Understanding is necessary for critical thinking —but also for its declared foe of uncritical dogmatic thinking

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Abstract

Under various guises, a non-transcendental version of understanding —as opposed to memoristic learning— has been declared in pedagogical literature as a desirable goal of educational activities. And so has critical thinking. Moreover, in some cases they are taken to be very closely related to each other. However, understanding is necessary for both critical thinking and for what the latter intends to be an antidote for: a dangerous dogmatic sort of uncritical thinking. To elucidate the relation between understanding and critical thinking it is better to start with two basic ideas: 1) critical thinking can never be fully comprehensive —anyone will always inevitably be uncritical about a range of issues and dimensions— and 2) the pedagogical notion of understanding lacks a clear normative directionality, that is, however, essential to education.

Keywords

1. Introduction

In the literature about pedagogy, "traditional education" has become the name for the beast that good sensible educators of all persuasions must fight against, and banish from their classrooms; the straw man whose burning will take away our pedagogical malaises. One of the main characteristics of this evil of traditional education has been referred to with expressions like "memoristic learning", "memorisation", "mechanical transfer of information", and others. The proposals that have promised to replace traditional education and to avoid memoristic learning, have come under various guises, such as *understanding* (Wiske, 1998) and *significant learning* (Fink, 2003), among many others. In this essay I will refer to all of them, generically, as *understanding*. In a somewhat different vein, the development of critical persons has also been declared a central task of education. It also has various different manifestations, sometimes very contradictory between them. They include approaches based on informal logic and argumentation theories (Ennis, 1996) —in the case of the critical thinking movement— as well as approaches based on sociological theories from modernist and postmodernist orientations (Giroux, 1997; McLaren, 1994) —in the case of critical pedagogy— among others. Even though the expression "*critical thinking*" is mostly used in relation to the first of the two types of approaches just mentioned, I will still use it in this paper to refer, generically, to various manifestations of criticality that cover at least critical thinking and critical consciousness. Now, interestingly, the kinds of results that are intended to be achieved when understanding and critical thinking are sought for, seem to sometimes be very similar. But the issue needs a closer look. What is the relation between understanding and critical thinking? ¿Is it that they are both the same? Or is it that critical thinking is simply one of the characteristics of understanding? Or, possibly an understanding is necessary but not sufficient for critical thinking to develop about any topic?

In this essay I set out to address the general question about the relation between the two goals. For that purpose, in section 2 I will briefly introduce the idea of *understanding*, paying special attention to the role that (cognitive) connections play in its production. This account will mainly come from David Perkins' view. Section 3 will be devoted to the subject of

meaning, as seen from the holistic perspective promoted by Donald Davidson. Here I will further introduce some ideas about interpretation and understanding —and in particular the distinction between knowledge resources that are or are not at hand— when these terms are applied to meanings. In the process, Davidson's and Perkins' views will be shown to support each other, at least in these respects. This analysis will set the scene for section 4, in which I will then present a view of what occurs, in terms of interpretation and understanding, when someone produces a manifestation of critical thinking. From here, I will also finally argue the two related conclusions that constitute the core of this paper. Firstly, that memoristic learning, given that it does not produce forms of usable learning, is only contrary to critical thinking in a passive way; that is, it cannot help students become critical about whatever topic is being talked about in the classroom. But it will not be in an active and direct way the vehicle for uncritical or dogmatic thinking. And secondly, that rich understanding can lead to both critical and uncritical dogmatic thinking.

2. Understanding

Following up from the introduction, when taken as process, understanding is normally opposed to memorisation; and when it is taken as product, it is normally opposed to pure information. In extreme versions, information and memorisation are associated with the lowest of the categories in Bloom's taxonomy of educational objectives: *knowledge* (Bloom and Krathwohl, 1956), or *remembering* in the revised version (Anderson and Krathwohl, 2001). Of memorisation of pure information, it is said that it does not get rooted in the learner's knowledge, and that therefore it is soon forgotten. It is also said that it in itself does not produce any effect on the learner's behaviour. Lastly, pure memorised information alone will only allow the learner to reproduce it when directly asked about it, as has become so common in trivia games. Sometimes, however, memoristic learning can be associated with actions or performances —and not only pure information— but only as the reproduction of routine procedures that are only effective when the problem they were intended to solve, remains invariant.

Understanding, on the other hand, is a type of educational outcome that pretendedly avoids the problems of pure memorised information. It is said that when the learner understands something, she will more easily remember it for some time after the learning experience has taken place, and possibly for life. It should also be manifested in the learner's behaviour or performance in some given task, that may be or may not be linguistic. And, understanding should allow some learner to carry out new actions or performances that she had never carried out before, as the appropriate response to new challenges or problems. Perkins's view of understanding is, precisely, this: a *capability for flexible performance* (Perkins, 1998). The focus on performance directly tackles the possibility that something happens in the learner's mind, but is never expressed in any visible behaviour. As Fink says, if there has been no change in the learner, there has been no learning (2003). The idea of flexibility is particularly important as what is expected of the learner who understands something, that she be able to do things (performances) that are not only a reproduction of the information or procedures that she was directly taught in the learning experience. Now, let us notice that in the sense given above to understanding, it goes far beyond Bloom's second category in his taxonomy of educational objectives (*comprehension*), which in the revised version has been replaced with, precisely, *understanding*. Moreover, arguably Perkins' description of understanding fits well with all the categories that follow in Bloom's taxonomy, because they

all refer to possible performances that constitute the understanding[1]. Another characteristic attributed to understanding refers to the connections that the learner is to establish between the newly acquired ideas, and the older ones that she previously held. This idea may have its origins in the Piagetian notions of assimilation and accommodation, but certainly still holds in a somehow revised version as one of the central tenets of constructivism (see Perrone, 1998; and Perkins, 1998).

It is important to clarify that this sense of understanding is a much more restricted and concrete one in comparison with others such as Cooper's *understanding as philosophy* (1983), or the one proposed by some of the authors who study it from the hermeneutical tradition and for whom understanding takes existential characteristics (Kerdeman, 1998; Okshevsky, 1992). Perkins' view deals with more mundane objectives that for example a school teacher can propose for a single module, or topic, in her maths, language, or biology courses, and that allow her to stick to the standards formulated for the grade she teaches in.

3. A holistic view of meaning

Perhaps once it was thought that understanding the meaning of some concept was the same as knowing its definition. But a definition would only be pure information, unless we are able to do something else with it. In that view, understanding could be equated to memorising pure information (the definition). But of course, that is not what we now understand about what it is to understand meanings. Then there is the question, how do recent ideas about meaning compare with the notion of understanding presented above? My approach will be based on the holistic view of meaning that Donald Davidson and other have taught us (for an alternative account of ideas similar to the ones in this section and for a treatment of some objections to them, see Davis, 1998a and 1998b).

Davidson's idea of meaning can be grasped from his analysis of situations of interpretation, in which some person, an *interpreter*, seeks to elucidate the meaning of some sentences uttered by some *speaker*. Davidson's analysis has shown that it is only under the two assumptions that the speaker is *mostly* right in what she believes —that is, that most of it is true— and that her beliefs are coherent *for the most part*, that the interpreter may proceed to attempt to understand the meaning of the speaker's sentences (Davidson, 1967 and 1974; Ramberg, 1989). The second assumption is what Quine had previously called the *charity principle* (1969). The first assumption may well be called the *holism principle*. With these two assumptions, the interpreter can then start producing and —in some wide sense— testing interpretive hypotheses that make the speaker's sentences coherent and true in a maximal way. And an interpretive hypothesis is nothing more and nothing less that a set of sentences that possibly translate the speaker's sentences into the interpreter's own language; that is, a set of sentences that the interpreter *knows how to use*. Therefore, a good interpretation will be one that will produce a set of sentences, that the interpreter herself knows how to use, that match the truth conditions of the speaker's sentences. And knowing how to use a sentence implies knowing what else would be true if the sentence were true. For instance, when we say that an English-speaking interpreter translates a Spanish-speaking speaker's "está lloviendo", as "it's raining", we imply that the interpreter will know many other sentences that would also be true if the speaker's sentence were true: "if she goes out now without her

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[1] There is some discussion about whether the understanding *consists of* those sophisticated performances, or simply *enables* them. It is not my intention to address that issue, given that it does not have any import on the purpose of this essay.

umbrella, she will get wet"; "there must be clouds in the sky at this moment"; etc. More generally, we can stop talking about interpreter and speaker being different persons, and talk about meanings in general. Knowing the meaning of "está lloviendo" implies being able to produce many other *related sentences* and to know their possible truth value and their dependence on the original sentence's. Meaning and truth are, then, so closely related, that the first should be taken, when referring to a sentence, to be its truth conditions (see Davidson, 1967). As Davis puts it, "is someone understands something which they know, this is at least partly in virtue of their appropriately connecting it to other knowledge which they also possess" (1998b, p.41). As a note of clarification, truth conditions is not the same as verification conditions, and Davidson's project should not be understood as an epistemological one (Rorty, 1979; Ramberg, 1989).

The extreme case of radical interpretation —when the language in which the speaker utters her sentences is *totally* alien to the interpreter— is the one that has been analysed the most (Davidson, 1973; Quine, 1969). In it, the interpreter will most probably start with occasional sentences of a mostly empirical descriptive nature (such as Quine's "here's a rabbit"; 1969), because they may be the easiest ones for identifying patterns of utterance, and the ones in which it is most likely that there will be agreement in belief between speaker and interpreter. However, the two assumptions of the charity and the holism principles also hold for the more domestic case of interpreting the sentences of someone who speaks the same language as the interpreter's (Davidson, 1986). They also hold for cases in which the speaker's sentences are about values and norms (Davidson, 1995; Mejía, 2006). more generally, they hold in any situation of interpretation because they do not constitute a methodological suggestion, but a precondition for the very ideas of language and meaning to make sense at all (Ramberg, 1989).

When learning is attached to meanings in language, we get to the idea that it implies the construction of sentences that the learner knows how to use in the production of related sentences. If she does not know how to use them, then she has not learnt or constructed their meanings. Now, what other related sentences does someone need to be able to produce if we are to declare that she understands some meaning? Quine's rejection of the analytic-synthetic distinction showed us that there is not bounded set of sentences that will do this job, and that no particular sentence is needed (Quine, 1953). It is only needed that she be able to produce, rather coherently, *many* related sentences. Furthermore, related sentences may range from the very trivial to the very sophisticated, which in turn interestingly suggests that the notion of *use* may include performances of the sort that Perkins was proposing when talking about understanding, as well as imply their flexibility. But it also suggests that pure information and understanding are not types of learning outcomes that differ in their essences. Their differences may instead be of a gradual nature for somehow different reasons from those presented by Perkins (1998). Perhaps we talk about pure information when the learner is not able to do much with the sentences learnt: For instance, when the learner not know much what to do with the fact that William the Conqueror disembarked in England in 1.066, beyond saying, perhaps, that that was before the year 1.067 and after 1.065, and that that person must have been male. In this sense, she understands something of what the sentence "William the Conqueror disembarked in England in 1.066" means, but, of course, that is too little. The problem, then, is about the richness of meaning, which is expressed in how sophisticated the new related sentences that one is able to produce, are, and what they enable one to do. (Richness, of course, may be itself a problematic concept.)

And finally, let me say that the analysis just made can be expanded to cover not only sentences, individually, but all sorts of *forms of knowledge* that express or manifest someone's

beliefs about anything: ideas, problem definitions, theories, ideologies, or even social actions and practices.

4. Critical thinking and uncritical dogmatic thinking

The holism of meaning has a further consequence of relevance for my discussion. Related sentences imply the connection between beliefs in the person's —or the learner's— belief system. Therefore they are restricted by what is possible to do with that belief system. Or, in other words, the belief system of any one person constitutes her *knowledge resources*, with which she can understand the meaning of any one sentence. Particular knowledge resources will enable their holder to establish particular connections with related sentences; but, of course, new forms of knowledge constructed will expand the knowledge resources available to the learner, and with that also her possibilities to create new connections and expand her knowledge resources even further.

Now, what does all this have to do with critical thinking? It can be argued that the attributes normally attributed to critical thinking are subordinated to the capability for producing related sentences of the person who at one given moment is doing any critical assessment or appreciation of some form of knowledge. And, as just argued, this capability directly depends on the knowledge resources available to her, given her belief system, as well as on other emotional and cognitive restrictions that may make the person not use her knowledge resources to a full extent (Mejía, 2005). Critical thinking attributes may include, depending on the critical approach used, reasonability, reflection, and evaluation based on logic (& Ennis, 1996); the possibility of identifying the normative and cognitive limits to some social system design (Ulrich, 1983); the recognition of the social and political nature of any form of knowledge (Freire, 1970, McLaren, 1994); or more generally the possibility to decipher the fundamental assumptions that give sense some position (see Mejía, 2002 and 2005). One instance of this conclusion can be seen in the case of one of the central ideas about criticality that are present in the literature: that of revealing assumptions which are present in some form of knowledge, but are implicit or hidden from view. I have argued elsewhere that an assumption should be taken as a borderline that limits the range of possibilities considered by someone who holds some form of knowledge (Mejía, 2001). (This view of assumption is in many respects in agreement with Gadamer's notion of *horizon*, 1986, and with Delin et al.'s *frame*, 1994). However, it can be argued that the borderline is not a pure property of the form of knowledge that makes the assumption, but of the logical relation between it and the belief system from which the critical assessment is being produced (the critical person's belief system) (Mejía, 2001). To sum up, the assumptions made by some form of knowledge, that a critical person is able to reveal, will be restricted by her belief system. One person may produce, with the knowledge resources available to her both cognitively and emotionally, some critical assessment of some form of knowledge that another will not be able to, and *vice versa*. And, interestingly, both persons may have a sophisticated understanding, but they may be laid along different dimensions, covering different aspects of the meaning of the form of knowledge being assessed. What some of the various critical approaches to education have done, is to postulate some of those possible dimensions as having a special existential significance and importance for the lives of people. this way, for instance, it is connections with some social, political and economic dimensions that proponents of radical pedagogy want their students to establish. Not any understanding, rich as it may be, will involve those important manifestations of critical thinking. The important conclusion from this analysis is that, in some sense, richer sets of connections and related sentences, and the capacity to produce more flexible and more sophisticated performances, does lead to a better

understanding, but not necessarily to a more critical thinking. This way, for instance, a better understanding of basic mathematical concepts such as fractions and percentages may lead to a higher proficiency in carrying out operations with them —and even to question some technical issues about their use in certain circumstances— but that is not necessarily the same as understanding how they can lead one into interpreting some ideas instead of others, when information with fractions and percentages is presented in particular ways. There is the question, then, of what performances are to count as relevant for criticality.

Now, all sorts of manifestations of critical thinking about some form of knowledge involve the production of related sentences, which in turn imply an understanding of the meaning of the form of knowledge being critically assessed. Therefore, such manifestations can be seen as *performances of understanding* in Perkins' sense (1998). But then the fact that criticality deals with what is not clearly visible, with what is normally hidden from view and demands a special critical spirit and capacity, suggests that critical thinking is a type of understanding of a rather high level of sophistication and richness. Interestingly, in the literature, sometimes the various pedagogies of critical thinking have also been declared as contrary to the memorising of information (Young, 1992; Freire, 1970), which seems to support the idea that critical thinking is a type of understanding. Furthermore, critical voices have always been against the idea that pure reproduction of culture and knowledge —which is attributed to memorisation of information (see section 2 in this essay)— is a desired goal of education. But then, is that so? Are understanding and critical thinking part of the same enterprise that must fight against memorisation of information? (Or, in some cases, of information that is politically dangerous because it reproduces existing inequalities and legitimises the status quo?)

In a general sense, in education, critical thinking can be said to fight against at least two foes: on the one hand the uncritical acceptance on the part of students, of dominant views in society or in sectors of it, in the past, present, or future; and on the other hand their uncritical acceptance of views held by the teacher that she could indoctrinate the students with. Memoristic learning, as long as it does not enable the learner to produce many connections (in the form of related sentences) or affect her behaviour, can hardly count as new knowledge indoctrinated by the teacher. Therefore, it is only contrary to critical thinking in the passive sense that it does not enable the learner to question and be critical about the knowledge that she already holds or will hold in the future. For that reason, a pedagogy that promotes memoristic learning cannot be said to produce or reinforce uncritical dogmatic students, at least not in a direct way. It is just that it does not help prevent them from so being or becoming. The conclusion, then, needs to be explicitly stated: uncritical dogmatic thinking requires understanding. It requires the person to be able to produce sophisticated performances of understanding so that she can take whatever ideas may go contrary to her views, and resiliently and skilfully reject them without having seriously and openmindedly examined them. That, of course, requires flexibility, given that one never knows in advance what it is that may challenge one's own views. And that, pure memorised information cannot provide. Richard Paul's description of the egocentric and sociocentric person (1994) may well give us a picture of the sort of thinking that I am trying to represent.

It cannot be denied that understanding is a very important pedagogical concept, but then it alone cannot make sense of pedagogy, or of the enterprise of education. It does not have, and cannot have, in itself, a normative direction. It does not distinguish between what it is good to understand, and what it is not good to understand. Bizarre as it may sound, a richer understanding is not necessarily always a better learning, and learning is not always good. To think that it does is to take a technocratic position that is unable to question ultimate

values beyond the instrumental. The idea of critical thinking, however, does have a normative import that goes beyond the simple following of rules. It carries a declared ideal for education and tries to make it happen. Therefore, not any understanding will serve the ideal of a good life.

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