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Teaching and knowledge: uneasy bedfellows

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ABSTRACT

In this paper we explore the connection between the act of teaching and the imparting of knowledge. Our overarching aim is to demonstrate that the connection between them is less tight than one might suppose. Our stepping off point is a recent paper by David Bakhurst who (on one reading, at least) takes a strong view, opposed to our own. On our reading, Bakhurst argues that there is a tight conceptual connection between teaching and the imparting of knowledge. We argue that this is not the case; the connection does not hold. We then consider several ways we might weaken the alleged conceptual connection between teaching and knowledge, finally considering two ways of severing the conceptual connection altogether, whilst at the same time allowing that much teaching does indeed lead to the imparting of knowledge. We argue that such views are to be preferred.

KEYWORDS: Bakhurst, intention, judgement dependence, knowledge, teaching

1. BAKHURST ON TEACHING

Suppose that we are in a classroom. The teacher, Hilary, is mid-lesson. Hilary has prepared thoroughly and has been through all of the training that one would expect for a professional educator. Hilary is sincere in their efforts, is sober, in good health, and believes that they are executing their plan for the session. Moreover, none of the children are being disruptive. The class is diligently following Hilary's instructions when Hilary issues them, and is being attentive, inquisitive, and engaged. In sum, the lesson is as close to running perfectly as one could imagine. In this situation, it seems only natural to say that Hilary is teaching the class.

But, as good philosophers, we might try to unpack that a little. If Hilary is teaching the class, then *what is Hilary doing*? Or, to put it another way, 'What is teaching?'

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In this section, we start from David Bakhurst (2011), (2013), and (2020), who we will treat as our stalking horse (and target).[1] So, how does Bakhurst answer this question? We must proceed cautiously. We think that Bakhurst is focussed on the question of the nature of teaching and that he puts forward and considers an answer to the question 'What is teaching?' But there is scope for some disagreement, despite his explicitly raising that question in that form (see e.g. 2020: 305).[2]

Indeed, one might think that there are a number of ways of trying to understand what Bakhurst is doing in his (2020) paper. Specifically, what he writes seems to be ambiguous between (at least) two questions: 'What is teaching?' and 'What happens when someone it taught something?' We can see these questions are distinct by simply noting that not all teaching is successful teaching (after all, if it were then we would not need the 'success' qualifier). We are here reminded of Fenstermacher's caution:

> … how easy we can confuse the basic or generic meaning [of 'teaching'] with its elaborated forms, such as good teaching and successful teaching. (Fenstermacher 1986: 37)

To see this potential confusion in action, consider the first few paragraphs of (2020). Bakhurst starts like this:

> If a person, A, teaches another person, B, something, then A imparts, and B *acquires*, knowledge of some kind. The knowledge in question might be 'theoretical knowledge': knowledge of facts, of what is the case. Or it might be 'practical knowledge': knowledge of how to do something. (Bakhurst 2020: 305, emphasis added)

We take it that one reading of this quotation is the following (note our addition).

> If a person, A, [*successfully*] teaches another person, B, something, then A imparts, and B acquires, knowledge of some kind. The knowledge in question might be 'theoretical knowledge': knowledge of facts, of what is the case. Or it might be 'practical knowledge': knowledge of how to do something.

But, as noted above, another way of talking about A successfully teaching B, is that A taught B. So, the quotation can again be rewritten as follows:

> If a person, A, [taught] another person, B, something, then A imparts, and B acquires, knowledge of some kind.

So, we take it that there is textual evidence that Bakhurst is interested in the question 'What does it mean to say that A *taught* B?'.

[1] We acknowledge that this question is not a new one! See, e.g., Scheffler (1960); Smith (1960); Hirst (1971); Passmore (1980); Macmillan and Garrison (1988); and more recently (Marshall 2009); Biesta (2013) and Tallant and Fisher (2019).

[2] This is even clear from the abstract where he says that teaching 'involves' knowledge. This seems either trivially true—if 'involves' just means there is *some* link between teaching and knowledge. Or false if it means for some activity to be teaching it *must* involve knowledge. We take it that part of this paper is precisely to show this as false.

However, it seems to us that there is some textual evidence that Bakhurst does not wish to distinguish between teaching and successful teaching. When considering the possibility of teaching that *does not* impart knowledge, he says:

> It might be argued that there cannot be a conceptual relationship between teaching and knowledge because it is possible to teach falsehoods which obviously don't amount to knowledge. Can't I teach you that Paris is the capital of Peru? Even if we grant that, it remains that knowledge is the ideal of teaching. The currency of teaching is knowledge, even though there can be counterfeits in circulation. So one can say, 'What my teacher taught me turned out to be false' because what he taught merely pretended to be knowledge, or you can say 'my teacher taught me nothing': what was going on only *appeared* to be teaching, in fact there was no teaching at all because nothing was taught. But whatever one says must respect the internal relation between teaching and knowledge. (Bakhurst 2020: 306)

To at least some important extent, Bakhurst is here denying a distinction between teaching and successful teaching. To focus on the latter case: we can *say* that someone in fact taught nothing, not because nothing was in fact taught, but because what was going on only appeared to be teaching. If we distinguish between (mere) teaching and *successful* teaching, then we have need of the distinction drawn here between the appearance of teaching and the reality of teaching.

And so we think that the following claim is reasonable: we think that Bakhurst here defends the view about what it is to teach, quoted above, that:

> If a person, A, teaches another person, B, something, then A imparts, and B acquires, knowledge of some kind.

We think that this is reasonable because: (1) Bakhurst himself explicitly begins with the question 'What is teaching?'; (2) Bakhurst seemingly denies a difference between teaching and successful teaching (and we can find no other way to interpret Bakhurst's project). That being so, we shall proceed on the basis that Bakhurst is interested in the question 'What is teaching?' and that his answer is as just quoted.

To put this in the context of our example, we should say that it seems plausible that if Hilary has taught one of the members of the class, Farah, then Hilary has imparted knowledge and Farah has acquired it; though of course, they may have done other things as well, such as inspire, alter values, or awaken interests or affections. A corollary of this is that it is plausible then that if it is not the case that Hilary has imparted knowledge and Farah has acquired it, then it is not the case that Hilary has taught Farah, even though, of course, Hilary might be *teaching* Farah.[3]

So, with these confusions highlighted and parked: 'What is teaching?'. If teaching is indeed an activity related to knowledge, then what type of activity is it and what is that relationship?

It is in answer to *this* question that we depart from Bakhurst, for (at least on the reading we are proposing) he makes the strong claim that there is a conceptual

[3] Notice Bakhurst also makes what seems to be a similar point in relation to *learning*. 'Teaching is a *transaction*—where there is teaching there is learning.' (2020: 306). To our minds that looks either plausibly true—*if* he means where there is [successful] teaching there is learning; or false, for we take it there are clearly cases where someone is teaching but no one is learning.

relationship between teaching and knowledge. But we think this is false. Although, as noted, there might plausibly be a conceptual link between being someone who is successfully *taught* x, and that person knowing x, there is not to our minds any conceptual link between someone teaching x, and someone knowing x.

To show this, we need to demonstrate that there are cases in which teaching takes place, but that knowledge is not both imparted and acquired. Given the claim considered is conceptual, the conceivability of such examples will be sufficient to challenge the view. We think that examples of this kind are available.

We proceed in two steps. In the first, we are going to engage in some standard philosophical practice, developing two thought experiments in which the concept of teaching seems to apply, but in which we do not think that knowledge has been imparted and acquired. Importantly, these examples cover both knowledge *how* and knowledge *that* so, at least prima facie, drawing attention to this distinction will not support Bakhurst's view.

In the second step, we are going to consider a particular real-world case of putative teaching that has been described widely in teaching practice, in popular science writing and in academic research. Our key contention is that our real-world protagonists all seem to agree that teaching has occurred, even though knowledge has not been imparted and acquired.

Underpinning what follows will be the contention that knowledge is factive—we can only come to know *truths*; in the case of a falsehood, we can only come to the appearance of knowledge. This thesis is widely accepted, is accepted by Bakhurst (2020: 306) and is discussed at length in Bakhurst (2013).[4] We suspect there might be fruitful research in relation to education related to rejecting this claim—for example, see Elgin's (2004).[5]

1.1 The thought experiments

> At school Bob's swimming teacher, Sally, tried hard to teach Bob how to swim. Each week Sally would demonstrate the strokes, talk about breathing, and sometimes get in the pool besides Bob to support his weight in the water. However, Bob never learnt to swim. However carefully Bob listened, he still managed only to splash around and then sink.[6]

So, recalling our discussion above, even though it is plausible—at least on one reading—to say that Bob was not taught by Sally, it remains an important question whether Sally was teaching Bob. Many might say 'yes', and, if this is correct, then the Knowledge view of teaching is in trouble. We think that this is the correct judgement.

[4] E.g. he writes: 'So on what grounds do I privilege the demanding notion of knowledge favoured by McDowell and Rödl? I do so because I believe that conception of knowledge is central to everyday empirical inquiry. We do not count someone as knowing when the train leaves, or what the weather is doing, or who won the match, or where the enemy is camped unless she has a true belief about the fact in question, together with a warrant for belief that discloses that fact to her' (2013: 202).

[5] This is expanded in her excellent (2017). Here she defends a holistic epistemology which does not focus on individual facts.

[6] This example is inspired by Hirst (1971).

At least prima facie, the claim that, 'I was teaching but they learnt nothing', does not seem obviously false. To bring this out further, imagine that you have observed a school lesson closely, and seen how the teacher has carefully and meticulously designed a lesson that by all rights should have gone perfectly. Nonetheless, due to certain interpersonal relations within the classroom, the session was disrupted (pencils were thrown, glue was smeared—chaos), and as a result, no knowledge was acquired that day. Even though the session was about as well prepared and run as it could have been, in the face of these classroom tensions, no learning took place. Given how thoroughly and professionally the teacher prepared, and given how carefully they went through the material, it would seem a bold claim to say that no teaching has occurred here. In short: the teacher did their teaching; the students did not do their learning. But since *learning* consists in the acquisition of knowledge, if no learning took place, then no knowledge was acquired.[7]

1.2 A real-world case

In the teaching of atomic structure, it is common for students to be taught a false model at some point in their education. The so-called 'planetary model' of atomic structure originally suggested by Bohr is known to be false, but treating atomic structure *as if* it were modelled by the nucleus being the sun and the electrons being planets orbiting it, has proven remarkably resilient, even if it is known to be false. A recent blog for *Scientific American* is very good on this.[8] The title of the piece is itself revealing: 'Why It's Okay to Teach Wrong Ideas in Physics'. And, as the author goes on to note:

> And yet it's Bohr's model of the atom that people recognize most today. Image search for 'the atom' online, and the vast majority of results show his atomic solar system. Nearly no results show the strange, balloon-like shapes that have accurately described the deepest workings of chemistry for nearly a century. So why has the Bohr atom stayed around? 'It gives us a good place to start the conversation about the composition of the atom', says high school chemistry teacher Dr. Jason Dyke. This is tricky material, and Bohr's picture of the atom is simple and works well enough.

We do not intend here to comment on Dr Dyke's position as to whether this is the *best* way to teach high school chemistry. (We will note, though, that in supporting the GCSE examinations—the main qualification taken by 14–16 year olds in England, Wales and Northern Island—the BBC provides a series of online tools that also promote Bohr's planetary model,[9] so whatever else is going on here, this appears to not be a uniquely American phenomenon.) Rather, our point is simply that every year, Dr Dyke and thousands of other teachers just like him teach their classes something known to be false: that electrons are spherical and that they orbit nuclei in circular orbits.

[7] Although we do not argue for it here, we think there is a *possible* world in which this was true for *all* teaching. For every lesson, no one learnt anything. This is an interesting consequence of adopting one of our alternative accounts of 'teaching' discussed in the sections below.

[8] https://blogs.scientificamerican.com/guest-blog/why-it-s-okay-to-teach-wrong-ideas-in-physics/.

[9] https://www.bbc.co.uk/bitesize/guides/z29rsrd/revision/2.

We think that it is clear enough from online publications like *Scientific American* that others think so, too. Indeed, a pedagogical paper by Mckagan et al. (2007) considers whether the Bohr model *should* be taught and engages therein with a pre-existing literature considering the very same question.[10] But, at no point in that analysis is the question raised as to whether someone *could* be *teaching* that model. It is taken as read that such a thing is possible.

1.3 The historical case

Another similar case involves classical mechanics. Classical mechanics is false, but even a cursory review of literature and popular publication on the topic will reveal that the question asked (if any question is asked at all) about its role in education is whether we *should* teach classical mechanics (and, if so, how), not whether such a thing is possible because classical mechanics is false. Again, it seems that someone could be teaching classical mechanics, even though it is itself false.

Even more interesting for our purposes though is the light that the case shines on historical acts of putative teaching. Let us consider a student and their physics professor, late in the 19th century. Well versed in the principles of Newtonian mechanics, the professor proceeds to give an engaging tutorial on Newton's mechanics, treating it as the correct model of reality. There is a lively discussion between the two of them with the student asking good and perceptive questions, which are ably answered by the professor. Together, they work through a problem set, covering a range of different cases. This pattern repeats week after week. Having not been proficient in Newtonian mechanics at the start of the term, by the end the student is fully versed in the theory and its application. They have mastered all that it has to offer.

We think that particular professor was teaching the students. But since Newtonian mechanics is false it follows that no teaching can have taken place given the Knowledge view.

But so far, this is just to repeat the kind of thing that has already been said: there are cases where we can have teaching without knowledge being imparted. What we want to bring out through this case, though, is that it turns out that for large tracts of history, within various subject areas teaching has not occurred. It has not occurred because our best theories in those domains were false. Indeed, it is a corollary of this view that much of what we do in contemporary science classes in school and at university is not teaching. It is not teaching because we lack a complete (hence, true) physical theory of the nature of the world. That being so, whatever we are doing in science classes, it is not teaching. We think that this is false. We think that the current and past activities of such teachers qualify as teaching. And, in support of our claim, we are happy to refer to all the instances where these actions are described as teaching.

1.4 The challenge

Now, to be sure, Bakhurst and others like him could bite the bullet here and argue that all these practitioners and researchers are misguided and make an incorrect

[10] For a fascinating paper about the role of caricature, myth, and white lies in teaching, see Walsh and Currie (2015).

assumption about the nature of teaching. Thus much of what we might think of as flying under the banner of teaching simply does not. There is just much less teaching in the world than we might naturally suppose. Indeed, this is one option that Bakhurst notes: 'So one can say, "What my teacher taught me turned out to be false" … [in this case] … what was going on only appeared to be teaching, in fact there was no teaching at all …' (Bakhurst 2020: 306).

We concede, of course, that such a thing *could* be said. But why would we say that? Stepping back a moment, the project that we are engaged in here is one of attempting to explore how the concept of teaching is to be understood. What we have from the likes of McKagan et al., *Scientific American* and Dr Dyke, the thought experiments of our own making, and the cases of the putative teaching of Classical and Newtonian mechanics, is a particular set of evidence about the ways in which several folks conceptualize teaching. The concept with which the 'ordinary folk' are operating is one that applies to situations where the concepts of the imparting and acquisition of knowledge do not. As far as we can tell, this looks to be good evidence that there is a far looser link between teaching and knowledge than is often supposed. This first-order linguistic behaviour should have some general relevance in testing a conceptual claim like this. We take it then that the imparting and acquisition of knowledge are not a necessary condition for teaching to occur.

Lastly, we acknowledge that there may be concern about the possibility of teaching falsehoods. Some may find the idea of teaching false information unappealing, as it may be argued that genuine teaching cannot take place when false information is being conveyed. We acknowledge that such views are strongly held. But what we cannot see is why to think that is correct. As well as the cases we have cited above, we need to return to the point that we are unclear on *why* to think that it is correct to say that teaching does not occur in cases of disseminating falsehoods and misinformation. The cases described above seem to be ones that accord nicely with our claim. There are ubiquitous mentions of 'lies you were taught at School/University or within a particular religion' that can be found in a range of publications. And whilst none of these points is independently compelling evidence that teaching absolutely and categorically *can* occur in these cases, collectively these points are weighty evidence that needs to be overturned by our opponent if they wish to insist that teaching does not occur in such cases. Simply, then, we think that the burden of proof is on our opponent to offer some kind of argument for the thesis that teaching does not occur in cases involving the imparting of falsehoods.

2. WHAT, THEN, IS THE LINK BETWEEN TEACHING AND IMPARTING KNOWLEDGE?

We have seen that in some views, there is a tight conceptual connection between teaching and the imparting of knowledge. These views tell us that to understand what teaching is, we need to recognize that it imparts knowledge.

However, we could look to weaken that connection and still seek to preserve *some* connection between teaching and the imparting of knowledge. In this section, we will consider three such attempts.

2.1 Adding intention

One way to address this issue is to focus on the goal of teaching, rather than on what happens within the educational setting. This means that whether something x is considered teaching by someone y depends not on what y does, but on what y intends to accomplish through x.

Therefore, if person A teaches person B something, then A intends to impart some kind of knowledge to B. This knowledge could be theoretical, such as facts or information about what is true. It could also be practical knowledge, which is knowledge of how to do something.

However, this approach alone may not be sufficient to address all possible counter-examples. For example, a knowledgeable science teacher who is teaching a planetary model may not actually intend to impart knowledge, since of course, the teacher knows that the model is false. Therefore, additional modifications to the analysis would be required.

2.2 The 'ultimate goal'

A different, though related, attempt might instead focus on the ultimate goal of teaching. Let us agree that within the classroom it is frequently important to teach students falsehoods—these are instrumentally useful in that they can provide a false but useful scaffolding that will enable the student or pupil to later learn the truth. This might be a useful amendment, or so we might think, when it comes to dealing with the Bohr planetary model of the atom. Because the correct model of the atom is quite complex, to get students engaged with some of the mathematics and concepts that abound, first teaching them the Bohr model helps them get a feel for what is going on. But, of course, this is done in the service of enabling the students to return, later, to then learn the *correct* model, and some come to knowledge.

If we were to attempt to capture this, it might read as follows:

> If a person, A, teaches another person, B, something, then either A: imparts knowledge of some kind or else imparts a false belief of some kind, but does so with the ultimate goal of supporting A's coming to knowledge. The knowledge in question might be 'theoretical knowledge': knowledge of facts, of what is the case. Or it might be 'practical knowledge': knowledge of how to do something.

We concede that this *might* help with the case of the atom, though we are a little sceptical. Given progression rates within their subject area, no teacher working with pupils in (for instance) the 14–16-year-old range should expect all their pupils to go on to study chemistry any further. That being so, in the UK at least, teachers would know full well that most of the class in front of them will never learn the proper model of the atom. Can we *really* say, then, that a teacher of such a class has the ultimate goal of supporting everyone in the class coming to have knowledge of the

atom? As we noted, we are sceptical. A more likely candidate for an ultimate goal would be to equip pupils to pass their exams.[11]

But, setting that to one side, we do not see how this revised 'ultimate goal' analysis helps with the historical case of classical mechanics or how it helps with its contemporary implications.[12] There are two strands to our point.

The first strand is that science teachers of yesteryear, who were engaged in the act of what they took to be teaching correct science, did not take themselves to be trying to impart something false with the ultimate goal of enabling their students to grasp something true. They took themselves to be teaching their pupils and students something true. Even in the 'ultimate goal' analysis, then, historical acts of putative teaching are not in fact teaching if what is imparted turns out to not be true.

The second strand is that we have good reason to suppose that much of our current science (certainly, much of our best physics) is in fact false. It is false because we do not have a complete best physics and significant parts of our current theoretical models are incompatible with one another. The 'ultimate goal' analysis simply does not help us get to grips with this.[13] It commits us to saying that anyone involved in transmitting to a class of pupils the details of the special theory of relativity is not teaching that class.[14] As above, we do not think that it is plausible given the way that the concept of knowledge is used in everyday discourse.[15]

[11] Furthermore, for similar reasons, even if we focus on 'know-how' this does not help. For it is not true that when teaching the false Bohr model, teachers are always *intending* to teach students *how* to do something, e.g. balance chemical equations. However, even if this were false, and they were teaching an ultimate goal conceived of in terms of skill acquisition, this would not help. For in many cases the false claims that are taught are no use at all, and worse still could, in fact, knowingly hinder further skill acquisition. Removing from considering skill acquisition as part of the 'intention' of the teacher could allow us to talk about *some* skills that a teacher of a false model imparts, such as critical thinking or maybe, discernment. However, it is crucial to acknowledge that such skills may not be a deliberate aim of the educator, and furthermore, the notion that such skills are specifically imparted through the teaching of a false theory remains highly speculative. Indeed, the proposed concept of critical thinking as a by-product of instruction in a false theory may ultimately prove to be too broad and disconnected to provide a meaningful connection to the specific context of teaching a false theory.

[12] One fascinating suggestion raised by the reviewer is whether we are right to sideline the idea of *disciplinary* knowledge as peripheral. The suggestion being that this might help the Bakhurst view to account for the case of the historical teaching of now defunct theories. But we, like the reviewer, think this strategy will be unsuccessful. Is someone teaching when they fail to 'speak for the discipline'? e.g. when they impart flat earth theories? It seems to us that it would be begging the question to claim that they are not. This in turn raises a more general question about how the historical and epistemological contexts of the present shape our understanding of what constitutes a 'discipline'.

[13] Of course, there is a general problem about what 'ultimate' means. After all, there is not an Archimedean point at which to make such pronouncements.

[14] Unless they do so with the caveat that 'this is false, but useful, so …'.

[15] We agree with a reviewer that we have not offered a satisfactory explanation for why known false theories such as the Bohr model are still taught. Elgin's (2004) concept of 'felicitous falsehoods' could be relevant in this context. However, this issue does not detract from the main focus of the paper and should, we think, be considered as a potential area for further research.

2.3 Revising the 'Knowledge view': an ameliorative analysis?

A unique way to respond would be to treat the analysis, not as *conceptual*, but as *ameliorative*—as an instance of what has become known in some circles as conceptual engineering, and in others a revisionary or transformative approach.

The idea behind this shift away from conceptual analysis is to move us away from attempting to analyse folk concepts (the concepts as they are widely understood and used—for instance, in everyday discourse) and to move us towards describing (or engineering) concepts with which we *should* look to replace our folk concepts. It is, at its heart, a normative rather than a descriptive undertaking.

> *Ameliorative* projects, in contrast [to traditional approaches], begin by asking: What is the point of having the concept in question; for example, why do we have a concept of knowledge or a concept of belief? What concept (if any) would do the work best? … those pursuing an ameliorative approach might reasonably represent themselves as providing an account of our concept—or perhaps the concept we are reaching for—by enhancing our conceptual resources to serve our (critically examined) purposes. (Haslanger 2012: 386)[16]

Thus, here we first ask what is the point of having the concept of teaching, then what concept of teaching (if any) would do the work best? Thus, on this approach we might hold that the point of teaching is learning, and that concept of teaching which works best is, à la Bakhurst, one which is linked with the impartation and acquisition of knowledge.

Thus, the proper conclusion here is that the likes of Bakhurst have it right if we read them as providing a (partial) analysis of what teaching *should* be thought to consist in.

We concede that this is an approach that could be taken, but we are not sure how to motivate it. Typically, ameliorative analyses are driven by the fact that the current concept is deficient in some way, and it is from this deficiency that we can motivate the normative claim about revision. For instance, Haslanger (2012) and Jenkins (2016) propose ameliorative analyses of the concept 'woman' to avoid excluding women (including those who are also members of other oppressed social groups) from falling under the concept. Similarly, Jones (2013) offers an ameliorative analysis of what it is to be trustworthy, noting the value in navigating the world around us that a cleaned-up version of the concept could provide.

Now, for all that has been said and done, we have not yet seen the case made that our concept of teaching is impoverished and requires the kind of revision that would go together with an ameliorative analysis. We cannot see anything *wrong* with supposing that teaching is occurring in the cases we describe above and that we treated as counter-examples to the original hypothesis. If we were to argue that the Knowledge view is a fit and proper ameliorative analysis, then we would want to be given some reason to think that the current conception

[16] Although this approach has not, to our knowledge, been applied to the concept of teaching, it has recently been applied to the concept of education, see Marley-Payne (2021).

of teaching is defective in some way. And, once again, we cannot see what that reason is.[17]

Of course, our lack of imagination does not definitively *show* anything. The right move in the end *could* be to treat the Knowledge view as an ameliorative analysis. Perhaps. Or some other account of teaching *could* be treated as an ameliorative analysis. Perhaps. The trouble with all of these lines is that no attempts have yet been made to develop them. We would welcome further work in this area, but we cannot see from anything that the likes of Bakhurst have said that they intend the Knowledge view to *be* an ameliorative analysis and we cannot see (yet) why we would need such an analysis. Given the circumstances then we do not think that we can rescue the Knowledge view by treating it as ameliorative.

3. WHERE NEXT?

As promised at the outset, we do not think that what we are calling here the Knowledge view of teaching succeeds. Nonetheless, there is surely *something* right about the idea that teaching and knowledge are connected. We agree wholeheartedly that much teaching (especially *good* or successful teaching) does lead to the imparting and acquisition of knowledge. And in fact, it is here where there is a discussion of how knowledge and knowledge acquisition should be understood that Bakhurst's work is of great value, especially his discussion of trust, testimony and how teaching is distinct from telling (2013) (see also Scheffler (1960)). In this section of the paper, we therefore have two goals.

The first goal of this section is to elaborate a series of desiderata that we think a good account of teaching should provide. The second goal of this section is to outline two theories that, we think, *could* satisfy these desiderata. Our aim is not to advocate for either theory (we leave the project of advocacy for another time and place). Our aim is simply to illustrate how, in principle, a theory of the nature of teaching might satisfy the desiderata that we sketch here. And whilst, to be sure, this does give some motivational impetus to both theories, that is far from saying that either theory should be endorsed.

3.1 Desiderata

We previously mentioned that it is commonly believed that there is a relationship between instances of teaching and instances of knowledge being imparted and acquired. We believe that *any* well-constructed theory of teaching should be able to account for this. Whilst we have rejected the Knowledge view, we agree that often where there is teaching, there is also knowledge imparted and acquired.

[17] To forestall one potential response, it will not do for our opponent to say that what motivates treating the Knowledge model as an ameliorative analysis *is* the fact that the counter-examples to it as a conceptual analysis are telling. That our opponent does not like the fact that their view faces counter-examples does not in and of itself motivate moving to read the Knowledge view as ameliorative. The question is not whether there *are* reasons that can be given for a change, but rather whether there is *normative* ground to do so.

The relationship between the two is not one of conceptual connection as Bakhurst suggests, but rather one of correlation. Understanding why should be a focus in developing an effective theory of teaching.

Second, a theory of teaching should identify necessary and sufficient conditions for teaching to occur. The examples provided in this paper demonstrate that knowledge imparting and acquiring is not a necessary or sufficient condition for teaching to occur. If we wish to understand the concept of teaching in the way that we adverted to at the start of the paper—if we wish to know what teaching *is*—then we will need to locate both necessary and sufficient conditions.

Third, and finally, any resulting analysis should not be shown false by any of the examples of teaching laid out above. Of course, we do not mean that these are the *only* criteria that a theory of teaching should have to satisfy. Our project is not so bold. But, at least within this small corner of the dialectic concerning the nature of teaching, at a minimum we think a theory of teaching should satisfy at least these three.

We now turn our attention to the theories. The two theories we will look at are an intentional theory of teaching and a judgement-dependent account of teaching. We will argue that (with some mild caveats) both theories satisfy the desiderata we have given here.

3.2 The intentional theory of teaching

The first statement of the intentional model of teaching is sometimes attributed to Hirst.[18] As we understand it, the guiding idea behind intentional models is that:

> [T]eaching activities … can only be characterised in the way in which we fundamentally characterise all human activities: by looking at their point or purpose. (Hirst 1974: 104)

To give a little colour, picture a lesson of some kind within which the general practice of teaching is being carried out. Suppose that Michael, the teacher, tells the class that what caused the First World War was the assassination of Archduke Franz Ferdinand at Sarajevo on 28 June 1914. Michael tells them this with the intention of their learning that what caused the First World War was the assassination of Archduke Franz Ferdinand at Sarajevo on 28 June 1914. Given the intentional account, Michael thereby performed the act of teaching. If the class learnt that what caused the First World War was the assassination of Archduke Franz Ferdinand at Sarajevo on 28 June 1914, then Michael successfully performed the act.

As with most philosophical accounts of some phenomena, over time the intentional account has been refined. It is easy enough to see that there are a host of potential concerns with the bare bones of Hirst's account as we sketched it. As such, Fenstermacher proposes the following:

[18] Of course, there are modifications Hirst makes, and there are other similar views relating to intention, e.g., the complex position outlined by Scheffler (1960). However, we do not need to undergo discussion of these complex positions at this point.

> There is a person, P, who possesses some content, C, and who intends to convey or impart C to a person R, who initially lacks C, such that P and R engage in a relationship for the purpose of R's acquiring C. (Fenstermacher 1986: 38)

Thus, Michael teaches the class that what caused the First World War was the assassination of Archduke Franz Ferdinand at Sarajevo on 28 June 1914 just in case Michael believes that content, intends to convey that content to the class, who initially lack that content, and that Michael and the class engage in a relationship (that of teacher/pupil) for the purpose of the pupils acquiring that content.

This seems broadly plausible. Note, first, that this circumvents our concern with the intentional reworking of the Knowledge view. The intentional account under consideration here does *not* require that the content that is being imparted and acquired is *knowledge*. It is perfectly plausible in the intentional model that the content is mere (false) belief, and for teaching to nonetheless occur.

Second, and for the same reason, note that none of the examples we discuss above will be at all problematic for the intentional model. The issue in each case was that a teacher might impart a falsehood and thereby not be regarded as teaching under the Knowledge view (or, in the thought experiment involving the unruly classroom, that no content was *in fact* imparted). Since the intentional account of teaching does not require that knowledge be imparted, at all, merely that a teacher *intend to impart some content*, there is no immediate threat to the intentional account.

It is straightforward to see that the intentional model also satisfies the other desiderata as well. Because the intentional model under discussion gives both necessary and sufficient conditions for teaching to occur, it thereby satisfies the second desiderata.

It is also easy to see why there is a correlation between teaching and the imparting and acquisition of knowledge, though to be clear the explanation here does not flow solely from the intentional theory, but from the intentional theory in conjunction with certain background conditions.

The salient background conditions that we have in mind are that most teachers are skilled and well-meaning individuals. Their goal is to guide and inform their pupils. They wish to see them succeed. In *most* cases, the best way in which to help someone to advance and to navigate the world is to tell them something *true*. We do generally not aid our pupils and students if we tell them that walls are permeable or that they will survive a fall from a 100 m building. We aid our pupils and students by telling them the truth. Thus, although the intentional model does not draw a conceptual connection between teaching and knowledge it is nonetheless easy to see why the two are so frequently correlated.[19] Teachers (skilled and well meaning as they are) typically intend to teach their pupils truths and are skilled in doing so. *That* is why there is a correlation between the acquisition of truth and the act of teaching—at least, so we might say for the intentional model.

[19] Consequently, one outcome of the intentional account is that one may intentionally impart content that is outright and deliberately false. But we see no problem in thinking that the spreading of disinformation could correctly be thought of as teaching.

3.3 The judgement-dependent model

The judgement-dependent model of teaching, proposed in our paper Tallant and Fisher (2019), is a new approach in the philosophy of education. As we point out (2019: 777):

> Some features of the world around us are, plausibly, judgement dependent. For example, occupants of the world may be any of (for instance) 'exciting', 'irritating', 'nauseating' or, 'red'. Whether or not some event is, say, 'exciting' is not a matter that can be adjudicated upon independently of the judgements of those that might experience the event.

We suggest that teaching might be another judgement-dependent concept. We begin with Wright's account of what it is for some concept to be judgement dependent—being that it must satisfy the provisional equation.

$$\forall x[C \rightarrow [\text{A suitable subject s judges that } Px \leftrightarrow Px]]$$

Here, 'C' represents 'ideal conditions', such that the equation is to be read as saying that a concept is judgement dependent just in case: if they are in ideal conditions, then a suitable subject judges that x is P if and only if x is P. For our purposes 'P' stands for 'is teaching'.

Thus:

> We think that teaching satisfies the provisional equation … ∀x[C→[A suitable subject s judges that x is teaching↔x is teaching]]. (Tallant and Fisher 2019: 781)

If we are in ideal conditions, then a suitable subject will judge that someone is teaching if and only if they are actually teaching. This is all that there is to teaching.[20] To refer back to an earlier example: Michael teaches the class that what caused the First World War was the assassination of Archduke Franz Ferdinand at Sarajevo on 28 June 1914 just in case, if they were in ideal conditions, a suitable subject S in the class would judge that Michael is teaching them that what caused the First World War was the assassination of Archduke Franz Ferdinand at Sarajevo on 28 June 1914 if and only if Michael is teaching that what caused the First World War was the assassination of Archduke Franz Ferdinand at Sarajevo on 28 June 1914.[21]

We believe that the judgement-dependent account of teaching is at least compatible with the desired characteristics of a theory of teaching, although it may be seen as less satisfactory than the intentional account. Since we do not intend to decide between the two views, this is of no consequence to us here. As above, our goal is

[20] We do not give here a full working of what motivates our account nor of what is meant by 'ideal conditions'. See Tallant and Fisher 2019 for further discussion.

[21] The specifics of what is considered 'suitable' and 'ideal' for teaching are discussed in our previous work (2019). For instance, a suitable subject is one who is cognitively normal (statistically, not normatively); not under the influence of alcohol; and in a well-lit environment. The key question is whether these conditions can be defined in a way that does not render the conditions trivially true. What is it about the suitable subject that makes it *likely* that their judgement will include the same particulars as the intentional model? Well, the suitable subject is a subject who typically recognizes and responds to what a putative teacher intends.

not theory choice; our goal is simply to show how the desiderata play out with reference to other theories of teaching.

Let us start with the question of whether the judgement-dependent model is shown false by any of the examples in this paper. We think not. Like the intentional account, the judgement-dependent account of teaching does not require that knowledge be imparted, merely that the suitable subject judge that teaching has taken place under ideal conditions. Key here is that the *truth* of the content taught is not part of how we specify the ideal conditions. To put it in terms of one of our examples, the student in the Newtonian classroom could be in ideal conditions and be a suitable subject, and judge that teaching is taking place; consequently, teaching *is* genuinely taking place, despite the fact that what is being taught is false and no knowledge is being imparted or acquired.[22]

Second, since the judgement-dependent account gives us necessary and sufficient conditions for what it is to teach, so the judgement-dependent account of teaching does give us the requested complete analysis.

Last but not least, does the judgement-dependent account of teaching allow us to see why there is a close correlation between teaching and knowledge? Here we are less certain, but we think that there is at least a story that can be told. It is important to note that the judgement-dependent model is likely to be extensionally equivalent to the intentional account in most cases. For, in at least most cases, a teacher will (we suspect) only succeed in behaving in such a way that an observer in ideal conditions judges that they are teaching, if they are intending to teach. *Typically*, the two will simply coincide because of the close connection we normally draw between intentions and actions. Typically, we will only throw a ball if we intend to do so. Typically, we will only write papers if we intend to do so. Teaching will surely be no different. *Typically*, one will only behave in a way that subjects in ideal conditions judge to constitute teaching *if* one intends to do so. Since, as we argued above, skilled teachers will typically have an intention to guide their students and pupils, so it will follow that they will in most cases look to impart knowledge (and if they are good teachers, they will succeed in doing so). Thus, we have an explanation of the close connection between teaching and the imparting and acquisition of knowledge.

We do concede, though, that there are two parts of this story that the reader may not find entirely persuasive. The first part of the story likely to give pause is the one just covered: that we can decide on what suitable observers in ideal conditions might judge of a given scenario. It is clearly not the case that we can be definitive here, but though we recognize that judgements are not often (ever?) rendered in *ideal* conditions, we nonetheless think that the conditions we operate in are close

[22] One might find it strange to suggest that this account provides a more comprehensive understanding of teaching than the Knowledge view. However, this approach has an advantage in that it highlights the flawed methodology of attempting to identify conditions a priori, rather than through an iterative process. What is it about the suitable subject that makes it likely that their judgement will include the same particulars as the intentional model? Well, they might not, but when they do this is because the suitable subject is a subject who typically recognizes and responds to what a putative teacher intends.

to ideal. When observing putative acts of teaching we are unencumbered by illusions or distractions so serious as to pose a serious threat to our judgement. At least, so we suppose. So, whilst we cannot be entirely certain on the point, we strongly suspect (and think we have grounds to be at least passably confident) that teaching and the intention to teach will be strongly correlated.

Second, we said above that the judgement-dependent account does not fall foul of any of the examples discussed in the paper. There may be a sense, though, in which this seems an unsatisfying result. If there is nothing more to teaching than the judgement of a suitable observer in ideal conditions, and we are not in ideal conditions, then *of course* the examples do not rule out the judgement-dependent view. But this is hardly surprising. The view looks close to unfalsifiable!

By way of response to this concern, we think that it is first worth pushing back on this claim a little. Though we do not repeat them here, in Tallant and Fisher (2019) we do give arguments for thinking that teaching may be judgement dependent given Wright's account of what it is to be judgement dependent. The view thus *does* seem as if we can get dialectical traction on it if we wish to argue against it; we must simply undermine those arguments.

Second, we do again think that more can be said by reference to non-ideal observers. As noted above, we think that many observations and judgements are formed in conditions that, though non-ideal, are not *so far* from ideal. Our conditions are at least *adequate*. We think that judgements of suitable subjects in adequate conditions are a defeasible guide to the judgements of suitable subjects in ideal conditions. That being so, *our judgements* about these cases are a fair guide as to whether teaching is occurring in the cases described. And our judgements are, as we described above, that teaching *is* occurring in these cases. We thus think it reasonable to suppose, albeit tentatively, that the result from the judgement-dependent theory is that teaching *is* occurring in those cases. If that is all correct, then we have something a little stronger than merely that the cases do not undermine the judgement-dependent account, as we worried at the outset. It looks highly plausible that the judgement-dependent account returns the verdict that teaching is occurring in each case.

4. CONCLUSION

We think it is clear that, contrary to at least one reading of Bakhurst, the imparting and the acquisition of knowledge—in whatever form—is not a necessary condition for teaching to occur. Modifications of such a view—the intention to impart knowledge and the ultimate goal of the teacher—were also rejected. We then considered a different approach—an ameliorative analysis. We argued that this holds promise but it will depend on the ability to clearly motivate such an account. From the ashes of the Knowledge view, we considered two ways of understanding the relationship between teaching and knowledge. The intentional theory and the new judgement-dependent account. Both accounts capture what is correct about the Knowledge view without being saddled with counter-intuitive implications. We made no

recommendation on which position to adopt but suggested that it is with these positions that the interested researcher would find most reward for their efforts.

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