UNIVERSITY OF BIRMINGHAM | THE JUBILEE CENTRE FOR CHARACTER & VIRTUES

The Moral Psychology of Emulation: Implications for Role-Model-Driven Virtuous Leadership

Emerald Henderson

This is an unpublished conference paper for the 12th Annual Jubilee Centre for Character and Virtues conference at Oriel & Magdalene Colleges, Oxford University, Thursday 4th – Saturday 6th January 2024.

Jubilee Centre for Character and Virtues

University of Birmingham, Edgbaston, Birmingham, B15 2TT United Kingdom

T: +44 (0) 121 414 3602 F: +44 (0) 121 414 4875

E: jubileecentre@contacts.bham.ac.uk W: www.jubileecentre.ac.uk

The moral psychology of emulation: Implications for role-model-driven virtuous leadership

Emerald Henderson, University of Birmingham, UK

Abstract

Of the many facets of virtuous leadership, this paper focuses on virtuous leaders as moral role models, i.e., facilitators of emulation. Using a previous two-step account of emulation as a philosophical springboard, I here extend it through appeal to current research in developmental moral psychology. In doing so, I make visible the importance of *phronesis* to virtuous leadership, and more specifically of 'entangled *phronesis*' as the psycho-moral mechanism which drives emulation through a combination of virtuous action, verbal reason giving and non-verbal mind reading. The result: a psychologically realistic and developmentally adequate theory of emulation *qua* role modelling.

Key words

Emulation, role modelling, *phronesis*, moral development, virtuous leadership, neo-Aristotelian virtue ethics

Contact

Emerald Henderson

emeraldimogenhenderson@gmail.com

Jubilee Centre for Character and Virtues, School of Education, University of Birmingham, Birmingham B15 2TT, UK

DRAFT

Introduction

We must therefore survey what we have already said, bringing it to the test of the facts of life, and if it harmonises with the facts we must accept it, but if it clashes with them we must suppose it to be mere theory (Aristotle, 2009, NE 1179a20-23).

A renowned proponent of methodological naturalism and arguably the original catalyst for the empirical turn in ethics, Aristotle can be taken to champion the method of critical applied ethics, which I adopt in this paper. Critical applied ethics (CAE) is essentially a two-way reflexive process which aims to integrate the theoretical and empirical by encouraging each to 'readjust and refine' the other (Leget et al., 2009, pp. 230-233; see also Molewijk et al., 2004). In this way, CAE provides a strong framework with which to support normative theory with empirical data and vice versa, whilst respecting the independence of each (Leget et al., 2009, pp. 230-233). As, at its core, virtue ethics is both realist, meaning that moral judgements have a truth value, and cognitivist, meaning said judgements can be known and understood via their cognitive content, it is naturally suited to being studied empirically (e.g., see Fowers et al., 2021; Snow, 2020; Wright et al., 2020).

In light of these considerations, in this paper I appeal to the empirical in order to evaluate and fine-tune my existing philosophical argument concerning the nature of emulation *qua* role modelling (see Henderson, 2022, 2023). In particular, I draw upon Flanagan's metaethical Principle of Minimal Psychological Realism (PMPR), whereby one must ensure that:

when constructing a moral theory or projecting a moral ideal that the character, decision processing, and behaviour prescribed are possible, or are perceived to be possible, for creatures like us (1991, p. 32).

Taken as a prescription, the PMPR provides a criterion by which to assess whether a moral theory is psychologically realistic (ibid., p. 33), which in actuality entails evaluating the degree to which it

accords with developments in empirical fields such as experimental moral psychology and neuroscience. To further my thesis, in this paper I thus address whether the following hypotheses – derived from the aforementioned argument – satisfy the condition of being *at least* minimally psychologically realistic:

1. *Phronesis* (practical wisdom) can entangle, i.e., it can be shared

2. Entangled *phronesis* is implicated in *pre-phronetic* habituated emulation

3. Entangled *phronesis* is implicated in *phronetically*-informed complete emulation

By demonstrating how each 'harmonises with the facts', I thus build an empirical case for my theory of emulation and, through doing so, further illuminate how the morally immature come to acquire virtue and *phronesis* from moral role models. Specifically, I make visible how emulation is a two-step process involving 'entangled *phronesis*' – the psycho-moral mechanism which drives emulation through a combination of virtuous action, verbal reason giving and non-verbal mind reading.

But that is not all. Further embedding the method of CAE also invites one to consider how this theory of emulation *qua* role modelling might translate to applied contexts such as role-model-driven virtuous leadership. Indeed, that role modelling is an important facet of virtuous leadership is widely acknowledged in the business ethics literature (e.g., see Brown & Treviño, 2014; Nassif et al., 2021; Voegtlin et al., 2020; Yuan et al., 2023). I am particularly interested in virtuous leadership in a school context and thus predominantly those in academic or pastoral leadership positions, such as headteacher, the senior leadership team, heads of house and heads of department. I suggest that role-model-driven virtuous leadership is especially salient in this context since emulation q*ua* moral role modelling continues to be cited as a central aspect of teaching (e.g., Fernández & López, 2023; Henderson, 2022; Jonas & Nakazawa, 2021, pp. 141-161; Kristjánsson, 2020, pp. 135-149) and of teacher professional ethics education (Kristjánsson, 2024; Orchard, 2021). Indeed, since teaching is an inherently moral profession and teachers *just are* in the lives of their pupils, they have a special obligation to serve as role models to them. Yet as some teachers do not reach the moral threshold required to be role models, it is important that those in leadership positions provide said teachers with a source of moral guidance, to enable them to become better role models to the pupils in their care. Due to their elevated professional role – which comes with specific role-relevant virtue obligations (see Fowers et al., 2023)– school leaders should thus be understood to have to a special responsibility to inspire teachers with their own virtuous example.

This paper has four parts. In the first I add moral psychological contours to entangled *phronesis* (Section 1), before considering what this entails for habituated emulation (Section 2) and complete emulation (Section 3) – thus addressing hypotheses 1, 2 and 3. I then briefly outline what the insights gained from

this account illuminate about role-model-driven virtuous leadership in a school context (Section 4). Before I proceed, it is worth noting that this paper understands 'moral role models' to be ordinary, i.e., good-enough, *phronomoi* who inspire emulation. In addition, I am working with the quadripartite account of *phronesis* as represented by the Aristotelian *phronesis* model (APM) (see Kristjánsson & Fowers, 2024). Entangled *phronesis* thus also concerns this account.

1. Hypothesis 1: Phronesis (practical wisdom) can entangle, i.e., it can be shared

In this section, I expound the central mechanism which I suggest underpins emulation: entangled *phronesis*. Essentially a form of rational moral communication between a role model and learner, I argue that entangled *phronesis* is required for emulation because it enables the latter to engage in the practice of virtue whilst their own *phronesis* is developing. Remember that in neo-Aristotelian virtue ethics *phronesis* is necessary for practicing virtue because it enables us to decipher and act upon the golden mean (Aristotle, 2009, *NE* 1106b35-1107a6). Put bluntly, to learn to be virtuous, one must learn to perceive, think, feel and act as a role model does. Yet as the morally immature are just this, *immature*, they are not yet able to practice virtue *qua* full virtue and must instead engage in the educational virtue of emulation, which uniquely does not require fully developed *phronesis* because of its entangled association with the role model's *phronesis*. I also propose that *phronesis* entangles to greater or lesser extents in line with a person's phase of virtuous character development. As I will flesh out this dual psycho-moral process in the following sections, I will presently focus on adding empirical clout to the

concept of entangled *phronesis* itself. I begin by distinguishing entangled *phronesis* from other similar expressions of *phronesis,* before building a case for its empirical credibility.

At first sight, shared, i.e., entangled *phronesis*, may appear semantically similar to the concept of collective *phronesis*, yet on closer inspection the two are distinct. The outcome may be aligned – *phronetically*-informed reasoning, decisions and actions stemming from more than one person – but they differ in both method and purpose. Regarding method, collective *phronesis* generally concerns truly joint decision-making between *phronomoi*, where those involved 'look forwards, towards the same moral vision, and try and achieve it collaboratively' (Kristjánsson, 2022, p. 53). By contrast, entangled *phronesis*, as I intend it to be

understood, typically involves the one-directional1 transfer of practical wisdom between two people of unequal moral character: one who has already cultivated *phronesis* sufficiently and another who has not. That said, I do not mean to rule out the possibility of picking up *phronesis* from peers, or equal character friends; one can in a limited sense, but I hold strong in proposing that *usually* entangled *phronesis* will take the aforementioned form. This represents a departure from Aristotle who was more optimistic about the possibility of learning from equal character friends in youth. Again, I reiterate that I do not rule this out completely, but maintain it is only useful once each party has something *phronetically* valuable to share, meaning that learning from equal character friends will likely gain more traction in later life. The second difference relates to the purpose of decision-making, in collective *phronesis* this seems to concern collaboration and the fusion of already held practical wisdom, hence its prominence in the managerial and business ethics literature (e.g. see Kristjánsson, 2022). Whereas in entangled *phronesis* the purpose is specifically tied to moral education and *learning* to be virtuous through the emulation of role models.

1 One-directional in terms of the rational moral communication of *phronesis* between role model and learner. That said, in addition to perhaps gratitude, I intend for entangled *phronesis* to also benefit the role model as the process of 'teaching *phronesis*' may encourage them to reflect, refine and enhance their own *phronetic* capabilities.

Having distanced entangled *phronesis* from collective *phronesis,* we are finally at a point to evaluate its potential psychological realism. However, a survey of the literature uncovers nothing on 'shared *phronesis*' or 'shared practical wisdom'. This is a surprising outcome given the considerable theoretical attention *phronesis* has received in moral character education, which one would expect to translate into empirical educational studies exploring *phronesis* interventions (Kristjánsson, 2021, p. 1319). Yet all is not lost, inspired by Aristotle's remarks that intellectual virtues, like *phronesis*, are learnt through teaching and experience (2009, 1103a14-16), Kristjánsson has hypothesised that it is at least possible to empirically test the hypothesis '*phronesis* is partly learned though teaching' (2021, p. 1315). If we understand, as I do, role modelling to be predominantly an indirect form of moral education, emulation to be a virtue explicitly associated with moral education, and entangled *phronesis* as required for emulation, then it should be clear that the mere possibility of testing this hypothesis lends support to the present cause. More precisely, as the mechanism of entangled *phronesis* is associated with *learning* to be virtuous, then any moral educational

study relating to Kristjánsson's hypothesis will effectively be aiming to measure whether it has been successfully entangled/shared. That said, we are clearly somewhat ahead of the empirical game here, indicating that more research needs to be conducted in this area.

Or are we? Perhaps if we broaden the scope beyond the language of *phronesis*/practical wisdom there may be existing conceptually similar, psychologically familiar, and empirically viable concepts which can indirectly support the notion of entangled *phronesis*. Take tacit knowledge-sharing for example. Tacit knowledge is a well-researched concept and understood to be 'a gradually accumulated knowledge base which an individual expert can access' (Toom & Husu, 2020, p. 141). Whilst a novice manly possesses explicit knowledge, which is largely dependent on learnt rules, though experience experts supplement this with implicit, i.e., *tacit*, knowledge (Tynjälä et al., 2020, p. 156). Usually associated with professional expertise, tacit knowledge is explicitly relational, in addition to being context and situation sensitive, because it is situated within communities, organisations and networks (Toom & Husu, 2020, p. 141). It is also integrated with the cognitive and emotional elements of an expert's thought and action – marking it out as similar to practical wisdom (ibid., p. 142). Imagine an experienced teacher's seemingly automatic decision-making during challenging classroom interactions or a skilled researcher's intuitive ability to ask just the right questions during an interview on a sensitive topic (ibid., p. 144). However, from the perspective of the knower, tacit knowledge can be difficult to

articulate and is famously characterised by the phrase: *we know more than we can tell* (Polanyi, 1983, p. 4). This is because, through practice, the skills that experts exhibit become increasingly automatic and routinised, making them only partly anchored in consciousness (Eraut, 1994, pp. 111-112). This raises the question of how tacit knowledge can be shared in order that others might learn to acquire this expertise?

Drawing upon a wealth of educational research, Fenstermacher (1994, pp. 33-34) suggests that in order for tacit knowledge to be shared, *concrete actions* are required which enable it to emerge and become 'available for argumentation'. Expert action therefore acts as the medium of perception for tacit knowledge, with the accompanying reasoning ideally working to show the behaviour is 'the reasonable thing to do, the obvious thing to do, or the only thing one could do under the circumstances' (ibid., p. 47). Importantly, more current research into cognitive development supports how one learns the kind of

expertise associated with tacit knowledge 'through action and reflection on action during long periods of time' (Toom & Husu, 2020, p. 147). The idea that tacit knowledge is conveyed, i.e., externalised, primarily through action is also corroborated by other studies into tacit knowledge-sharing (e.g., see Kucharska & Erickson, 2023). Furthermore, it is now known that tacit knowledge is acquired both through 'learning by interaction' and through 'learning by doing' (Kucharska & Erickson, 2023, p. 17) – methods which sound relevantly similar to Aristotle's assertion that practical wisdom is acquired thorough teaching and experience. Perhaps, then, this famously vague claim is not such a platitude after all. Although practical wisdom is arguably even more complex than standard accounts of tacit knowledge, it being distinctly morally motivated and embedded in virtuous character, the aforementioned research highlights clear parallels between the two, for example, both concern: experts, a gradually accumulated knowledge base, practical know-how, action as a central element, that which is known implicitly and thus hard to articulate, cognition and emotion, that which is context and situation sensitive. These parallels strengthen the analogy between tacit knowledge sharing and entangled *phronesis*, and make reasonable how *phronesis* may also be primarily *shared* through, in this case, *virtuous* action and the accompanying verbal reflection.

In emulation, that *phronesis* primarily entangles through a combination of virtuous action and verbal reflection has important implications for both role model (the expert) and learner (the novice). I suggest that it is a role model's virtuous actions which initially enable a learner to perceive them as representing a moral ideal (the efficient cause). This emphasis on action also bolsters my argument that role models – as the action makers – are required to facilitate this perception, reinforcing a point made elsewhere that appeal to virtuous ideals alone are insufficient stimuli for emulation (Henderson, 2023). Perception of virtuous action can thus be thought to kick-start the emulative process, as it is here that *phronesis* begins to entangle. So, with action framed as the catalyst for entangled *phronesis,* what role is there for explicit reflections about these actions, i.e., explanation? In line with the research on tacit knowledge sharing, I support that there is also a substantial role for reflection and explanation to play in entangled, i.e., shared, *phronesis*. However, I maintain that the perception of the action itself remains the primary method of *phronetic* entanglement, that untethered from such action the emulative process will be stunted, and thus that reflection alone is not enough. Yet, I also maintain that being privy to a role model's reflections on their actions becomes increasingly important the more *phronetically* advanced a learner becomes, because it

enables the latter to understand how the action is largely motivated by virtuous emotion and grasp how the various functions of *phronesis* are integrated in the decision-making process. Given the complex quadripartite nature of *phronesis* and how the purpose of entangled *phronesis* is to communicate this to a learner to enable them to engage in the practice of virtue whilst their *phronesis* is developing, supplementing action with explanation is required to covey this complexity.

This focus on explanation chimes well with what is known about *phronesis* as metacognition – the ability to reflect upon one's own reasoning processes and actions – so inviting a learner into this process can be considered important for their own developing metacognitive skills. More precisely, metacognition is traditionally considered to consist of two intertwined elements: 'knowledge of cognitive matters' and 'regulation of cognitive processes' (see also Brown, 1987; Flavel, 1976, 2000; Flavel et al., 1993; Mikkilä-Erdmann & Liskala, 2020, p. 124). The former is propositional and could, for example, concern one's understanding that the human mind is fallible which can lead people – including oneself – to construe things correctly or incorrectly (Flavel et al., 1993). The latter is procedural (e.g., see Efklides, 2006) and works to regulate one's cognitive activities, for example, by

enabling one to reflect on and control one's learning or reasoning strategies – 'what degree of progress have I made?', 'have I adjudicated successfully?' (e.g., see Brown & DeLoache, 1983). Importantly, both propositional knowledge of cognitive matters and the procedural ability to regulate cognitive processes are required for learning (Mikkilä-Erdmann & Liskala, 2020, p. 124), of which moral learning is a facet. Put simply, then, *meta*cognitive ability denotes 'cognition about cognition' and involves regulating and monitoring cognition to ensure cognitive goals are met (see also Flavel et al., 1993; ibid.). Since *phronesis* is understood to be a distinctly moral form of metacognition intertwined with one's blueprint of the good life, it should be clear from this brief outline of general metacognition that learning *phronesis* – at least in part – requires being privy to the (particularly procedural) reasoning *qua* explanations of a role model. Combined with what is known about how tacit knowledge is shared, it seems that that actions and explaining these actions can overcome the potential ineffability of *phroneisis,* which enables it to be communicated and shared with others in less advanced phases of virtuous character development.

ADD PARAGRAPH on research from attachment theory in moral psy.

In this section, I hope to have made clear how hypothesis 1 – *phronesis (practical wisdom) can entangle, i.e., it can be shared* – is psychologically realistic. Particularly illuminating are the insights gained from research into tacit knowledge sharing and metacognition, which enables me to extend the concept of entangled *phronesis* and demonstrate how it is predominantly made visible though virtuous action and comprehendible through explanation. Adding empirical vigour to the methodology of entangled *phronesis* has also served to justify why it should be viewed as the central mechanism in emulation *qua* role modelling. In the next two sections, I will flesh out more precisely how entangled *phronesis* operates in the dual psycho-moral process of habituated emulation and complete emulation.

1. ***Hypothesis 2: Entangled phronesis is implicated in pre-phronetic habituated emulation***

This section has two main aims. First, I seek to extend the concept of habituated emulation by substantiating it with current research from developmental psychology. Second, I seek to expound how entangled *phronesis* facilitates this early emulative process primarily through a focus on virtuous action.

Before embarking on this empirical endeavour, I will recap what I mean by 'habituated emulation' (Henderson, 2022, 2023). Habituated emulation, as I intend it to be understood, takes place in early childhood before *phronesis* has begun to develop – it is *'pre-phronetic',* but aligned with virtue because it is directly guided by the role model's *phronesis.* Here, the role model's *phronesis* entangles to substitute the learner's lack of *phronesis* by encouraging virtuous actions and discouraging vicious ones – a process which through practice and repetition enables the latter to internalise beliefs about particular cases of virtue, e.g., that an act was courageous. The purpose of habituated emulation is thus to accustom children to virtue, to lay moral foundations by introducing them to what virtue is even before they understand why it is important. In short, it concerns the early phase of an upbringing in good habits. This reflects Aristotle's insistence that being first habituated in the virtues is a prerequisite for developing virtue, whereby 'the soul of the student must first have been cultivated by means of habits for noble joy and noble hatred' (2009, *NE* 1179b25). It is only after grasping 'the that' that a student of virtue can later comprehend 'the because' and become receptive to arguments in favour of virtue (Burnyeat, 1980) – a point which is reflected to different degrees in other virtue ethical accounts of habituation (e.g., see Burnyeat, 1980;

Kristjánsson, 2021; Sanderse, 2013; Sherman, 1989; Steutel & Spiecker, 2004). What makes my account unique is the focus on the methodology of this early form of emulation, which places a greater emphasis on emulating action, with this action being a product of entangled *phronesis*. I propose that habituated emulation requires that a role model be experientially present – this enables their virtuous actions to be perceived and facilitates encouraging a child to 'do as they do'. This behavioural conditioning is therefore just this: *behavioural*, however because these actions are a product of entangled *phronesis* they are not merely pro-social, i.e., untethered from virtuous emotion/character, and can serve to sow the seeds of *phronesis*. In this sense, I straddle a middle ground between prior accounts of Aristotelian habituation which either a) emphasise conditioning virtuous action but separate it from *phronesis* development (Aristotle, 2009, *NE* 1098a33-b2; Burnyeat, 1980, p. 263), or b) propose that habituation is primarily driven by reason and argument

even in very early childhood (Kristjánsson, 2021, p. 1312; Sherman, 1989, pp. 177-178). In my account of habituated emulation, actions are guided by the role model's entangled *phronesis*, and it is through this process that the first seeds of *phronesis* are planted. As before, entangled *phronesis* represents a form of rational moral communication between the role model and learner, yet as in their very early years children are too young to understand reasons, in habituated emulation this communication is primarily through action. I therefore reserve the necessity of explaining the reasoning accompanying actions – however basic – for the first instances of complete emulation, whilst acknowledging there will be a significant period of overlap and transition. So, to clarify, I lean closer to Burnyeat in maintaining that virtue development is essentially a two-step moral-psychological process; but lean more towards Sherman in contending that the groundwork for *phronesis* development starts in early childhood.

Adding psychological realism to this developmental picture first requires sketching the time-frame of habituated emulation. According to current developmental psychology, the propensity for collaborative communication between an expert (usually a parent) and a novice (usually their child) emerges in early childhood where skills can be demonstrated and taught with the use of pantomiming gestures and informative pointing (O'Madagain & Tomasello, 2022, p. 3). At one year old, children are typically capable of pointing and joint attention, and by two this is supplemented with iconic gestures (ibid.). Importantly, this kind of collaborative communication and learning requires that the task at hand be

immediately observable to both parties (ibid.) – a point which adds credence to my claim that *especially in habituated emulation* a role model must be experientially present in order for their *phronesis* to entangle. Since habituated emulation, as described, can be considered a form of collaborative communication, this research could also support that modelling, e.g., generosity through sharing, and encouraging children to share through informative pointing and gestures, is important even before the age of two. This is further supported by the wealth of research which demonstrates that infants begin to socially learn and imitate the actions of others from around their first birthday (Tomasello, 2020, p. 6). As for the point that habituated emulation concerns actions which instil beliefs about particular cases of virtue, but not yet an understanding how this is generalisable to other contexts, this can also be supported by the developmental literature on the effects of instruction giving (e.g., see Csibra & Gergely, 2006). Unlike gestural communication, it is thought that when reasons are added to the equation, and instructions are explained verbally, this enables children to understand how something can be generalised beyond the confines of a concrete situation to other contexts (Butler & Tomasello, 2016; Csibra & Gergely, 2006; O'Madagain & Tomasello, 2022). Yet research suggests that children only learn this way from around their third birthday (Butler & Tomasello, 2016). This makes reasonable how before the age of three, it is primarily action that should be the focus of habituated emulation, with reasons for these actions only becoming relevant later. Of course, I do not mean to suggest that role models attempt to entangle their *phronesis* in silence, but more that the focus ought to be on the action, with language primarily operating to encourage, discourage, praise or reward – e.g., 'thank you', 'that was kind', 'it's good to share', 'don't snatch' — rather than to explain. That said, after the age of three, children begin to flexibly combine different sources of 'culturally relevant information' from those around them – of which normative information is an example – to make generic inferences, but only so long as this is accompanied by language *qua* explanation (Butler & Tomasello, 2016, p. 76). Again, this could support how supplementing action with verbal explanation becomes important after the age of three – with such receptivity to reasons further suggesting this could be the *very* early beginnings of complete emulation. Taking individual developmental differences into account2, I therefore suggest that habituated emulation typically concerns children *below the age of three, maybe four*.

2 For example, those arising from the 'big five' personality traits, which are known to affect the formation of moral character traits (e.g., see Fowers et al., 2021, pp. 123-12; Wright et al., 2020, pp. 181-182).

Having made reasonable that habituated emulation takes place typically below the age of three or four, I now want to add empirical credibility to how the mechanism of entangled *phronesis* works during this time. In short, I suggest the role model's *phronesis* directly substitutes the learner's lack of *phronesis*, to encourage and enable them to perform – through association – virtuous actions. I also suggest that this process starts to plant the first seeds of *phronesis*. The literature on tacit knowledge sharing is again useful here, which proposes that expert knowledge is *initially* made visible and shared through concrete actions (Fenstermacher, 1994, pp. 33-34; Toom & Husu, 2020, p. 147). As practical wisdom can reasonably be understood as a form of expert tacit knowledge, this can be used to support

how *phronesis* primarily entangles, i.e., is shared, through *action* in habituated emulation, with the explanation for action coming later. Furthermore, if one conceptualises the process of entangled *phronesis* as one in which the moral-psychological state of the role model interacts with that of the novice, then there is more research from current developmental psychology which could support it. Tomasello3 (2020, p. 3) highlights how an infant's skills of social cognition, social learning and collaboration – which he calls 'shared intentionality' – develop particularly fast between the ages of two to three. Indeed, between the ages of two and four an infant's brain grows from 50% to 75% of their eventual adult size (ibid.). During this period of accelerated development, it is thought that an infant's ability to cooperatively communicate with adults, e.g., though emotion sharing, attitude sharing and attention sharing, works to 'align the psychological states of infant and adult' (ibid.; see also Tomasello & Gonzalez-Cabrera, 2017). Importantly, this aligning of psychological states can also happen behaviourally, for example through imitation and cooperation (see also Tomasello, 2019; Tomasello, 2020, pp. 3-6). In addition, aligned psychological states are known to promote social bonding and relational closeness (Tomasello, 2020, p. 3; Wolf et al., 2016). Translated to the language of virtue, aligned psychological states support the concept of entangled *phronesis* as a process in which normative information is shared between an adult and infant. That behaviour can work to align psychological states also supports virtuous action as the medium of normative information sharing in habituated emulation. The link to social bonding also gives weight to the idea that known role models are most effective in stimulating emulation. But that is not all. Since

shared intentionality and cooperative communication are social skills, Tomasello also argues that social skills should be understood to proceed the development of more sophisticated cognitive skills (Tomasello, 2020, p. 3). As virtuous actions can be conceived as social 'skills' which enable one to act and live well in relation to others, this evidence also supports how role-model-assisted virtuous action could lay the groundwork for the development of the more complex cognitive 'skill' of practical wisdom, i.e., *phronesis*. This illuminates how aligning psychological states, as in entangled *phronesis*, is important for preparing infants for adulthood *and* how this process starts in early infancy. As a final piece of empirical support for habituated emulation, it is known that under the age of three the kind of social learning and psychological state alignment described above is mainly an interaction that occurs with adults rather than peers (see also Brownell & Carriger, 1990; Kachel et al., 2018; Tomasello, 2020, p. 4). This demonstrates how habituated emulation occurs more naturally between unequal character friends rather than equal character friends.

3 I take no stand here on Tomasello's evolutionary hypothesis that children's early skills of shared intentionality are adaptations to sociological challenges which result from 'a cooperative breeding regime of childcare' (2020, p. 4), but do maintain his findings are relevant and useful applied to the present context.

Through appeal to developmental psychology, in this section I sought to show that hypothesis 2 – *entangled phronesis is implicated in pre-phronetic habituated emulation* – is at least minimally psychologically realistic. Encouragingly, multiple empirical sources support how habituated emulation can be reasonably understood to concern the following:

- infants under three, maybe four;
- a role model who is experientially present, i.e., known;
- entangled *phronesis* between an infant and adult;
- beliefs about particular cases of virtue conditioned primarily though action;
- the very first social seeds of *phronesis* which act as preparation for the development of its full cognitive complexity later on.

In short, habituated emulation plants the seeds of *phronesis* in infancy by modelling and encouraging virtuous actions. Entangled *phronesis* aligns these actions with *phronesis* and facilitates their practice and repetition. Cumulatively, this process builds an infant's initial belief of what virtue is. Before we move on to hypothesis 3, I will take a moment to emphasise that I intend for the transition between habituated emulation and complete emulation to be incremental, meaning that there will be a potentially fairly significant phase of overlap between the two. During this transitional period, I suggest that the 'conditioning' of virtuous actions be supplemented with basic reasons *qua* explanations, with these reasons growing in sophistication in line with a child's ability to understand them. In true Aristotelian style, I also intend for this transition to be contextually sympathetic to the individual developmental trajectory of each child, thereby allowing for individual differences in progress.

1. ***Hypothesis 5: Entangled phronesis is implicated in phronetically-informed complete emulation***

This section has three main aims. First, I seek to flesh out the nature of the transitional period between habituated and complete emulation. Second, I seek to extend the concept of complete emulation by substantiating it with current research from developmental psychology. Third, I seek to empirically illustrate how entangled *phronesis* operates primarily through virtuous action, reason giving, i.e., explanation, and mind reading during complete emulation.

Before I proceed, I will briefly remind readers how I understand 'complete emulation' (Henderson, 2022, 2023). Let me start with its etymology. I term it 'complete' emulation to denote how, in order to qualify as a moral virtue, it must be somehow *phronetically*-informed. The 'somehow' caveat is important, since in emulation this takes a unique form because it involves supplementing the novice's developing *phronesis* with the role model's *phronesis* – a mechanism which I term entangled *phronesis*. Contrary to other virtues, then, emulation only requires developing rather than fully-developed *phronesis*. I have argued that understanding emulation as a moral virtue in its own right is educationally salient because it provides a

conceptual umbrella with which to explain and clarify the *whole process* through which one develops *both* virtuous emotion and action, i.e., virtue, from moral exemplars. I have also marked emulation out as a special kind of virtue: one associated specifically with moral education that is practiced prior to other virtues in order to acquire them. In short, my reconstructed four-causal neo-Aristotelian account of the moral virtue of emulation concerns:

- the efficient cause: the moral agent's perception of the exemplar's virtues as representative of a moral ideal;
- the formal cause: the *phronetically* informed evaluation that these ideals are worthy of emulation, possible to acquire and deserved;
- the material cause: *physically feeling* the distress *and* admiration, associated with one's lack of the desired quality, i.e., the role-model-represented ideal;
- the final cause: virtuous action concerning ends - putting the role-model-represented ideal of virtue into practice.

Like other virtues, emulation – or emulousness – is predominately composed of virtuous emotion (the efficient, formal and material cause) and virtuous action (the final cause). Following Aristotle (2009, *NE* 1105b5-17), I support how purely theoretical knowledge of virtue, detached from *doing* virtuous actions, will not facilitate becoming good. This is why my account of emulation *qua* role modelling involves both virtuous emotion and virtuous action – I intend that through emulation a person might eventually become someone who perceives, thinks, feels and acts not merely in line with virtue, but from a stable virtuous character. Having sketched is essential elements, it is now time to add empirical contours to my account of complete emulation.

The timespan of complete emulation

Ultimately, complete emulation builds upon the moral foundations set by habituated emulation. It tracks an individual's moral progress from merely knowing what virtue is to understanding why it is important. It is expected that learners will become progressively more receptive to reasons during complete

emulation. Like Burnyeat (1980, p. 266), I thus support how habituated emulation gives 'character a kinship to virtue and a receptiveness to arguments directed to encouraging virtue'. However, it is in complete emulation that a learner's own *phronesis* begins to develop and entangle with a role model – a process which enables this form of emulation to count as virtuous, albeit in a limited way. I have already cited research from developmental psychology which suggests that habituated emulation typically concerns infants *below the age of three, maybe four*. I now want to make reasonable how there will be a transitional period to complete emulation, marked by the habituated 'emulation' of virtuous actions *and* basic reason giving for these actions. Ideally this will prepare young children for the onset of increasingly sophisticated reasons *qua* explanations for a role models' virtuous actions in complete emulation.

Let me start by proposing that the transitional period lasts from *around three or four years old, until around six years old* – bearing in mind individual genetic and social differences which may reduce or elongate the process. Justifying this general timeframe requires understanding when the kind of cognitive faculties associated with *phronesis* might begin to develop, which invites investigation into better-researched concepts such as metacognition. First recall how children become receptive to verbal explanations from around the age of three (Butler & Tomasello, 2016, p. 76). If we add to this how usually by the age of six children can compare their own actions with those of their community (Tomasello, 2019), this emergence of an evaluative attitude could represent the beginnings of metacognition (Kristjánsson & Fowers, 2024). As *phronesis* is a complex and morally motivated form of metacognition, this could also symbolise the emergence of very elementary elements of *phronesis* and thus the end of the transitional phase.

As for complete emulation, since I have argued this to be '*phronetically*-informed', it requires that a learner's own *phronesis* has at least begun to emerge, in order that it can entangle with the role model's *phronesis*. I suggest the emergence of early signs of *phronesis* are important because they enable a learner to comprehend more sophisticated reasons accompanying a role model's actions, which, based on the tacit knowledge sharing literature (e.g., see Toom & Husu, 2020), is how I have suggested *phronesis* is fully entangled/shared. Due to the entangled association with the role model's *phronesis*, a learner's *phronesis* does not need to be particularly well developed for complete emulation to be effective. Yet in order to

know how to pitch emulation, we still need to ask what age complete emulation might be feasibly considered to begin? Synthesising Aristotle's somewhat vague remarks about *phronesis* development in the *Nicomachean Ethics* (2009, 1142a12-16), with current knowledge about, e.g., the development of adult contextual integrative thinking (a form of metacognition) (e.g., see Kallio, 2020), many neo-Aristotelian theorists presume that *phronesis* 'takes off' in late adolescence to early adulthood (e.g., see Kristjánsson, 2021, p. 1311). Whilst this is undoubtably a useful insight, I am not so concerned about when it takes off, but more with when it begins to emerge. Indeed, research confirms that metacognitive development is particularly pronounced between early adolescence and late adolescence (Weil et al., 2013), which if combined with the aforementioned insights about the initial emergence of basic metacognition at around six (Tomasello, 2019), could give grounds to argue that complete emulation begins around this time. However, this is extremely speculative, indicating that more research – especially concerning distinctly moral forms of complex metacognition – is required. In light of this, I propose that *complete emulation probably begins after the age of six*.

As for the duration of complete emulation, it is possible to claim that due to the accelerated degree of metacognitive development in early to late adolescence, it is particularly important during this time, and even in early adulthood (Kallio, 2020; Weil et al., 2013). However, since virtuous character development is a lifelong process, it is probable that a form of emulation could persist, albeit in developmentally sensitive ways, over the course of one's life.

Complete emulation and entangled phronesis

Now that I have sketched a possible timeframe for complete emulation, I will move on to empirical justification of its central tenets. I begin with the driving force of emulation – entangled *phronesis*. It appears that far from being an esoteric notion or idealistic metaphor, there is considerable support for it, or at least something conceptually very similar to it. For example, according to the 'cultural origins hypothesis' some forms of metacognition have a social origin and depend on cultural learning – the idea that traits are acquired from others who already possess such a trait – rather than being genetic (Heyes et al., 2020). Evidence suggests that a number of cognitive mechanisms are shaped by a cultural selection process (as opposed to a genetic selection process), including imitation and 'mind reading', indicating

there could even be evolutionary support for something like *phronesis* and the way in which it is acquired (ibid., p. 349). Relevantly for these particular purposes, cultural learning of acquired traits typically involves teaching, language, imitation, or 'mind reading', and is 'a process specialised for high fidelity transfer of information' (ibid. , p. 350). A la Aristotle, it is essentially thought to be a product of teaching and experience (ibid., p. 351). In addition, as a form of cultural learning, it involves

a social interaction between a receiver and sender, where the transfer of complex information is causally dependant on what the sender knows, which can be conveyed through both verbal and non-verbal communication (ibid.). Whilst the nod to imitation, which could plausibly mean emulation, is clearly useful in supporting how *phronesis*, and thus moral virtue, comes about, it is the emphasis on mind reading which I find particularly compelling. What developmental psychologists seem to mean by this is 'the ability to understand the thoughts of others, their feelings, and other mental states' (ibid., p. 350), which sounds a lot like Tomasello's 'aligned psychological states' (2020, p. 3). Numerous other studies also support mind reading as a method of inferring the mental and affective states of others, i.e., learning what they are thinking and feeling (e.g., see Heyes & Frith, 2014; Meinhardt-Injac et al., 2020). Whether we call it 'mind reading' or 'aligned psychological states', the fact that information can be shared in this way supports how entangled *phronesis* might be possible, and further that it can convey more than just behavioural information, but such things as specific emotion states. Combined with the research on tacit knowledge-sharing and metacognition which I have mentioned several times, I can now add additional clarity to the mechanism of entangled *phronesis* by proposing that is primarily shared through action, explanation, and mind reading. In essence it represents the aligned moral-psychological states of learner and role model, which stimulates emulation.

Having highlighted entangled *phronesis* as a psychologically realistic concept, I will now delve into other important aspects of complete emulation. As the beginning of this section, I mentioned that a role model's virtuous actions initially enable a learner to perceive them as representing a moral ideal (the efficient cause). Perception of virtuous action can thus be thought to kick-start the emulative process, as it is here that *phronesis* begins to entangle. As for the formal, material and final cause, in line with research that suggests metacognition can be communicated/shared both verbally and non-verbally (Heyes et al., 2020, p. 351), I propose that this is primarily fuelled though both verbal reason giving and non-verbal

mind reading. As before, reason giving helps instil in learners the complexity of moral decision making, i.e., the integrative, constitutive, emotion regulation and blueprint functions of *phronesis*. However, as a lot of role modelling is indirect, my account also leaves room for the possibility that mind reading could also help learners understand better, in particular, the virtuous emotions of the role model – an important skill since virtuous emotions are the central components of moral virtue. There are limits to this though, as it is possible a learner could interpret/mind read incorrectly, in addition to the reality that more complex decision making requires explanation if its intricacies are to be fully understood.

Generally speaking, that people do learn to become virtuous from emulating role models is also fairly well researched, even though the precise emulative process is not. Han, for example, has published a wealth of moral psychological research which supports emulation as a method of moral development (2023; 2017; 2022). More specifically, his research supports how motivation to participate in voluntary service is better stimulated by relevant and attainable exemplars than irrelevant and unattainable exemplars (Han et al., 2017), with follow up studies further indicating that it is primarily the relatability of exemplars that inspires acts of prosociality (Han et al., 2022). Tentatively, he also suggests that the neuroscience of moral learning supports a neo-Aristotelian virtue ethical approach to moral education, particularly in terms of the developmental processes involved in the cultivation of moral virtues and *phronesis*[4] (Han, 2023). These studies confirm I am on an empirically supported track when it comes to using role models to stimulate virtue and *phronesis* development. Additionally, advances in neurobiology support how brain development is reliant on social-emotional experience (Immordino-Yang et al., 2019). Especially for the novice, emulation *qua* role modelling can be construed as a social-emotional experience, which indicates that the quality of this kind of interaction is also important for cognitive, i.e., brain, development (ibid., p. 185). For example, it is known that when children and adolescents persistently experience adversity, the brain responds by reinforcing circuits that encourage anxiety and aggression to the detriment of circuits which promote memory,

4 Drawing upon insights from neuroimaging, experimental studies and the Bayesian Learning Mechanism, Han suggests that this research on moral psychology and development supports a neo-Aristotelian virtue ethical account of moral education (2023). However, since many of the studies and processes cited address general psychological functioning rather than moral functioning explicitly, Han acknowledges that

this support is indirect and that more research is needed specifically into virtue habituation and *phronesis* development (ibid., p15). That said, whilst radical, Han's claims in this paper are *at least* promising.

cognition and reasoning (see also Briggs-Gowan et al., 2015; Harris, 2018; ibid., p. 188; McLaughlin et al., 2015). This highlights the connection between optimal brain functioning and positive social-emotional experiences. Since positive role models stimulate positive social-emotional experiences, this can also give credence to the part they play in cognitive development, of which moral development is a facet. Finally, as social-emotional *experiences* occur predominately 'in the home, community, school and workplace' (Immordino-Yang et al., 2019, p. 188), this research also encourages my focus on *known* ordinary role models.

Before I conclude this section, I will take a moment to review a number of studies which lend support to emulation as mixed-valance, by which I mean its propensity to be physically felt as *both* positively experienced admiration and negatively experienced distress. As before this refers to the material cause: *physically feeling* the distress *and* admiration associated with one's lack of the desired quality, i.e., the role-model-represented ideal. Although couched in the language of full-blown emotions, rather than mere physiological feelings, Protasi (2021, p. 49) has argued that both admiration and 'benign envy' (conceptually similar to my reading of distress) motivate emulation-type self-improvement, albeit in distinct ways. Indeed, whilst earlier studies have led researchers to favour either admiration (e.g., see Schindler et al., 2015; Schindler et al., 2013) or benign envy (e.g., see Lange & Crusius, 2015; Van de Ven et al., 2011) as more effectively motivational, I agree with Protasi that the most plausible hypothesis is that both are important (2021, p. 49). Protasi's position draws upon a more recent study by Van de Ven (2017, p. 197), which suggests that positively experienced admiration could be connected to *long-term improvement* by inspiring a commitment to abstract ideals (see also, Schindler et al., 2015), whilst negatively experienced benign envy could be connected to *short-term improvement* by inspiring the more immediate acquisition of a lacked good. Whilst I do not support that feelings and emotions *in themselves* lead to moral action, this remains a relevant finding because it supports how the feelings elicited by distress *and* admiration might plausibly contribute to the motivational potency of the material cause, which, as I have previously argued, culminates in the motivational state of inspiration. Contra Zagzebski (2015; 2017), it also supports how admiration is not the only motivational force at work in emulation. All this said,

further studies are needed to confirm whether these findings hold true in the context of emulating moral virtue specifically.

Primarily through appeal to developmental psychology, in this section I sought to show that hypothesis 3 – *entangled phronesis is implicated in phronetically-informed complete emulation* – is *at least* minimally psychologically realistic. By synthesising my four-causal account of emulation as a moral virtue with the aforementioned empirical literature, complete emulation can now be feasibly understood to concern:

- an extended transitional period – marked by the habituated 'emulation' of virtuous actions *and* basic reason giving for these actions – typically spanning from around the age of three or four to six;
- a probable time span starting around the age of six, which accelerates during mid to late adolescence, and extends to early adulthood (and likely throughout life in developmentally sensitive forms);
- entangled *phronesis* between role model and learner, shared both verbally and non-verbally though a combination of virtuous action, explanation and mind reading;
- the giving of increasingly sophisticated reasons *qua* explanations for virtuous actions in line with a learner's *phronetic* development, which work to instil an understanding of the complexity of moral decision making, i.e., the four central functions of *phronesis*;
- physical feelings of positively experienced admiration *and* negatively experienced distress.

In short, complete emulation builds upon the moral foundations set by habituated emulation. The moral-psychological mechanism of entangled *phronesis* enables the novice to practise the virtue of emulation whilst their *phronesis* is developing – a process which is initially made visible by perceiving a role model's virtuous actions, and further conveyed though verbal explanations and non-verbal mind reading. This serves to align the psychological states of novice and role model, resulting in feelings of distress *and* admiration, which in combination with entangled *phronesis* motivates the novice to practice virtuous actions. Gradually, as the novice becomes more advanced and independent in their

phronetic ability, their *phronesis* will disentangle to such an extent to enable the practice of full virtue, i.e., of virtuous actions informed by virtuous emotions. This marks the transition from, e.g., the emulation of generosity, to the full virtue of generosity. That said, since the road to full *phronetically*-informed virtue is long, complex and scalar – meaning that one can always improve one's character – it is likely that forms of emulation will persist throughout life, *including one's professional life*.

1. Implications for role-model-driven virtuous leadership in a school context

Until now the focus of this paper has been concerned with delineating the moral psychology of emulation and it is finally time to apply these insights to role-model-driven virtuous leadership. Indeed, having demonstrated that the central concepts in this new theory of emulation are psychologically realistic (see Flanagan, 1991, p. 32), and potentially also developmentally adequate (see Lapsley, 2021, p. 138), I can now do this with integrity. Put simply, emulation in professional contexts typically concerns complete emulation, with virtuous leaders acting as role models to others in less advanced phases of virtuous character development. Of course, not all leaders are *phronomoi*, but in the case of *educational* virtuous leadership at least, most are likely to be – especially if one understands, as I do, *phronomoi* to represent an ordinary degree of virtue because it is a product of an ordinary well-brought-up life and cultivated in the context of ordinary life (see Curzer, 2005; Foot, 1978, p. 6; Hursthouse, 2006, p. 308). As moral role models, then, school leaders are required to be good-enough *phronomoi.* This implies they ought to:

- have cultivated a sufficient degree of *phronesis* to enable it to entangle;
- acknowledge that a central aspect of their role as a virtuous school leader includes moral role modelling – primarily to other teachers but also pupils;
- actively model virtuous actions (the initial medium of perception) and where possible substantiate these actions with verbal explanations for such actions;
- tailor said verbal explanations to their audience, they should become increasingly sophisticated in line with a learner's degree of *phronetic* development;

- be aware that moral content is also shared though non-verbal mind reading, meaning that teachers will likely be able to perceive their emotion states and other *phronetically*-valuable information even when this is not actively shared;
- continue to work on their own *phronetic* development;
- make visible to teachers that, inevitably, they are moral role models to pupils and encourage them to take pride in this role.

More broadly, role-model-driven virtuous school leadership is also intended to help facilitate other relevant practices and initiatives within a school such as:

- recruiting for role modelling potential, i.e., recruit teachers who either already are or have the potential to become *phronomoi;*
- *phronesis*-driven professional development;
- direct moral mentorship for classroom teachers, which pairs beginning teachers with a *phronomoi* in the school;
- creating opportunities for morally transformative experiences – epiphanies – to enable teachers not on the path to virtue to potentially be rehabituated in virtue (see Jonas & Nakazawa, 2021, ch. 6-7; Yacek & Jonas, 2023).

Whilst not intended to be the only facet of virtuous leadership, I hope that the above recommendations illuminate the importance of role modelling to it.

Conclusion

In this paper, I expounded the moral psychology of emulation *qua* role modelling and set out some implications for role-model-driven virtuous leadership. Using current developmental moral psychology

to empirically refine and extend a previous philosophical argument, I argued that emulation is a two-step process which begins as habituated emulation and gradually evolves into complete emulation in line with a learner's *phronetic* development. Driving the emulative process was the psycho-moral mechanism of entangled *phronesis,* which I argued is primarily made visible though virtuous action and comprehendible through a combination of verbal explanation and non-verbal mind reading. This account of emulation then enabled me to make a number of suggestions as to how role-model-driven virtuous leadership might operate in a school context. Ultimately, these reflections provide a pro-tanto reason to support using this account of emulation to enhance the understanding of role-model-driven virtuous leadership. However, further theorising, particularly as concerns possible objections, is required to assess if this is justified all-things-considered.

References

Aristotle. (2009). *Nicomachean ethics / translated by David Ross with introduction and notes by Lesley Brown* (revised. ed.). Oxford University Press.

Briggs-Gowan, M. J., Pollak, S. D., Grasso, D., Voss, J., Mian, N. D., Zobel, E., McCarthy, K. J., Wakschlag, L. S., & Pine, D. S. (2015). Attention bias and anxiety in young children exposed to family violence. *J Child Psychol Psychiatr*, *56*(11), 1194-1201. https://doi.org/10.1111/jcpp.12397

Brown, A. L. (1987). Metacognition, executive control, self-regulation, and other more mysterious mechanisms. In F. E. W. R. H. Kluwe (Ed.), *Metagognition, motivation and understanding* (pp. 65-116). Erlbraum.

Brown, A. L., & DeLoache, J. S. (1983). Metacognitive skills. In R. G. M. Donaldson, C. Pratt (Ed.), *Early childhood development and education: Readings in psychology* (pp. 280-289). Blackwell.

Brown, M. E., & Treviño, L. K. (2014). Do Role Models Matter? An Investigation of Role Modeling as an Antecedent of Perceived Ethical Leadership. *Journal of business ethics*, *122*(4), 587-598. https://doi.org/10.1007/s10551-013-1769-0

Brownell, C. A., & Carriger, M. S. (1990). Changes in Cooperation and Self-Other Differentiation during the Second Year. *Child development*, *61*. https://doi.org/10.1111/j.1467-8624.1990.tb02850.x

Burnyeat, M. F. (1980). Aristotle on learning to be good. In A. Rorty (Ed.), *Essays on Aristotle's Ethics* (pp. pp. 69-92). University of California Press.

Butler, L., & Tomasello, M. (2016). Two- and 3-year-olds integrate linguistic and pedagogical cues in guiding inductive generalization and exploration. *Journal of experimental child psychology*, *145*, 64-78. https://doi.org/10.1016/j.jecp.2015.12.001

Csibra, G., & Gergely, G. (2006). Social learning and social cognition: the case for pedagogy. In Y. Munakata & M. Johnson (Eds.), *Processes of change in brain and cognitive development* (pp. 249–274.). Oxford University Press. https://doi.org/10.1037/0012-1649.44.3.875

Curzer, H. (2005). How Good People Do Bad Things: Aristotle on the Misdeeds of the Virtuous. In D. Sedley (Ed.), *Oxford Studies in Ancient Philosophy Xxviii: Summer 2005*. Oxford University Press.

Efklides, A. (2006). Metacognition and affect: What can metagocnitive experiences tell us about the learning process? *Educational Research Review*, *1*, 3-14.

Eraut, M. (1994). Developing professional knowledge and competence / Michael Eraut. In. London: London : Falmer.

Fenstermacher, G. D. (1994). The knower and the known: the nature of knowldge in research on teaching. *Review of Research in Education*, *20 (1)*, 3-56. https://doi.org/10.3102/0091732X020001003

Fernández, V., & López, J. (2023). The effect of teacher leadership on students' purposeful learning. *Cogent social sciences*, *9*(1). https://doi.org/10.1080/23311886.2023.2197282

Flanagan, O. J. (1991). Varieties of moral personality : ethics and psychological realism. In. Cambridge: Harvard University Press.

Flavel, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnick (Ed.), *The nature of intelligence* (pp. 231-235). Erlbraum.

Flavel, J. H. (2000). Development of children's knowledge about the mental world. *International Journal of Behavioural Development*, *24*, 15-23.

Flavel, J. H., Miller, P. H., & Miller, S. A. (1993). *Cognitive development* (Vol. 3). Prentice-Hall.

Foot, P. (1978). *Virtues and vices, andother essays in moral philosophy*. Blackwell.

Fowers, B., Carroll, J., Leonhardt, N., & Cokelet, B. (2021). The Emerging Science of Virtue. *Perspect Psychol Sci*, *16*(1), 118-147. https://doi.org/https://doi.org/10.1177/1745691620924473

Fowers, B., Novak, L., & Selim, M. (2023). The Interplay of Situations, Social Roles, and Virtue Expression. *Medical Research Archives*, *11*(6). https://doi.org/https://doi.org/10.18103/mra.v11i6.3934

Han, H. (2023). Considering the Purposes of Moral Education with Evidence in Neuroscience: Emphasis on Habituation of Virtues and Cultivation of Phronesis. *Ethical Theory and Moral Practice*. https://doi.org/10.1007/s10677-023-10369-1

Han, H., Kim, J., Jeong, C., & Cohen, G. L. (2017). Attainable and relevant moral exemplars are more effective than extraordinary exemplars in promoting voluntary service engagement. *Frontiers in Psychology*, *8*, 283.

Han, H., Workman, C. I., May, J., Scholtens, P., Dawson, K. J., Glenn, A., & Meindl, P. (2022). Which moral exemplars inspire prosociality? *Philosophical psychology*, *35*(7), 943-970. https://doi.org/10.1080/09515089.2022.2035343

Harris, N. B. (2018). *The deepest well: Healing the long-term effects of*

childhood adversity. Houghton Mifflin Harcourt.

Henderson, E. (2022). The educational salience of emulation as a moral virtue. *Journal of moral education*, *ahead-of-print*(ahead-of-print), 1-16. https://doi.org/10.1080/03057240.2022.2130882

Henderson, E. (2023). Entangled phronesis and the four causes of emulation: Developmental insights into role modelling. *Theory and Research in Education*, *21*(3), 264-283. https://doi.org/10.1177/14778785231203104

Heyes, C., Bang, D., Shea, N., Frith, C. D., & Fleming, S. M. (2020). Knowing Ourselves Together: The Cultural Origins of Metacognition. *Trends Cogn Sci*, *24*(5), 349-362. https://doi.org/10.1016/j.tics.2020.02.007

Heyes, C. M., & Frith, C. D. (2014). The cultural evolution of mind reading. *Science*, *344*, 1357-1357.

Hursthouse, R. (2006). Practical Wisdom: A Mundane Account. *Proceedings of the Aristotelian Society*, *106*(1), 285-309. https://doi.org/10.1111/j.1467-9264.2006.00149.x

Immordino-Yang, M. H., Darling-Hammond, L., & Krone, C. R. (2019). Nurturing Nature: How Brain Development Is Inherently Social and Emotional, and What This Means for Education. *Educational psychologist*, *54*, 185-204. https://doi.org/10.1080/00461520.2019.1633924

Jonas, M. E., & Nakazawa, Y. (2021). *A Platonic Theory of Moral Education*. Routledge.

Kachel, G., Moore, R., & Tomasello, M. (2018). Two-year-olds use adults' but not peers' points. *Developmental science*, *21*. https://doi.org/10.1111/desc.12660

Kallio, E. K. (2020). *Development of Adult Thinking: Interdisciplinary Perspectives on Cognitive Development and Adult Learning*. Routledge.

Kristjánsson, K. (2020). *Flourishing as the aim of education: A neo-Aristotelian view*. Routledge.

Kristjánsson, K. (2022). Collective Phronesis in Business Ethics Education and Managerial Practice: A Neo-Aristotelian Analysis. *Journal of business ethics*, *181*(1), 41-56. https://doi.org/10.1007/s10551-021-04912-2

Kristjánsson, K. (2024). Aristotelian Practical Wisdom (Phronesis) as the Key to Professional Ethics in Teaching. *TOPOI, In Press*.

Kristjánsson, K., & Fowers, B. (2024). *Phronesis : retrieving practical wisdom in psychology, philosophy, and education*. Oxford University Press.

Kristjánsson, K. n. (2021). Twenty-two testable hypotheses about phronesis: Outlining an educational research programme. *British educational research journal*, *47*(5), 1303-1322. https://doi.org/10.1002/berj.3727

Kucharska, W., & Erickson, G. S. (2023). Tacit knowledge acquisition & sharing, and its influence on innovations: A Polish/US cross-country study. *International journal of information management*, *71*, 102647. https://doi.org/10.1016/j.ijinfomgt.2023.102647

Lange, J., & Crusius, J. (2015). Dispositional Envy Revisited: Unraveling the Motivational Dynamics of Benign and Malicious Envy. *Personality & social psychology bulletin*, *41*, 284-294. https://doi.org/10.1177/0146167214564959

Lapsley, D. (2021). The Developmental Science of Phronesis. In M. De Caro & M. S. Vaccarezza (Eds.), *Practical Wisdom: Philosophical and Psychological Perspectives*. Routledge.

Leget, C., Borry, P., & De Vries, R. (2009). NOBODY TOSSES A DWARF! THE RELATION BETWEEN THE EMPIRICAL AND THE NORMATIVE REEXAMINED. *Bioethics*, *23*(4), 226-235. https://doi.org/10.1111/j.1467-8519.2009.01711.x

McLaughlin, K. A., Sheridan, M. A., Tibu, F., Fox, N. A., Zeanah, C. H., & Nelson, C. A. (2015). Causal effects of the early caregiving environment on development of stress response systems in children. *Proceedings of the National Academy of Sciences*, *112*, 5637-5642. https://doi.org/10.1073/pnas.1423363112

Meinhardt-Injac, B., Daum, M. M., & Meinhardt, G. (2020). Theory of mind development from adolescence to adulthood: Testing the two-component model. *British journal of developmental psychology*, *38*, 289-303.

Mikkilä-Erdmann, M., & Liskala, T. (2020). In E. K. Kallio (Ed.), *Development of Adult Thinking: Interdisciplinary Perspectives on Cognitive Development and Adult Learning*. Routledge.

Molewijk, B., Stiggelbout, A. M., Otten, W., Dupuis, H. M., & Kievit, J. (2004). Empirical data and moral theory. A plea for integrated empirical ethics. *Med Health Care Philos*, *7*(1), 55-69. https://doi.org/10.1023/B:MHEP.0000021848.75590.b0

Nassif, A. G., Hackett, R. D., & Wang, G. (2021). Ethical, Virtuous, and Charismatic Leadership: An Examination of Differential Relationships with Follower and Leader Outcomes. *Journal of business ethics*, *172*(3), 581-603. https://doi.org/10.1007/s10551-020-04491-8

O'Madagain, C., & Tomasello, M. (2022). Shared intentionality, reason-giving and the evolution of human culture. *Philos Trans R Soc Lond B Biol Sci*, *377*(1843), 20200320-20200320. https://doi.org/10.1098/rstb.2020.0320

Orchard, J. (2021). Moral education and the challenge of pre-service professional formation for teachers. *Journal of moral education*, *50*, 104-113. https://doi.org/10.1080/03057240.2020.1763932

Polanyi, M. (1983). *The tacit dimension*. Peter Smith.

Protasi, S. (2021). *The philosophy of envy*. Cambridge: Cambridge University Press.

Sanderse, W. (2013). The meaning of role modelling in moral and character education. *Journal of moral education*, *42*(1), 28-42. https://doi.org/https://doi.org/10.1080/03057240.2012.690727

Schindler, I., Paech, J., & Löwenbrück, F. (2015). Linking admiration and adoration to self-expansion: Different ways to enhance one's potential. *Cognition and emotion*, *29*, 292-310. https://doi.org/10.1080/02699931.2014.903230

Schindler, I., Zink, V., Windrich, J., & Menninghaus, W. (2013). Admiration and adoration: Their different ways of showing and shaping who we are. *Cognition and emotion*, *27*, 85-118. https://doi.org/10.1080/02699931.2012.698253

Sherman, N. (1989). *The fabric of character: Aristotle's theory of virtue*. Oxford University Press.

Snow, N. E. (2020). What is a science of virtue? *Journal of moral education*, 1-15. https://doi.org/10.1080/03057240.2020.1773777

Steutel, J., & Spiecker, B. (2004). Cultivating Sentimental Dispositions Through Aristotelian Habituation. *Journal of philosophy of education*, *38*(4), 531-549. https://doi.org/https://doi.org/10.1111/j.0309-8249.2004.00403.x

Tomasello, M. (2019). *Becoming human: a theory of ontogeny*. Harvard University Press.

Tomasello, M. (2020). The adaptive origins of uniquely human sociality. *Philos Trans R Soc Lond B Biol Sci*, *375*(1803), 20190493-20190493. https://doi.org/10.1098/rstb.2019.0493

Tomasello, M., & Gonzalez-Cabrera, I. (2017). The Role of Ontogeny in the Evolution of Human Cooperation. *Human nature*, *28 (3)*, 274-288.

Toom, A., & Husu, T. (2020). Tacit Knowledge and Knowing at the Core of Individual and Collective Expertise and Professional Action. In E. K. Kallio (Ed.), *Development of Adult Thinking: Interdisciplinary Perspectives on Cognitive Development and Adult Learning*. Routledge.

Tynjälä, P., Kallio, E., & Heikkinen, H. L. T. (2020). Professional Expertise, Integrative Thinking, Wisdom and Phronesis. In E. K. Kallio (Ed.), *Development of Adult Thinking: Interdisciplinary Perspectives on Cognitive Development and Adult Learning*. Routledge.

Van de Ven, N. (2017). Envy and admiration: emotion and motivation following upward social comparison. *Cognition and emotion*, *31*, 193-200. https://doi.org/10.1080/02699931.2015.1087972

Van de Ven, N., Zeelenberg, M., & Pieters, R. (2011). Why envy outperforms admiration. *Pers Soc Psychol Bull*, *37*(6), 784-795. https://doi.org/10.1177/0146167211400421

Voegtlin, C., Frisch, C., Walther, A., & Schwab, P. (2020). Theoretical Development and Empirical Examination of a Three-Roles Model of Responsible Leadership. *Journal of business ethics*, *167*(3), 411-431. https://doi.org/10.1007/s10551-019-04155-2

Weil, L. G., Fleming, S. M., Dumontheil, I., Kilford, E. J., Weil, R. S., & Rees, G. (2013). The development of metacognitive ability in adolescence. *Consciousness and Cognition*, *22*, 264–271.

Wolf, W., Launay, J., & Dunbar, R. I. M. (2016). Joint attention, shared goals, and social bonding. *The British journal of psychology*, *107*, 322-337. https://doi.org/10.1111/bjop.12144

Wright, J. C., Warren, M. T., & Snow, N. E. (2020). *Understanding virtue: Theory and measurement*. Oxford University Press.

Yacek, D. W., & Jonas, M. E. (2023). Phronesis in teacher education: a critical reexamination. *European journal of teacher education*(ahead-of-print), p.1-17. https://doi.org/10.1080/02619768.2023.2253495

Yuan, L., Chia, R., & Gosling, J. (2023). Confucian Virtue Ethics and Ethical Leadership in Modern China. *Journal of business ethics*, *182*(1), 119-133. https://doi.org/ 10.1007/s10551-021-05026-5

Zagzebski, L. (2015). Admiration and the Admirable. *Supplementary volume - Aristotelian Society*, *89*, 205-221.

Zagzebski, L. T. (2017). *Exemplarist moral theory*. Oxford University Press.