interviews

We developed a semi-structured interview guide informed by the wider literature on WP/WA, the policy documents detailed above and our knowledge of the topic. We used our knowledge from an earlier study[21] to ensure interview questions were fit-for-context. Questions focused on participant experiences of their journey into and at medical school (students) and viewpoints on policy and practice relating to WP (staff). The interview guides are provided in Appendix S1.

We targeted two groups: academic and administrative staff members with direct experience and/or interest in the local WP/WA policies and practices and medical students from WP (disadvantaged) backgrounds and/or on WA pipeline/pathway programmes. These included Reach and Gateway programme students in the United Kingdom, plus rural, equity and Indigenous entry pathway students from all year groups in Australia (please note, we have adopted the term Indigenous to refer to Aboriginal and Torres Strait Islander, or First Nations people throughout as this is the terminology used within the document data). Appendices S2 and S3 provide further explanation of these programmes and groups.

After obtaining ethical approval, we recruited staff via purposive, snowball sampling.[36] We used the same sampling approach to recruit a diverse group of WP students in terms of gender, age on entry to medical school, year of study (Years 1 and 4 in the United Kingdom, and all year groups in Australia due to smaller cohorts of students). We specified the WP criteria in our recruitment emails, participant information sheets and other materials.

Interviews were either face-to-face in a place convenient for the participant (usually on campus), by telephone or Zoom. MC carried out the interviews between February and May 2019 in the United Kingdom, and between February and October 2020 in Australia. We asked participants to complete a short sociodemographic questionnaire in advance of the interview. We used this information to start each interview and build rapport with participants.[37,38] Interviews continued until participants felt they had sufficiently shared their views.

We interviewed 11 staff and 10 students in Australia and 11 staff and 13 students in the United Kingdom. All student participants met some of the WP criteria as defined by their institution (see Appendices S2 and S3 for details of these criteria). Interviewee characteristics are presented in Appendices S4 and S5.

2.2 | Data management and analysis

Interviews were digitally audio-recorded for later transcription. Participants were anonymised during the transcription process. Interview transcripts were entered into the qualitative data analysis software NVivo v12.0 (QRS International Pty Ltd, Doncaster, Victoria, Australia) to facilitate data management and coding. We managed and coded the relatively small amount of document data by hand.

We initially conducted an inductive thematic analysis[38] to determine key themes in the documents and interviews. After team discussions of preliminary codes and resolution of any coding

disagreements, coding occurred iteratively and inductively. It was during this process that we identified that how individuals and organisations translate WP/WA policy into practice seemed to be influenced by many factors and actors, and how policy was translated into practice varied. This drew us to ANT[26,31,39] generally, and Callon's moments of translation specifically.[30,40] As a method, ANT approaches a phenomenon "in the making" via micro-level analysis of the places where it comes into being, following the actors and network builders as they translate or enact a phenomenon.[31,39] One way of doing this is to follow actors or interview subjects that are referred to by a main actant.[31] Our main actant was policy, specifically WA (UK) and WP (Australia) to medicine policy.

Callon's framework is useful in illuminating the processes of how some networks become durable and powerful[39] by "creating convergences and homologies by relating things that were previously different" (see Callon,[40] p. 211). Thus, using Callon's moments of translation[30,40] allows us to explore the data to locate the actors, their linkages, goals and the problems or obstacles they faced in achieving these goals. Our rationale in doing so is that if we can understand and illustrate the translational processes well, there is a potential to advance effective approaches to WP and WA. Although Callon's framework has been criticised as too fixed, potentially distorting the complexity it was intended to liberate,[39] it allows us to pay attention to the particulars of structures and processes at play, thus enabling analysis of how power flows in policy.[41,42]

It is useful to give more detail of Callon's four-stage theoretical framework at this point.[40] The first stage, problematisation, is where actors are identified and invited into the network by a key actor, and obstacles and goals are defined and established in relation to a shared obligatory passage point (OPP). The second stage, interessement, is where the project becomes operational and relationships between actors are dynamic in their enactment of accountability. The third stage is enrolment, where relationships are translated successfully by the actors through the use of power. The final stage, mobilisation, concerns the maintenance of the network, and allows the actors to generalise specific relations and occurrences that can be mobilised to other contexts and phenomena.[31] These stages are iterative rather than linear in order, reflecting the complexity of the translations and allowing researchers to show how actor-networks grow.[43]

2.3 | Reflexivity

Qualitative research is dependent on the relationship between the researcher and the research process.[44,45] We considered our positions and relationships with the data continually and critically in view of our different inter-disciplinary backgrounds (psychology, medicine, learning design), research interests (a mutual interest in the topic, but with different theoretical perspectives and methodological preferences), personal life courses and backgrounds,[46] particularly in respect of personal and other experiences of WP in education. Moreover, in following an actor as a focus for study, we were cognisant of having to foreground ANT's epistemological and ontological position of considering the world as consisting of networks with no distinctions between material and social phenomena[47] throughout data analysis.

3 | RESULTS

First, we present a brief overview of each context and the WP/WA policies from each of the two contexts, drawn from the document data (see Box 1). We provide the criteria for WA in each context in Appendices S2 and S3.

In both contexts, using policy-as-actor brought up to five other actors into the story—the medical school, the applicants' high schools, the applicants themselves and medical school staff, as well as the medical profession itself. By documenting the connections as problematised by the policy, we were able to identify an obligatory passage point (OPP), a key tenet common to all actors in both contexts[40]; this was how do students from WA backgrounds achieve and maintain academic excellence. In ANT terminology, the OPP can also be defined as a "single locus that could shape and mobilize the local network" (see Latour[31] and Bijker and Law,[53] p. 31), focusing the actors to converge in certain ways. In our data, while the OPP was the same in both contexts, how the networks in the two schools assembled thereafter differed. We explain this below and present it visually in Figures 1 and 2. In the text, quotes from human actors are labelled and origin indicated (e.g., Staff1A is Staff member 1 from Australia, while Staff1UK is Staff member 1 from the United Kingdom).

3.1 | Scotland, UK

Links to the traditional actor-network of medicine as an "elite" professional course where entry is heavily dependent on prior academic attainment are strong and firmly established. The OPP of a highly selective admissions process held firm, despite it being questioned: "do students need to have chemistry, plus two other sciences, is that essential?" (Staff 6UK). The policy uses "contextualised admissions" (CA: recognising the circumstances of an individual's background) to equalise opportunity for WA applicants. However, this group remains limited by a lack of resources and encouragement from high schools. Underperforming high schools are identified as experiencing significant problems in progressing pupils to medicine: "it's how you get past the head teacher and careers guidance in schools" (Staff 10UK). High schools and disadvantaged students are problematised in relation to obstacles in the way of their goal to achieving a successful and stable network of WA to medicine.

To address this, the medical school used outreach strategies and devices, such as student mentors, informed by the policy, to generate interest and applications to medicine from WA students: "they'd [student mentors] ... help you like with applying and stuff" (Student 2UK). Thus, by virtue of the university policy's explicit requirements and demands, the medical school becomes a cornerstone of action and accountability, tasked with both managing CA as well as developing and delivering effective outreach and access programmes.

Box 1 Context and WP/WA policies in each context.

Scotland, UK

The medical school is one of five medical schools in Scotland. Medicine has been taught there for over 500 years. Like most UK medical schools, it has an extensive history of highly selective admissions processes based primarily on academic excellence. At any one time, it hosts approximately 850 medical students.

The University has a long-standing commitment to WA to higher education, drawing on Scotland's "A blueprint for fairness" to form part of its current core institutional values.[48] The University WA policy aims "to create an outstanding and inclusive educational environment where all students can reach their potential"; however, the main focus of the policy documents is on admissions. It has various WA to medicine initiatives and pathways including REACH Scotland, and Gateway to Medicine (see Appendix S2 for further information). The WA to medicine policy can be briefly summarised as acknowledging the inequality of available opportunities for some groups of potential applicants, offering support to individuals from these groups (through outreach and/or the pre-medicine Gateway programme) and adjusting admissions criteria for applicants from these groups to acknowledge disadvantage and "level the playing field."[11,48–50]

Australia

This medical school is one of three in Western Australia. It is a relatively new medical school, receiving accreditation in 2016 and enrolling its inaugural cohort of 60 students in 2017, with numbers steadily increasing each year.

The Australian University is guided by a 2017–2022 Strategic Plan, which includes an operational framework for progressing student diversity, equity and inclusion, as well as targeted initiatives to support the access, participation and success of people from disadvantaged backgrounds. This plan draws on State and Federal equity legislation and policy, which provide funding and accreditation to universities to implement strategies that improve access to and participation in undergraduate study (in this case medicine) for individuals form rural, regional and remote areas (RRR), equity backgrounds and Indigenous people[51] (see tab. 4 for WP pathway criteria). These strategies are implemented by the university's Diversity and Equity unit, which is also responsible for the University's policy and initiatives aimed at "advancing reconciliation and contributing to an Australian society that values and respects Aboriginal and Torres Strait Islander culture and heritage" via a Reconciliation Action Plan.[52]

The medical school had to negotiate with applicants and underperforming high schools, recognising that many things were beyond their control yet shouldering much of the responsibility for a successful outcome:

> [It's] to do with the organisational structure of the city, of the council, and the education arrangements in the schools, we've also got that wider culture around schools in Scotland, which is quite variable, we know that some schools are under enormous fiscal pressures, we can't do anything about that, but what we can do is try to make our offering as clear and coherent as it can be.
>
> (Staff 7UK)

Despite the challenges, some young people from disadvantaged backgrounds do successfully negotiate the complex selection criteria and admissions processes, and many see these opportunities as providing them with an advantage: "actually we were more prepared [than traditional students], because we'd already lived in A****** for a year, we knew student life, we knew how to look after ourselves, knew where everything was, used to lectures, how that works" (Student 3UK who had completed a gateway to medicine programme).

Interestingly university policy laid out clear guidelines for WA admissions but said little about retention and progression of WA students. The university's Outcome Agreement refers to the need for measures to enhance the retention of disadvantaged students, but mechanisms were underdeveloped: "Efforts to establish a clear strategy on retention of disadvantaged groups are underway" (p. 10). Just how to go about providing this support becomes the key obstacle for staff: "they're much more diverse than the group of students that might come from our local independent school … so I, I think the biggest difficulty is I don't know what to expect" (Staff 11UK). In other words, while the characteristics and needs of this group of "disadvantaged" students are recognised as diverse and complex, there are no specific guidelines or directives in place by the policy or medical school, and staff are generally at a loss how to provide support. There are also fears around specific support being seen as stigmatising these students as deficient or giving them an unfair advantage compared to their "traditional" peers: "I think it's, you know, quite important that they, that they're not supported to the extent that the other students think, well wait a minute, they're getting a special deal" (Staff 10UK).

Better communication and a willingness to adapt appear to be key in stabilising the actor-network: "I think this will play out over a period of time, as our proportion of widening access students, hopefully it continues to increase, it will shape the attitudes we have towards how we deliver education, how we plan it, how we support students, how we value them and that unconscious, or perhaps conscious bias that we sometimes have into medical school being an accessible or seemingly inaccessible to people from the very diverse backgrounds" (Staff 7UK). It is early days for WA to medicine, the

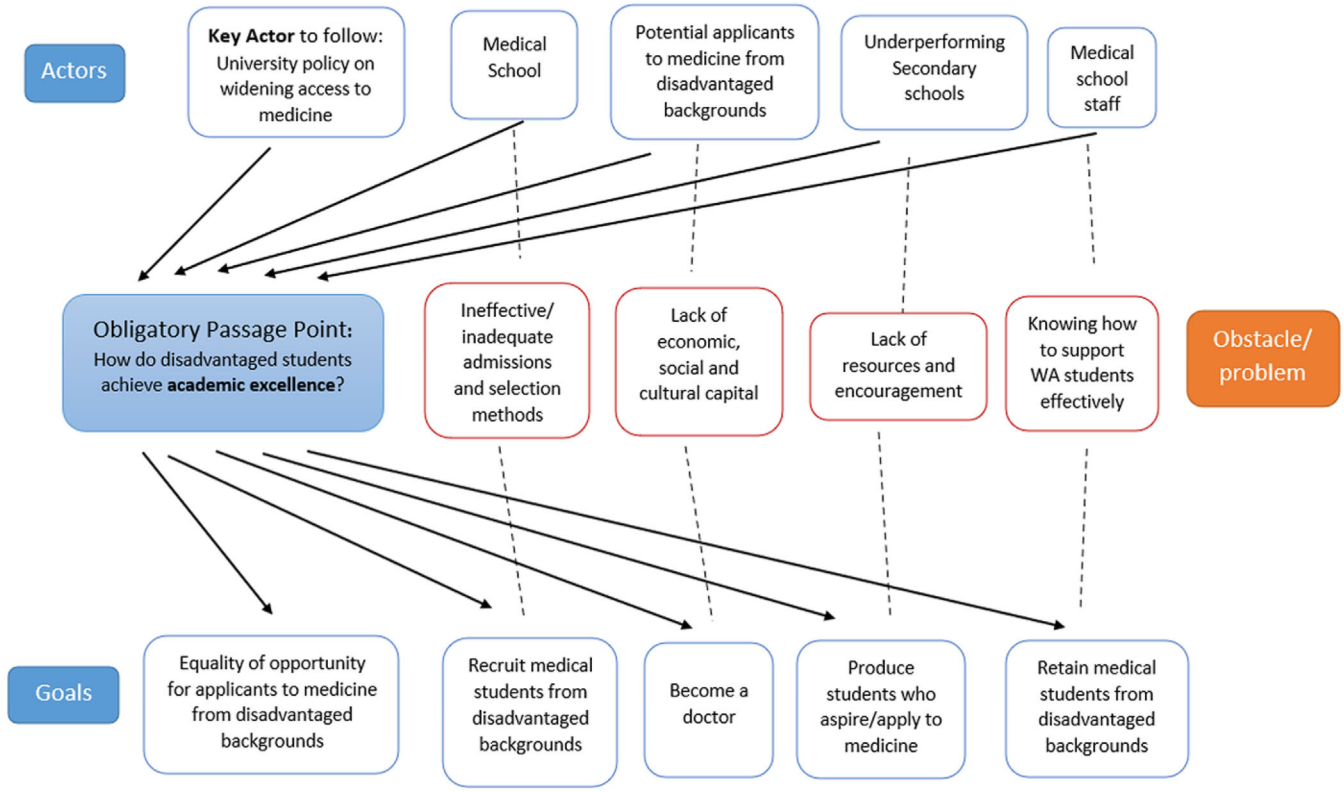

FIGURE 1 Problematisation UK: Actors are identified and invited into the network by a key actor (in this case, WP/WA policy), and obstacles and goals are defined and established in relation to a shared obligatory passage point.

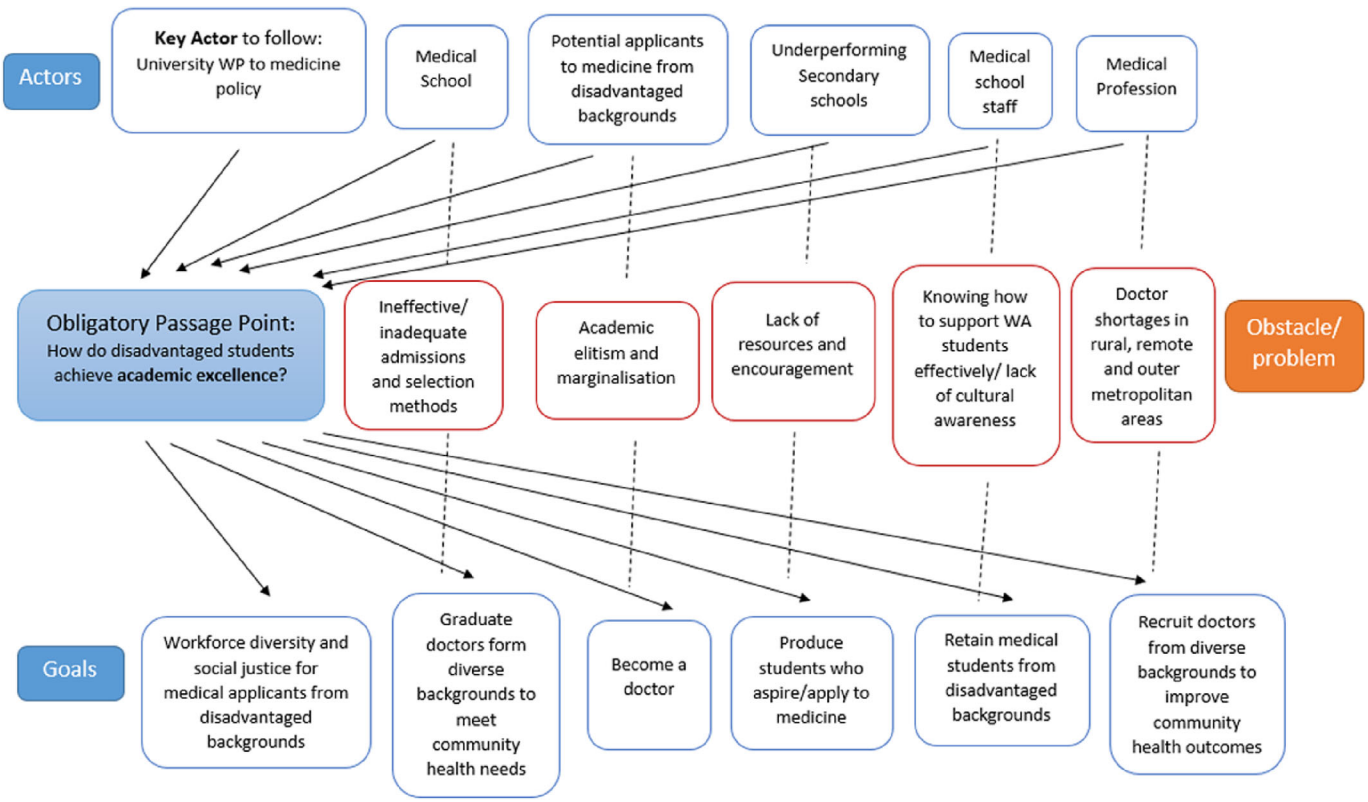

FIGURE 2 Problematisation Australia: Actors are identified and invited into the network by a key actor (in this case, WP/WA policy), and obstacles and goals are defined and established in relation to a shared obligatory passage point.

OPP remains, and power relations are uneven and contested, but staff are hopeful for the future and open to facilitating change.

3.2 | Australia

The Australian medical school also employs a complex array of admissions and selection methods that aim to reduce academic disadvantage. However, these can also act as a barrier by inadvertently causing more disparity:

> they were telling us you don't need to study for UMAT, right, because it's just like testing, testing your capabilities right, your natural capabilities, but the thing is you've got to study for UMAT, you've got to understand what it's about and I feel it was quite naïve of them to tell, tell us we didn't need to study, because in [the city], you get offered all these workshops on UMAT and stuff.
>
> (Student 8A—rural)

Affirmative action and its associated incentives for training rural and Indigenous practitioners has an explicit impact on the objectives of the medical school. For example, "a strong emphasis on primary care" is stated in the medical school admissions guide, which also talks about aiming to "position graduates well for rural and remote practice, as well as outer metropolitan locations, where there is a shortage of doctors" (p. 2). This was clearly linked to national workforce planning—"there's a huge investment going on nationally, to try and encourage doctors to stay in rural environments, and ultimately practice in rural environments, and so I think being seen to make a contribution to that, is going to be very important politically" (Staff 1A)—and Indigenous equity "[Indigenous health] was going to be the driver for the medical school, and they'll try and keep us on track with what we said that we were going to do" (Staff 5A). This is a point where the UK and Australian networks diverge: The medical profession, or more accurately, medical workforce planning, is not a key actor in the UK network.

Both staff and students frequently criticised the heavily skewed focus on ATAR (school performance) scores and other preparatory measures as part of an outdated and elitist system that negates fair access and limits tangible progress when it comes to WP to medicine:

> it's very elite based, and you, like you've got to look at that because of the fact that they look at certain marks, and certain qualities in interviews and all these sorts of things, and you know, it's very hard to determine if that's because that's what the medics, the medical school is looking for, or if that's because those qualities are gained from living in the city and going to certain schools.
>
> (Student 6A—rural)

As in the UK network, many applicants in Australia do successfully negotiate the complex admissions process and enter medical school. Rural quotas have been met, and some Indigenous students have navigated their way into medicine, securing the financial and political targets of the medical school and strengthening its relationship with both the University WP policy and the profession. Both the medical school and the profession are now a step closer to achieving their shared goal of respectively recruiting and graduating doctors from diverse backgrounds, but future success remains uncertain: "there's certainly some signs that the admissions process is good at recruiting people. Whether the school and the curriculum can retain those people is a different, yeah, concept altogether" (Staff 11A). New identities and a sense of belonging are built as the WA students become active members of the medicine community, forming new relationships with the medical school, each other, and the medical school staff: "I always chat with our tutors, it's very community based … the staff they do care about us, they made such a big effort to, you know, get to know us, support us" (Student 8A—rural).

Again, as in the UK network, the staff become mediators, or mobilisers, in the relationship between the medical school and the students, trying to establish how best to support the students. The University's Access and Participation Plan explicitly refers to the importance of retaining rural, equity and Indigenous students "by facilitating an inclusive and supportive learning environment, and targeted academic support programs" (p. 1). However, how to enact this is not specified, and staff feel underprepared for the task, particularly in terms of cultural awareness and competence: "when you're teaching about rural, Indigenous health, it's like, you know, there's these like really bad figures, and If you were sort of hearing that information about your own group, it must feel uncomfortable, and sometimes I guess I feel uncomfortable" (Staff 9A). As seen in the UK network, there is a perceived tension between providing support and giving WP groups an unfair advantage: "it created a little bit of dissent amongst the other students, because they were given a bit of an advantage, they were given a tutor who was very supportive and they were also in a much smaller environment, but I think it helped them quite considerably" (Staff 7A).

The University's Diversity and Equity Policy pays attention to the principles of "Right, Opportunity, Recognition and Inclusion" (p. 1), particularly for Aboriginal and Torres Strait Islanders, and stipulates that University members will "foster a culture that embraces equity," "communicate in ways that are inclusive" and "support the needs of students based on diversity grounds, provided that this does not result in unjustifiable hardship for the university" (p. 1). But what of the unjustifiable hardships these students experience? The traditional actor-network of medicine is undeniably linked to a long history of Western privilege and bureaucracy, a world often at odds with Indigenous cultures and values:

> it was sort of discussions about space, having a more Aboriginal space in the medical school and I just, I sometimes kind of think actually, I was reading about the history and the past, and I'm thinking, yeah, you

might feel like you need your own space, and that I didn't, I think that it is perhaps, I don't think we always understand what people might want, and that actually it could well be justified for that group.

(Staff 9A)

4 | DISCUSSION

Our findings illuminate how constellations of heterogeneous (human and non-human) actors have formed to assemble and defend versions of WP and WA, and how these have been constructed differently, by different actors.[40,54]

Via our novel use of ANT to examine the role of policy in WP/WA we have identified that, by retaining its stronghold of high academic achievement as an obligatory passage point (OPP), the traditional actor-network of medicine limits the success, or mobilisation, of WP/WA to medicine and creates tension within the networks. Academic ability is, of course, necessary for the study of medicine (see later for further discussion) but setting this OPP at a level that inherently disadvantages many groups in society then influences how effectively WP/WA policies can be operationalised, translated and configurated throughout the rest of the WP/WA network.

The OPP of academic excellence and many of the actors are the broadly the same in the two networks, but there are differences. In the United Kingdom, the focus is on equalising opportunity for disadvantaged students in selection and admission procedures.[49,50,55] Australia shares this focus but has mandates linked to medical profession issues—the medical school must admit a more diverse cohort of students in response to mandates based on workforce and community need.[21]

Despite Australia's socially accountable aims of fair representation and affirmative action policies, and the United Kingdom's well-developed initiatives that work hard at fair access and getting students over the line and into university, both contexts appear to be falling short of adequately supporting students once in medical school. In both networks, there is friction between a perceived deficiency within WP/WA students and extra support being seen as giving them an unfair advantage over their peers. It is unclear whether such views are perpetuated by staff and/or local support policies, or both. Rather it seems that once WP/WA applicants have been successfully translated into medical students, the objective of equalising opportunity, as designated by the policy as key actor, is considered achieved. This reflects the literature; relatively speaking, there is relatively little published on WP student's journey through medicine or how medical schools support diverse students once in programme (see previous works[56–60] for exceptions). Consequently, it is the staff, in their negotiations with both the students and the medical school, who must shoulder much of the responsibility in retention of medical students from WP backgrounds. However, they feel uncertain and unprepared in how best to support disadvantaged students, meaning WP/WA networks may fall short of retaining let alone graduating diverse doctors.

There remains in the United Kingdom fears that diversity comes at the expense of academic excellence (i.e., diversity and academic excellence are not compatible), which gives credence to the pervasive equity versus excellence debate.[3,20,61,62] Similar discussions are ongoing in Australia. For example, Bullen and Flavell[62] critique the application of Western "quality indicators" in respect to embedding Indigenous knowledge in Australian university courses. We echo longstanding calls to position non-traditional medical students as having desirable qualities and experiences that will ultimately benefit patient care and better educate their peers.[4,63–65]

It is clear that there are ongoing political tensions between drivers for WP/WA, the competitive landscape of neoliberal university education in the United Kingdom[67] and the need for universities to maintain a reputation of excellence in a globally recognised knowledge economy.[66,67] In other words, universities and the staff within them work in system(s) replete with competing priorities that are often not at ease with practices aimed at greater inclusion.[6,7,65] We suggest a move towards providing concrete recognition (perhaps additional funding) for courses that prioritise selection and training of a diverse group of medical students who will meet healthcare needs. Moreover, we suggest that it is time for medical schools to acknowledge that some of the drivers for ever higher academic thresholds for entry to medicine are artefacts of managing the numbers of applicants rather than anything more noble.

While there are some signs of success with concrete recognition of courses that prioritise WP in Australia,[68] there is still work to be done in creating sustainable and attractive rural clinical training pipeline programmes, and exploring the transitions and choices medical students make in postgraduate education and training.[69–73] At a relational level, placing more focus on understanding how institutional staff members engage with students from marginalised backgrounds may develop staff capacity to provide appropriate and effective support in contextually relevant and culturally appropriate ways.[73,74]

This study is the first to use ANT as a lens for examining WP and WA to medicine. Embracing new ways of looking at this old problem has the potential to mature research in the field and open up possibilities for change. We are not the first authors to point out that the high levels of academic attainment required for medicine are a barrier for some groups (e.g., previous works[1,14,55,75,76]); however, we are (to our knowledge) the first to show how this requirement (or OPP) influences access and participation both at the time of selection and thereafter. Taking a comparative case study approach from an international standpoint explicitly foregrounded the importance of context in mapping networks of WP/WA in medicine, where reflecting on processes may help unveil new and alternative perspectives.[21]

This study should also be considered in the context of its limitations. First, our focus is two universities, one in the United Kingdom and one in Australia, and we recognise the situated nature of this context. As with other qualitative studies, our intention by using theory is to have conceptual transferability and we do not claim empirical generalisability. Second, we recognise that this study captures a particular moment in time. A similar study in 10 years or thereabouts may find very different network configurations—but only if the obligatory

passing point and other aspects of problematisation change. Finally, critics of ANT have taken the approach to task for not considering "how power differentials, for example race, gender or class, impact on who or what is able or unable to form associations in the first place and thus for failing to acknowledge unequal power relationships" (see Müller,[77] p. 30). In this paper, we do not comment on how the associations under study formed; we focus on the associations resulting from their current form.

5 | CONCLUSION

Opening up medicine to embrace diversity will not happen without disassembling entrenched processes and practices. Keeping academic excellence as the obligatory passage point to medical school shapes the whole network of WP/WA and perpetuates inequality. Our actor-network lens indicate that only by addressing this, by removing the need for high levels of academic attainment for entry to medicine, will the network of WP/WA reconfigure.

AUTHOR CONTRIBUTIONS

All the authors meet conditions 1, 2, 3, and 4 and gave final approval to the submitted paper.

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CONFLICT OF INTEREST STATEMENT

There are no competing interests to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

In Aberdeen, ethical approval for this study was granted by the College Ethics Review Board in November 2018. At Curtin, our application was granted approval by the Curtin University Human Research Ethics Committee in December 2019.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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