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Teacher educators' perception-practice tensions in the enactment of intellectual virtues pedagogy

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ABSTRACT

Higher education faces the challenge of preparing graduates who need to keep pace with ever-evolving discipline expertise with the capacity to pivot, adapt and innovate through uncertainty and change. Teachers in higher education in Australia and internationally, however, are simultaneously responding to program accountabilities that may serve to distract them from this critical purpose. Drawing on intellectual virtues as a means of conceptualising these graduate attributes, this study uses an online survey to explore how 18 Australian higher education teachers from the School of Education in one university perceived they taught the nine intellectual virtues in their courses. Using simple descriptive statistics and thematic analysis, findings indicated that their largely positive perceptions were not necessarily matched by their practice. This perception-practice tension has implications for graduate preparedness and, by association, program development and delivery in education and other disciplines similarly impacted by neoliberal pressures and changing graduate needs.

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Intellectual virtues; graduate attributes; higher education; teaching and learning; teacher education

Introduction

Graduates of contemporary higher education institutions worldwide are destined for a world described by Bowman et al. (2022, 1) as 'liminal, precarious and complex', requiring them to be 'life-deep, life-wide learners, problem-solvers and engaged citizens' (Bowman et al. 2022, 2). With disciplinary expertise advancing at such a rate that institutionally acquired knowledge becomes obsolete with staggering rapidity, university educators must focus less on 'helping our students know more' (Geertshuis, Wass, and Liu 2024, 2), and instead consider ways in which we can develop students' generic capabilities, fostering academic competencies (Tuononen, Parpala, and Lindblom-Ylänne 2020), that speak to their dispositions as lifelong and agile learners required for success in what Bowman et al. (2022, 14) refers to as the 'fourth industrial age'.

Thus, the expectations on universities as higher education providers in contemporary times have shifted, with programs necessitated to graduate students with discipline-specific expertise, concurrent to developing graduate attributes (Barrie 2007; Hill,

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Walkington, and France 2016; Oliver and de St Jorre 2018; Wong et al. 2022). Graduate attributes, in contrast to discipline-specific knowledge and skills, are most often described as 'generic' (Geertshuis, Wass, and Liu 2024, 2) and 'transferrable' skills and attributes (Oliver and de St Jorre 2018, 822). In many studies, they are linked to employability Hill, Walkington, and France (2016); Oliver (2015) and are constitutive of, in part, collaboration skills, digital capabilities, problem-solving, and time management.

In other studies (see, for example, Barrie 2007), these attributes are defined more as holistic, intellectual dispositions and metacognitive capacities such as curiosity, critical thinking, autonomy, and open-mindedness (Hammer, Ayriss, and McCubbin 2021; Wong et al. 2022). According to Oliver and de St Jorre (2018), any binary is unnecessary as the 'generic' aptitudes for each of these purposes are interconnected. In our study, we do not seek to debate these perspectives. Instead, we innovatively draw on intellectual virtues[1] (Baehr 2013) as our means of conceptualising these graduate attributes, comprised of the ways of thinking that form the foundation for creativity, adaptability, and lifelong learning. In doing so, we see graduate attributes and by association, the intellectual virtues as, in part, the foundational dispositions that underpin good learning and the good learner for the future.

Problematically, studies have shown that while higher education is making some progress in shifting away from transmissive pedagogy to more active approaches, these are still largely focused on developing conceptual understanding and much less on the specific addressing of graduate attributes such as those captured by intellectual virtues (Bowman et al. 2022; Geertshuis, Wass, and Liu 2024). Increased external invigilation from discipline-specific regulatory bodies has been posited as one explanation, as it requires substantial adherence to specific standards in some university programs for accreditation purposes, a movement that is now seen worldwide (Salto 2023). For example, Bowman et al. (2022, 5) argue that in the contemporary audit culture of the UK, accountability pressures on universities and academics 'actively hamper the development of pedagogical solutions that can nurture the capabilities' to which we refer, in part due to the challenge of quantifying such outcomes.

Initial Teacher Education (ITE) in Australia, as the context of this research, is another clear case in point. ITE encompasses those university programs intended to prepare preservice teachers for the teaching profession. Despite there being a requirement through the Tertiary Education Quality Standards Agency that universities develop a set of aspirational Graduate Attributes and integrate their development as part of the curriculum quality architecture (Hammer, Ayriss, and McCubbin 2021), ITE is required to evidence a clear address of six highly discipline-specific Program Standards (Australian Institute for Teaching and School Leadership 2022) to remain an accredited program. We argue that with 'an increasingly crowded curriculum quality space' (Hammer, Ayriss, and McCubbin 2021, 508) and Program Standards that privilege measurable, standards-driven content (Chipindi and Harrison 2022, the intentional development of intellectual virtues (such as curiosity, open-mindedness, and intellectual autonomy) of students by teacher educators may be challenging.

Furthermore, Geertshuis, Wass, and Liu (2024) and Bowman et al. (2022) state that teachers in higher education settings may lack the pedagogical understanding necessary to make shifts in their practice to address student capabilities that have been described as somewhat amorphous (Baehr 2013). That said, there is limited research from the

Australian context, and more specifically, in teacher education where, one might anticipate, by virtue of the discipline, that educators would hold an extensive pedagogical repertoire. Thus, teacher educators represent an important yet under-researched group relevant to this issue.

In this paper, we report on findings from an online survey, exploring the way 18 teacher educators from one School of Education in a regional Australian university perceived they planned for and taught the nine intellectual virtues within their ITE courses. Using both descriptive statistics and content analysis, we aimed to develop an understanding of the extent and ways in which teacher educators perceived they were able to intentionally plan and implement targeted strategies to support their students to build capacity in this select aspect of the Graduate Attributes, more specifically, intellectual virtues, within their ITE courses. In doing so, we respond to the following research question:

> How are teacher educators addressing the development of students' intellectual virtues as part of their teaching and learning?

We now present intellectual virtues as an innovative conceptualisation of the graduate attributes of the lifelong learner, preceded by a review of literature about the teaching of intellectual virtues. Following this, we detail the study's methods and then present and discuss key findings. We conclude with a consideration of the limitations of the study and implications for future practice and research across higher education contexts.

The intellectual virtues

The intellectual virtues (hereafter referred to as 'intellectual virtues' or 'the virtues') are representative of those ways of approaching learning that generate 'good thinking' (Jayawickreme and Fleeson 2022) and learner flourishing (Heersmink 2018). Less concerned about the nature of truth, virtue epistemology is interested in the cognitive character, traits, and dispositions of the good thinker (Heersmink 2018; Zagzebski 1996). In this study, we draw on the significant work of Baehr (2011, 2013, 2015, 2021), who extended on the seminal work of Zagzebski (1996) and her conceptualisation of intellectual virtues as the 'acts' (p. 270) of good intellectual character traits and the essential motivation required to enact these traits. Baehr (2011, 2013) went on to identify nine key intellectual virtues (Table 1). This is not to say that other virtues have not been suggested (such as Roberts and Jay Wood 2007), or alternative terminology or language used (see e.g. King 2021). However, as Heersmink (2018, 4) suggests, Baehr's work offers 'a solid starting point' and 'a useful and manageable common language', and, according to Baehr (2013, 250), 'the language and concepts of intellectual virtue provide a plausible way of fleshing out the familiar but nebulous ideal of lifelong learning', fundamental to a futures-focused university education.

It should be noted here that intellectual virtues have evolved from epistemological and conceptual ideas (Baehr 2013; Zagzebski 1996) to a more practical consideration for teaching (Arum et al. 2021; Orona and Pritchard 2022; Pritchard 2023). Annas (2011), for example, argues that intellectual virtues can be taught through demonstration and practice. In 2017, Zagzebski posited that effective teaching of intellectual virtues required

Table 1. The intellectual virtues (adapted from Baehr 2011, 2013, 2015, 2021; Heersmink 2018).

Category	Intellectual virtue	Explanation
Getting started	Curiosity	A disposition to wonder why and ask questions; motivated to broaden their knowledge and find out and intellectually explore.
	Intellectual autonomy	The capability and willingness to think for oneself; consider new ideas critically without an immediate compulsion to capitulate.
	Intellectual humility	Being aware of and willing to admit one's own cognitive limitations and weaknesses. Knowing what cognitive capacities need improving and what knowledge is not a strength.
Learning well	Attentiveness	Paying attention to and focusing on the task; applying oneself fully to the learning.
	Intellectual carefulness	A commitment to working with due diligence and care to avoid errors and engage with learning accurately.
	Intellectual thoroughness	A disposition to probe for deeper meaning and understanding about a topic. Aiming for a deep explanation.
Overcoming potential barriers	Open-mindedness	A willingness to consider alternate perspectives, ideas, and views. Open to changing views when and if the evidence is provided.
	Intellectual courage	Sharing one's own ideas and perspectives with others in spite of feelings of intellectual vulnerability.
	Intellectual tenacity	Staying the course during an intellectual challenge, persistence and perseverance in the pursuit of a learning goal.

the modelling of virtuous intellectual acts. Battaly (2017)added that formal instruction was necessary, using explanations and exemplars of practice. Orona and Pritchard (2022) and Orona and Trautwein (2024) have reported the positive impacts of deliberate instruction on students' application of these virtues.

Baehr's (2013) nine intellectual virtues are grouped into three flexible and fluid categories that clarify when and where these virtues may serve the learning process (Table 1). The first category focuses on the provocation of learning (getting started), the second on driving and enriching the learning (learning well), and the final category on overcoming potential barriers to a rich learning experience. These virtues are inherent to the graduate attribute work of Bowman et al. (2022, 16) who posit the significance of developing intellectual openness, humility, courage, and thoroughness for 'life-focused education'. Several studies have considered the ways in which these virtues may work together (Jayawickreme and Fleeson 2022; King 2021; Spiegel 2012), with a consensus that 'promoting good thinking and knowing requires the possession of more than one intellectual virtue' (Spiegel 2012, 35).

Importantly, Heersmink (2018) and later Schwengerer (2021) explain that intellectual virtues as acquired or learned cognitive traits, can be nurtured and improved. As such, Baehr (2011, 2013, 2015, 2021) and others (Battaly 2016; Heersmink 2018) argue that the development of intellectual virtues is served by teaching and practice, with Clemente (2024) explaining that educators can serve this development through their own deployment of these virtues and motivation to nurture these among their students. Understanding tertiary educators' practice in this regard is therefore a useful contribution to progressing higher education's address of students' generic capability development.

Literature review

Several studies have explored approaches to the teaching of graduate attributes and the virtues in both school and higher education settings. Barrie's (2007) Australian study

involving 15 higher education academics (from the sciences, nursing, medicine, and engineering) found that each academic's own understanding of the graduate attributes influenced the approach they used. This link between educators' interpretation of the attributes and their teaching approach has been expanded by Zhou (2022), who identified three conceptual models of instruction, making an explicit link to intellectual virtues. The first approach has a general focus on critical thinking rather than requiring a specific address of intellectual virtues. The second approach reflects an embedded (immersive) approach, whereby intellectual virtues are 'infused into the subject matter instruction' (Zhou 2022, 162) and learned as they engage with course content. The third approach uses the standalone instruction of intellectual virtues separately and prior to engaging with the course subject matter. This approach suggests that students leap application in learning without explicit intervention by the academic. Both Zhou (2022) and Youngs (2021) advocate for the second, immersion approach, arguing that the development of the virtues must be contextualised for it to be purposeful.

While Jones (2013) posits that graduate attributes cannot be viewed as stand-alone entities, common to studies of intellectual virtues is a focus on one intellectual virtue; most commonly intellectual humility or curiosity (Meagher et al. 2019; Schwartz 2022; Youngs 2021; Zhou 2022), despite the inter-relational conceptualisations of intellectual virtues put forth (Jayawickreme and Fleeson 2022; King 2021; Spiegel 2012). There has been a limited investigation of how virtues as an interrelated set of cognitive dispositions, could be included in higher education learning. Further, while studies advocate for the consideration of intellectual virtues in teaching, this has largely been described in general terms, such as through the use of lectures, tutorials, or workshops, modelling, and problem-solving. Youngs (2021), for example, suggests that academics should consider the alignment of their lessons to intellectual virtues; yet the specific strategies of how to incorporate these virtues with intentionality are not discussed. Similarly, Meagher et al. (2019), study across six undergraduate philosophy courses in a university in the United States, along with more recently, Orona and Pritchard's (2022) study of 200 philosophy and nursing undergraduate students described a standalone course involving audiovisual material, information and activities focused on developing students' understanding, valuing and application of curiosity. Orona and Trautwein (2024) later utilised the same module and noted a positive impact on student cognitive reflection and good thinking (Jayawickreme and Fleeson 2022; Orona and Pritchard 2022).

Baehr also argues that the development of intellectual virtues necessitates that teachers plan and implement intentional strategies that go beyond the introduction and/or an immersive experience to 'provide opportunity to practice the actions characteristic of intellectual virtues' (2013, 258). Thus, Baehr (2013) advocates for intentional teaching that seeks to develop the learner and learning. However, the specific ways to enact this intentionality in the higher education setting remain somewhat elusive in Baehr (2011, 2013, 2015) work. Further, while Orona et al. (2024) provide a framework for intellectual virtues instruction in a higher education context using Besser's (2020) STRIVE 4 model, the focus is on the impact on students rather than implications for teaching practice. In this paper, we set out to explore the intentional and specific ways in which one group of teacher educators perceives they develop higher education students' intellectual virtues through their own practice.

Method

This paper reports on the first phase of a larger project focused on effective instructional practices for the development of intellectual virtues among higher education students. In this first phase, we collected exploratory reconnaissance data during Semester 2 in 2022 to understand the extent to which teacher educators perceived that they addressed the intellectual virtues with their teaching practice, which would inform the second phase of the project. This larger project is funded by a university teaching and learning grant and received ethics approval from the university's Human Research Ethics Committee (H22REA167).

Participants

Participants included academics from the School of Education at one regional university in Queensland, Australia. Potential participants were Course Examiners (CE), otherwise known as lecturers, responsible for the development and delivery of a minimum of one course within an Initial Teacher Education (ITE) undergraduate program of study. These programs represent the higher education coursework that preservice teachers must undertake to attain teaching qualifications. In line with ethical approvals, an email invitation and participant information sheet were sent by the university administration officer to all CEs in the School of Education to recruit potential participants. 18 academics responded to the invitation and were recruited to the study.

Data collection

Online surveys were chosen for data collection. As the potential participants were all known to the researchers, a survey provided anonymity to the participants. The asynchronous survey also allowed the participant to consider their response and respond in their own time, with examples of practice.

The anonymous survey (Table A1) was designed by the researchers to collect both quantitative and qualitative responses. Through nine Likert scale questions, CEs were asked to indicate the level of intentionality with which they perceived they developed each of the nine intellectual virtues among their students. Further to this, nine open-ended qualitative questions were included to elicit specific examples of the teaching strategies they implemented to intentionally develop each of these virtues. Beyond verifying if participants qualified for the study as course examiners for an Initial Teacher Education or post-graduate course, further personal data was not requested to maintain the anonymity of responses within a small university. Before using the survey, the researchers trialled the tool, by each answering the questions and analysing the responding data. The wording of the questions was adjusted slightly to elicit responses from participants about their perceptions of practice enacting the specific IV in their pedagogy.

A total of 18 participant responses were submitted, of which 17 were full responses. While one response was incomplete, the data submitted was still considered valid and included for analysis. Participants were allocated a code (for example, P18) and these are used in the reporting of findings and discussion.

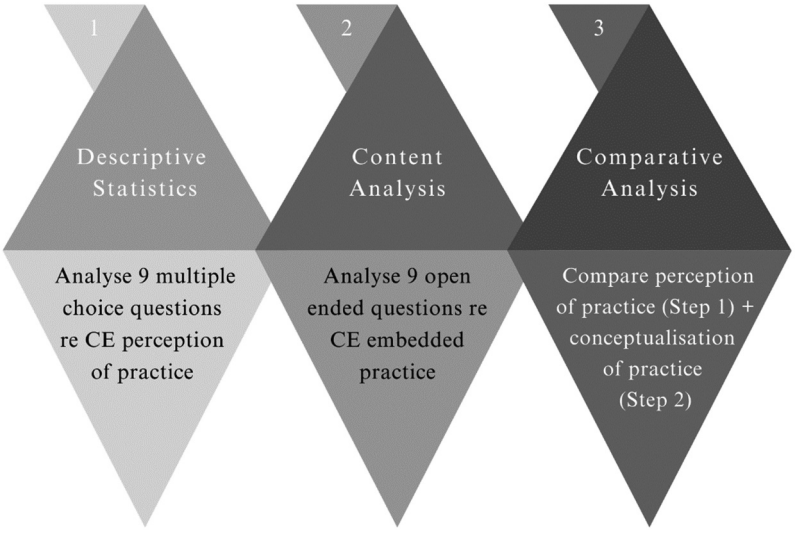

Figure 1. Exploratory design to compare the understanding of intellectual virtues and practice within ITE courses.

Data analysis

These data were analysed in three steps (Figure 1). First, the nine multiple-choice questions underwent simple descriptive statistical analysis using the built-in tools within LimeSurvey. According to Madrigal (2012), descriptive statistics are useful for researchers to summarise and interpret quantitative data and identify patterns and trends. Within this study, simple descriptive statistics enabled us to identify the perceived extent to which CEs believed they developed intellectual virtues through their practice: intentionally, incidentally, didn't know, or did not implement at all. Second, content analysis, a common research design within exploratory studies (Drisko and Maschi 2016), was used to systematically identify and describe themes within the qualitative data to gain insight into practices perceived by the CEs to develop students' intellectual virtues within their courses. Participants were asked to describe how (where relevant) they used each intellectual virtue within their practice. The resultant data were grouped into categories, based on the extent to which the examples provided by the CEs aligned with the meaning of the specific intellectual virtue for each question. To ensure consistency of interpretation, three researchers individually coded the data as to whether the response aligned with the IV, misaligned, or was considered untargeted, as the response was too general to be assured a specific virtue would be developed. The authors then met via Zoom to discuss each response and collaboratively assign a final code.

Finally, a comparative analysis of data was undertaken using Excel. Pappas and Woodside (2021) posit that the comparison of quantitative and qualitative responses from participants 'combines the logic and empirical intensity' (p. 1) to develop a 'deep view' (p. 2) of data. We compared quantitative responses indicating perceptions of intentionality with qualitative responses indicating what practices were used during

teaching. We therefore utilised comparative analysis to explore the relationships between the data collected.

Findings

We present the findings in accordance with our three-step design, commencing with participants' perceptions of instructional intentionality, followed by practices perceived by participants as addressing the development of intellectual virtues, and concluding with a comparison of perceived intentionality and practice.

Intentionality of implementation

For each of the nine intellectual virtues, participants were asked *which of the following best describes the way that you support your students to conceive and/or ask questions related to concepts and content in your course?* and four possible responses were provided: *intentionally embedded*; *incidentally embedded*; *I don't know*; or *does not occur*. Participant data demonstrated a significant variety of responses, although overall, tended to indicate that most participants believed they tended towards the intentional embedding of most virtues (see Table 2).

Of the nine virtues, most CEs perceived they were most intentional about their address of curiosity, intellectual humility, and intellectual autonomy (67% – 78%). It appeared most CEs were aware of these particular virtues and perceived they made considered use of them. Interestingly, intellectual autonomy was the only intellectual virtue that 100% of participants perceived they implemented within their courses, either intentionally (72%, $n = 13$) or incidentally (78%, $n = 5$). Intellectual carefulness, thoroughness and open-mindedness were reported to be intentionally implemented in courses (59%, $n = 10$) or incidentally (35%, 18%, 24%, $n = 6$, 3, 4 respectively), leaving a small number of participants who did not know if these virtues were addressed, (6%, 18%, 18%, $n = 1$, 3, 3), and one CE who reported that intellectual thoroughness did not occur within their course.

Attentiveness and intellectual tenacity had the highest number of participants who reported that they did not know if these were developed within their courses (35%, 41%, $n = 6$, 7). Additionally, a few participants reported intentionally addressing intellectual tenacity within their courses (18%, $n = 3$), indicating that there were CEs who were less sure how to embed the development of intellectual tenacity within their courses.

Illustrations of practice

Using nine open-ended questions corresponding to the multiple-choice questions, CEs described the specific practices they used to address each of the intellectual virtues. In total, 102 responses were collected via these questions.

Getting started: curiosity, intellectual autonomy, intellectual humility

CEs shared several ways they perceived they engaged in practices or teaching strategies that would develop intellectual curiosity in their courses. Of these, some CEs felt they did this through the design of their lesson ($n = 3$), such as 'an activity where students go around the group and explain a concept, and then they go around the group and ask their

Table 2. Simple statistical analysis of nine multiple-choice questions.

Virtue	Curiosity	Intellectual Humility	Intellectual autonomy	Attentiveness	Intellectual carefulness	Intellectual thoroughness	Open-mindedness	Intellectual courage	Intellectual tenacity
N Responses	18	18	18	17	17	17	17	17	17
Intentional	14	12	13	7	10	10	10	6	3
Incidental	2	4	5	4	6	3	4	9	6
I don't know	1	1	0	6	1	3	3	2	7
Does not occur	1	1	0	0	0	1	0	0	1

peers a clarification question' (P1), or 'a slide at key points through my online tutorials prompts students to consider what we've discussed and pose questions either using mic or via chat. Students listening to the recording are encouraged to pose their questions in the forums (P13). Another CE explained how they created a shared space where 'students contribute their "scientific" wondering each week' (P2).

To encourage intellectual autonomy, a participant described a unique self-assessment activity used to articulate limitations in understanding; 'we use a *Yes/No/Kind of* activity where students self-assess their understanding based on the assessment rubric and then in threes work on the *Nos and Kinds ofs*' (P1). Reflection was also used to identify limitations in understanding, with one CE explaining that 'students are asked to reflect on their learnings so far in the course, outline their knowledge and skills before (*sic*), what knowledge and skills they have now, and identify areas for improvement' (P2). Another CE incidentally included this virtue, as they 'prompt[ed] students to share their own experiences and sense of limitations a number of times through the semester in live tutorials' (P13). Interestingly, this CE recognised that they 'don't cater for asynchronous students via this method'. Intellectual autonomy was further described as developed through debating activities. In some cases, CEs felt that their students demonstrated intellectual autonomy 'by raising points/questions in tutorials/forums/email that go beyond the scope of the course, which demonstrates they're exercising Intellectual autonomy' (P13). Importantly, such activity did not ensure students' use of intellectual autonomy.

Learning well: attentiveness, intellectual carefulness, intellectual thoroughness

Over one-third of participants did not know if they addressed attentiveness within their course. Similarly, only 8 of 17 participants provided an example of embedding this either intentionally or implicitly. As previously explained, this intellectual virtue is about supporting students to develop focus and 'presence' during learning. One participant shared they used 'learning resources on key aspects such as time management' (P6), and another that, 'Each week I provide a list of suggested strategies for keeping on track and for ensuring they don't "fall behind"' (P13). Importantly, several CEs incorrectly felt that attentiveness was the students' ability to manage the information within the course, gain a deeper understanding of course content or their own provision of modelled examples within the course.

Developing students' ability to work for accuracy and quality (intellectual carefulness) was described by one participant as being important, given that higher education was characterised by 'expectations of a high-quality academic approach' (P4). Many strategies were provided by CEs, such as support for referencing, going over learning intentions/goals, and explicit coverage of criteria specifications/rubrics to focus students on addressing assessment requirements carefully. Less evident was CE's instructional focus on conceptual accuracy during learning experiences.

Intellectual thoroughness was espoused as intentionally embedded through the explicit design of content and assessment to ensure students were engaging deeply with their learning. While for some CEs the focus was on providing tasks that required a demonstration of thoroughness, other CEs shared teaching strategies they used to develop this virtue, including 'routines such as "what makes you say that"?' (P1) and encouraging students to go deeper into their thinking through shared explanations and

justifications of their thinking. This same CE explained their use of an Iceberg Graphic Organiser, whereby students 'put a statement above the water, and they [the students] investigate the research that sits under the water line' (P1). Another participant shared that in their course, 'students complete in-depth inquiries (5 over 5 weeks) – they experience the course content rather than only read about it' (P2).

Overcoming potential barriers – open-mindedness, intellectual courage, intellectual tenacity

CEs reported strategies to develop intellectual open-mindedness as those that encourage students to consider a range of possible ideas and genuinely listen to ideas that diverge from their own. A participant who espoused that they intentionally embedded this did so by including an,

> explicit focus on how they will have to navigate this as teachers when students or families hold views divergent from their own. An emphasis on respect, challenging ideas and asking for evidence, and being open to reconsidering their own position in light of the evidence. (P3)

While an explicit focus is mentioned, no specific strategy was described. Furthermore, other CEs encouraged open-mindedness incidentally through discussions and 'allowing open communication, providing a forum where ideas are heard and valued, allowing students to take risks with their ideas through well-structured learning activities' (P10). The specific nature of these well-structured activities was less clear.

Showing intellectual courage was perceived to be fostered by CEs in forums, discussions and the 'use of small group work in tutorials so that my students feel a little bit less 'on show [and], I also remind them repeatedly that "no wrong answers here" in live tutorials' (P13). Other collaborative learning tools, such as a MentiMeter (P6) and WikiWonderwall (P2), were suggested as a way of allowing students to contribute their ideas, particularly useful when they were worried others may not agree or value their suggestions.

Intellectual tenacity was espoused as intentionally or incidentally embedded by only nine of 17 CEs, and only seven included examples of their practice in supporting students to persist in their courses. One CE provided a 'weekly message to students . . . I often acknowledge the challenges that so many students face and provide encouragement regarding persistence' (P13). Despite responding that intellectual virtues were embedded incidentally within their course, 3 of the 7 CEs were not certain of their support, as evidenced by the following response, ''I'm not sure I do anything specific or targeted' (P13). However, many of these strategies occurred incidentally through encouragement and discussions in class. Therefore, if students did not 'engage with the course content' or did not attend class, they would 'miss out' on the strategies to support intellectual virtues (P10).

Comparison of perceptions and practice

The 102 qualitative responses reporting participants' teaching strategies for the intellectual virtues were subsequently categorised for further comparative analysis with the quantitative data (perceived intentionality of teaching). In $n = 29$ responses, CEs detailed how they engaged in specific practices which, upon analysis, visibly aligned with the stated intellectual virtues, and had the capacity for participating students to work towards

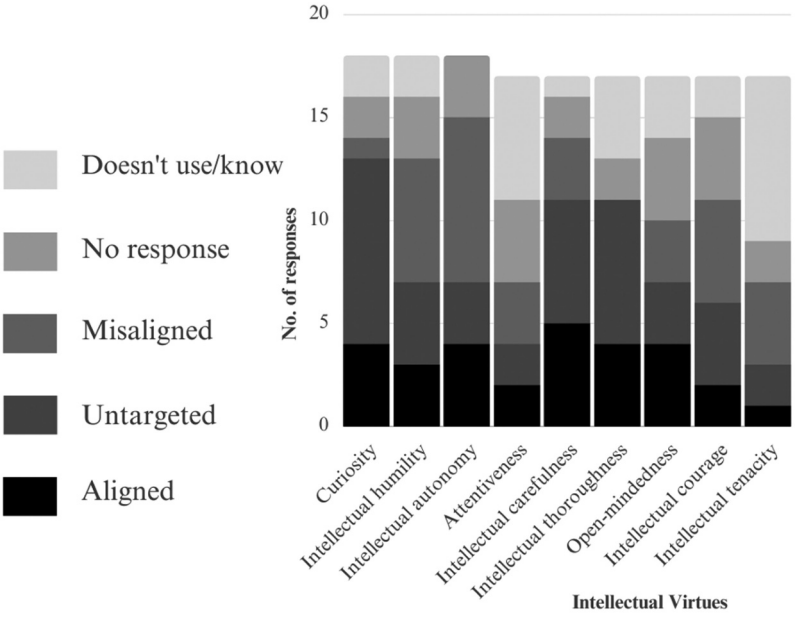

Figure 2. CE activity alignment to intellectual virtues.

developing this virtue. Most responses ($n = 40$) referred to the immersion of the virtues in untargeted activities such as forums, Zoom meetings or discussions, without any description as to how these activities encouraged the development of the specific intellectual virtues. A further third category ($n = 33$) provided learning experiences or activity examples that appeared misaligned with the intellectual virtue provided; that is, the examples had little potential to develop the specified intellectual virtue. For example, one participant perceived that by implementing X, their students would develop the intellectual virtue of Y.

As shown in Figure 2, while CEs would espouse that some virtues were intentionally or incidentally embedded in their course, only very few provided explicit examples that aligned with the intended focus of the specified intellectual virtue.

Figure 3 provides a further comparison of participant data regarding their perceptions of intentionally embedding the intellectual virtues alongside the number of participant examples of teaching strategies deemed via collaborative analysis to be aligned with the virtue in question.

In the following section, we discuss these findings in relation to our research question:

> How are teacher educators addressing the development of students' intellectual virtues as part of their teaching and learning?

And the aim of this study.

Discussion

This research aimed to develop an understanding of the extent and ways in which teacher educators perceived they intentionally plan and implement targeted strategies that

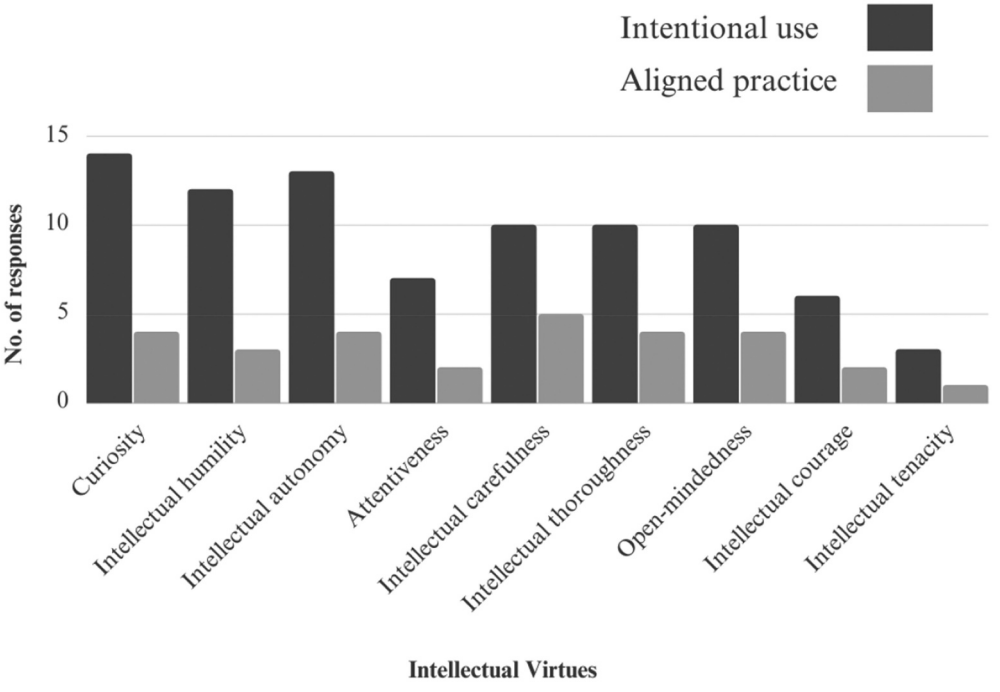

Figure 3. CE perceptions of practice as intentional and accuracy of teaching strategy.

support their students to develop intellectual virtues as a means of progressing graduate attribute development within their ITE courses. Recognised in previous research as challenging (Bowman et al. 2022; Geertshuis, Wass, and Liu 2024), these data provide a somewhat positive picture indicating that largely, the participants appeared aware of and convinced of the importance of the skills outlined by the intellectual virtues, and generally, intent upon embedding the intellectual virtues in their teaching. However, a clear perception-practice tension is evident in several ways that will now be discussed.

Intention versus enaction

Previous research has focused on the impact of intentional instructional methods on students' thinking (Orona and Pritchard 2022; Orona and Trautwein 2024; Orona et al. 2024). This study has, in contrast, highlighted the potential for misalignment between educators' perceptions of their intended and enacted teaching practice regarding targeting specific intellectual virtues. By way of example, 14 of the 18 participants indicated they intentionally embedded teaching strategies to target curiosity, yet only four of the provided examples demonstrated the potential to meaningfully engage with this intellectual virtue. A similar pattern was evident for each of the nine virtues, with only a fraction of the total providing examples aligning with the intended intellectual virtue (see Figures 2 and 3).

Barrie (2007) notes that an academic's understanding of individual intellectual virtues influences how they are used. However, our study goes further to note that while higher educators, in this case, those in the education field, may feel they understand the intent of

intellectual virtues and how these could be addressed, their enacted practice may lack the precision needed to carefully address these. This finding further supports (Kotzee, Adam Carter, and Siegel 2021; McKeon and Ferkany 2024) who argue that intellectual virtues may not be easily translated into pedagogical action, prompting a call for comprehensive professional learning that addresses the nuances of intellectual virtues instruction.

Untargeted immersion

Previous conceptual and empirical work has foregrounded the importance of an intentional and well-planned approach to teaching intellectual virtues (Annas 2011; Battaly 2017; Besser 2020; Orona and Pritchard 2022; Zagzebski 2017). This study has highlighted that despite these studies, there may exist an overreliance by teacher educators on untargeted immersion of the virtues in teaching experiences. While Zhou (2022) and Youngs (2021) both advocate for an immersion approach to the teaching of intellectual virtues, whereby the virtues are 'infused' into the content of specific course content and thus contextualised with wider learning, theirs approach did not imply a lack of intent or focus. In this study, many illustrative teaching strategies provided by participants were too generalised to ensure that specific target virtues would or could be developed. In addition to indicating again that the unique attributes of individual virtues may not be clearly understood (Barrie 2007), these untargeted approaches potentially suggest additional assumptions: (1) that students can practice the intellectual virtues without intentional teaching regarding the attributes of each of the virtues; or (2) that explanation of the virtue alone, in the context of untargeted immersion will allow students to understand, develop and apply these virtues. These unfocused approaches fall short of Baehr's (2013) and recommendations for a more balanced and comprehensive approach where intellectual virtues are explicitly introduced, applied, and practiced. The findings from this study reflect previous research (Orona and Pritchard 2022; Youngs 2021) that highlights specific and intentional teaching strategies of intellectual virtues are inconsistently implemented, with consequences for diminished learning.

Unacted values

Just as Orona and Pritchard (2022) recognise the importance of learners' understanding of the value of intellectual virtues and Zagzebski's (1996) early focus on the role of motivation in the enactment of intellectual character traits, this study highlighted that, positively, participants held the position that intellectual virtues are important. However, this position sits in tension with the finding that many participants were not addressing the virtues explicitly in their teaching. Overall, this suggests an assumption in participants that, because the intellectual virtues are so foundational, they do not require specific explicit address; that they are, as one participant stated, able to be addressed 'intuitively as the qualities of being a "good learner"' (P3). We as authors, along with Baehr (2013), argue for something much more intentional that works at the nexus of explicitly teaching the intellectual virtues and contextually embedded opportunities to practice intellectual virtues across different courses, both synchronous and asynchronous, that then have greater scope to develop capacity both for the higher education study journey and the future workplace.

This is especially critical, given that universities promote themselves to industry and potential students as institutions in which students will acquire discipline-specific expertise concurrent to graduate attributes (Barrie 2007; Hill, Walkington, and France 2016; Oliver and de St Jorre 2018; Wong et al. 2022) and therefore commit themselves to developing future-ready graduates that possess both discipline and learner capabilities. Such a commitment should be approached with intentionality, and this study proposes that intellectual virtues offer a way forward. Findings would suggest, however, that further work is required to support higher educators in a more effective understanding of the intellectual virtues and how they can be intentionally developed with existing course content.

Implications and conclusion

Like Geertshuis, Wass, and Liu (2024) and Ehlers and Kallerman (2019), we recommend developing and facilitating targeted Professional Learning (PL) to assist teacher educators, which we believe has value for educators in broader disciplines. While previous research has focused on learning theory that supports generic capabilities (Geertshuis, Wass, and Liu 2024), our study puts forth an argument for the essentiality of a clear metalanguage that can frame and guide pedagogical decisions. We advocate that PL be developed with the following characteristics in mind:

(1) Intellectual virtues can be used to provide a useful framework for educators and their students as a shared language that can guide the intentional exploration of what good thinking looks like.
(2) We posit that it is first imperative that the *value* of intellectual virtues is understood and appreciated by educators (Baehr 2013); that their relationship to the graduate attributes is made explicit; and that their value to both students as learners and as graduates beyond their university studies are understood (Geertshuis et al. 2024).
(3) An explicit understanding of each of the nine virtues is important for educators to possess that can undergird their effective exploration and implementation with their students. Importantly, the balance between understanding the distinct value of each of the virtues (Baehr 2013), alongside their value collectively as an interrelated suite (Jayawickreme and Fleeson 2022) is vital to ensuring the most effective outcomes for students.
(4) Specific instructional guidance for educators regarding workable and flexible strategies that can be embedded across different domains of learning should be provided, understanding that such a pedagogical shift 'may unsettle both teachers and students' (Bowman et al. 2022, 16). This may represent opportunities to learn from quality examples and to brainstorm and workshop approaches that might best fit individual contexts.

It is important to acknowledge that this study involved a group of only 18 teacher educators from one regional Australian university, and further to this, may not be representative of all teacher educators or university contexts. As such, further research to determine the usefulness of the intellectual virtues to frame and guide pedagogical decisions across cultural contexts would be beneficial. This

limitation notwithstanding, these findings offer an important contribution to higher education, given that these participants are, by way of their educational expertise, highly focused on pedagogical issues in their work and research. Thus, educators from other faculties where pedagogy is not a central concern are also likely to benefit from the recommendations of this study.

Note

1. There are nine intellectual virtues including curiosity, intellectual humility, intellectual autonomy, attentiveness, intellectual carefulness, intellectual thoroughness, open-mindedness, intellectual courage, and intellectual tenacity (Baehr 2013).

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Appendix

Table A1. Questions in course survey.

Category	Intellectual virtue	Question
Getting started	Curiosity	Which of the following best describes the way that you support your students to conceive and/or ask questions related to concepts and content in your course? Provide an example of how this occurs in your course.
	Intellectual autonomy	Which of the following best describes the way that you support your students to articulate their limitations in understanding related to concepts and content in your course? Provide an example of how this occurs in your course.
	Intellectual humility	Which of the following best describes the way that you support your students to engage in independent thinking regarding the concepts and content in your course? Provide an example of how this occurs in your course.
Learning well	Attentiveness	Which of the following best describes the way that you support your students to consider how they manage or avoid potential distractions in your course? Provide an example of how this occurs in your course.
	Intellectual carefulness	Which of the following best describes the way that you support your students to check their ideas and work for accuracy and quality in your course? Provide an example of how this occurs in your course.
	Intellectual thoroughness	Which of the following best describes the way that you support your students to pursue deeper rather than surface understanding of content and concepts in your course? Provide an example of how this occurs in your course.
Overcoming potential barriers	Open-mindedness	Which of the following best describes the way you support your students to consider a range of possible ideas and genuinely listen to ideas are different to their own? Provide an example of how this occurs in your course.
	Intellectual courage	Which of the following best describes the way that you support your students to communicate their questions, ideas or suggestions even when they are worried or fearful that others might not agree or value their contribution? Provide an example of how this occurs in your course.
	Intellectual tenacity	Which of the following best describes the way that you support your students to persist when ideas or concepts take time or effort to grasp? Provide an example of how this occurs in your course.