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THE IMPLICATIONS FOR EDUCATION OF THE WORK OF NORMAN MALCOLM ON THE NATURE OF MIND

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THE IMPLICATIONS FOR EDUCATION OF THE WORK OF NORMAN MALCOLM ON THE NATURE OF MIND

Introduction

My aim in this report is to look at the implications for education of the work of Norman Malcolm on the nature of mind. He deals in his work with mind/body dualism, mind/brain identification, mind/behaviour identification and mind/structure identification, working in a Wittgensteinian tradition.

I will take each of these conceptions of the nature of mind in turn: (a) show what it involves; (b) explore its implications for education; (c) present Malcolm's objections to it; and (d) outline the alternatives in the light of Malcolm's work. I will conclude with an exploration of what may be a more acceptable concept of the nature of mind, relating this to education.

Before outlining my argument I will look briefly at the relationship between one's conception of the nature of mind and one's conception of the nature of education.

Education is concerned with the way in which individuals come to have and use knowledge. But the nature of mind determines in what way it is possible to come to have and use knowledge. Therefore, an understanding of what does and does not constitute the nature of mind informs us of what is educationally possible and of the necessary features of the educational process.

The following outline of my argument in this report will serve to illustrate this relationship.

I will argue that the conception of mind/body dualism is derived in the modern Western world from the influence of the

beliefs of the Judeo-Christian religion and from classical Greek philosophy. In more modern philosophy it is found in the work of Descartes, Locke and Hume. Briefly, this concept of mind involves the idea that the human mind is an immaterial thing that does not require corporeal embodiment for its operations.

I will argue that this conception of mind leads to the belief that 'facts' exist 'out there in the world' and they can be viewed with a particular type of objectivity by the mind. This also leads to a distinction being made between 'facts' (in the world) and 'ideas' (of the mind). There is a parallel here with Empirical Theory.* These beliefs lead, in education, to an emphasis on an unsatisfactory notion of objectivity and the 'learning of facts'. Examinations become the test of knowledge.

Malcolm objects to this conception of mind by showing that it leads to solipsism (the view that the individual can have certainty only about his own thoughts and that he has access to anything else only via his own thoughts). By contrast with the dualist position, I will argue that the nature of mind is related in some way to the nature of the physical and social reality.

A rejection of mind/body dualism has lead to three major alternative conceptions of the nature of mind, in Malcolm's view, all three unacceptable. It is with these three conceptions that I will deal next.

Mind/brain identification is characteristic of the work of theorists such as J.J.C.Smart. It involves the idea that 'inner experience' consists in or can be identified with brain pro-

* I am using this as a technical term to refer to the thesis that all sciences have the same logical form. Positivism.

cesses.

I will argue that this conception of mind either precludes talk about education or leads to the belief that learning consists in the modification of the brain by chemicals or some other means. This latter idea also includes the notion that 'learning' of a particular sort can only take place when the brain has reached the appropriate stage of biological development to cope with that process.

Malcolm shows that this conception of mind is not logically possible and that a category mistake has been made in equating mind and brain. Conversely, while the existence and functioning of the brain is a necessary condition for mind, we cannot identify mind with a biological organ.

A second alternative to mind/body dualism is mind/behaviour identification, found in the work of Thorndike, Skinner and others, as derived from the work of Pavlov. It involves the identification of mind with behaviour, the translation of statements about 'inner experience' to statements of observable behaviour. The application by these theorists of the method of natural science to human psychology has close links with the approach of Empirical Theory. (This may sound contradictory in the light of my earlier suggestion of a link between dualism and Empirical Theory, but all I am suggesting is that the conception of education implied by mind/body dualism is similar to certain basic notions in Empirical Theory, while the methodology of behaviourism is the same as the methodology of Empirical Theory - I will explore this in more detail in the body of the report).

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I will argue that this conception of mind implies that a change of behaviour constitutes an instance of learning, with-

out distinguishing between the many possible causes of that change in behaviour and without reference to the attitude with which the new behaviour is performed. It translates notions such as 'understanding', 'knowing' and 'critical thought' into statements of observable behaviour, radically altering their meaning. The learner is seen as an organism to be conditioned in the same way as one might train a dog to do a trick, irrespective of whether the learner/dog 'understands' what is going on.

Malcolm shows how this conception of the nature of mind is unacceptable because of its basic misunderstanding, for example, of the function and meaning of statements of experience. Mind cannot be equated with external behaviour in the way the mind/behaviour identification theorists have done, by reducing behaviour to movement, and thereby robbing it of intentionality, understanding etc.

The third and final alternative to mind/body dualism I will deal with is mind/structure identification, found in the work of Chomsky and Piaget. This involves the idea that mind consists of structures, by reference to which the individual can know whether an instance of language or knowledge is appropriate.

I will argue that this view implies that the learner need simply be exposed to the appropriate environment for the application of his mind-structures in order for learning to take place.

Malcolm shows that this conception of mind leads to the postulation of an infinite regress of structures or a return to the original problem of how something can be known. It also relies on the notion of thought as rule-governed where there is an ideal system of rules from which these are derived. (Malcolm,

like Wittgenstein and others, sees thought as necessarily rule-governed, but holds that thought cannot be sufficiently explained in terms of rules). By contrast with the mind/structure position, one needs to take into account the social nature of the structures of knowledge before attempting to equate these structures with mind.

By way of conclusion I will show that much of what goes on in education is based on these four conceptions of the nature of mind. If all four are unacceptable, then what conception of mind is more acceptable and what implications will this have for education?

I will propose that we need to see mind as a category of ability and experience: dependent on the brain and physical well-being, but involving individual personality, critical and evaluative powers and developing within a social context.

The implications of this are that the educational or learning process will not be seen as involving 'objective' observation and learning of 'facts' (in the dualist sense), brain modification, the acquisition of certain predetermined behaviours or the exposure of the individual to the 'appropriate' environments, but as the development of the critical, evaluative and decision-making powers of the individual through the richness of experience, discussion and critical thought in a particular social context.

Finally, I must note at this point that it is not my intention in this report to attempt to enter into the rich and extensive debate of which Malcolm's work forms a part, but rather to concentrate on the implications his work has for education, if his arguments are valid. I will therefore not attempt to give a critical account of Malcolm's work, but rather present

his arguments and then proceed with the implications as if it may be assumed that his work is unproblematic. I do, however, realise that the position he assumes is subject to criticism and counter-argument, but that it is not my task in this report to deal with those considerations.

References

1. Bernstein uses the term Empirical Theory to label a particular view of social science. See R.J.Bernstein, The Restructuring of Social and Political Theory, Part I (pp.1-54), 1976, Methuen and Co., London.

1. [illegible]

(a) The origin and [illegible] concept

The belief that mind and body are separate is traditional to Western Civilization. Its source in the Western world can, I believe, be traced back both to classical Greek philosophy and to elements of the Judeo-Christian religion.

Plato's concept of soul[1] (the intellectual and moral personality) is closely bound up with his notion of the Forms, the universal, unchanging objects of true knowledge. The soul is seen as part of the higher world (the world of Forms and soul) and it dwells temporarily in the body, passing through a chain of incarnations between which it must undergo a process of purification from the corrupt influences of its earthly existence. The soul is seen as immortal, both pre-existing and post-existing the body. The Pythagorean doctrine of the pre-existence of the soul is very important to Plato, providing the foundation for his theory of knowledge. Both the Forms and the soul, for Plato, belong to the divine, transcendent world, removed from the flow of appearances, the world we perceive with our senses.

Clearly then, Plato sees the soul (or mind) as being non-physical and not dependent on the physical for its existence. It is further seen as qualitatively superior to the physical.

This doctrine can be found in various forms in other classical philosophers. Aristotle[2], for instance, sees three things as being immaterial thinking substances capable of existing separately: the First Unmoved Mover; the 'Intelligences' and the 'separable reason', the highest power of the human soul.

The Platonic beliefs regarding the soul were modified and

adopted by Christian philosophers such as St Augustine and St Bonaventure.[3] They retained the basic belief that the soul is incorporeal and can exist independently of the body. The soul, for these and other Christian thinkers, was seen to be immortal and consisting in the intellectual and moral aspects of the individual personality. This view persists in modern Judeo-Christian thought.

The view that the human mind is an immaterial thing that does not require corporeal embodiment for its operations emerges also in the more modern secular philosophy, notably in that of Descartes,[4] Locke[5] and Hume.[6]

Descartes sought to achieve certainty in the field of metaphysics by rejecting as false anything that could be doubted.[7] The least ground for doubt would be sufficient ground for rejection. Descartes soon realised that the general ground of doubt that opposed his previous beliefs was that there was the possibility that all of his perceptions were illusion, that none of them corresponded with reality. If this were so, then the only thing that could not be doubted was his doubt itself, his thought. This lead Descartes to the conclusion that it was philosophically possible for his mind to exist independently of his body, because while there was ground for rejecting the existence of his body, his mind necessarily existed.

The implications for knowledge of this argument are that knowledge is seen as only existing 'within the mind'. What one perceives or knows is thus 'within the mind' and not necessarily perception or knowledge of anything external to the mind.

For Locke[8] there are two sources of ideas: external and internal sense. External sense, or what we would call the senses, gives rise through physical experience to ideas such as hot,

cold, bitter, sweet etc. Internal sense involves the introspective observation of the operations of the mind. For example, by observing that we remember something, we acquire the idea of 'memory'.

These two sources of ideas are seen as the only sources of ideas. They produce simple ideas which combine to produce complex ideas.

Locke goes on to assert that the only immediate object of contemplation of the mind is the idea within the mind.[9] This implies that we can know only that which is within the mind itself and that all that we know exists (with certainty) only in the mind. He thus assumes a logical dualism of mind and body/external world.

Hume[10] similarly sees the mind as making copies of the body's impressions of heat, cold etc. These he calls ideas. These ideas give rise to feelings in the mind which are similarly copied, resulting in a second set of ideas parallel to Locke's internal sense.

Hume[11] goes on to claim that it is impossible for us to conceive of anything other than these ideas and impressions, of any external world. He too then implies that philosophically it is possible for only the mind to exist, letting in the assumption of a mind/body dualism.

(b) <u>The implications for education</u>

What are the implications for education of holding to the belief that the mind and body are logically separate and independent? It must be kept in mind that this belief also includes the notion of an external world independent of the mind, not just a separation of mind and body.

The first and most obvious implication of the belief in a

mind/body dualism is that it leads to the belief that 'facts' exist 'out there in the world' and that they can be viewed with a certain type of objectivity by the mind. If mind and body are logically separate and the mind deals with ideas or knowledge, then one must ask what these ideas or knowledge are of. This must be knowledge of the external world - the 'facts in the world'. This gives rise to the notion that mistaken or distorted ideas are so because of their disparity from the facts which exist independently in the world and that this disparity results from problems of perception. Objectivity is thus achieved by removing problems of perception in order to reveal the 'true world'.

The distinction made between mind and the external world also leads to a distinction between 'facts' (in the world) and 'ideas' (of the mind). Ideas cannot logically exist in the world. They must therefore be of the mind. but if 'facts' exist in the world, then 'facts' and 'ideas' are logically distinct.

Interestingly, Empirical Theory (see footnote p.2), which has been under considerable attack in the social sciences in recent years, also makes this distinction between 'facts' and 'ideas' and places an emphasis on the same notion of objectivity. And it is these very points on which the attack has focused. It is interesting to speculate to what extent the Empirical Theorists may have derived their approach from the assumption of a mind/body dualism. A pointer towards what the relationship may be is given by Gilbert Ryle[12]. He sees Descartes as attempting to discover the laws of the mental world as a result of the advances of his time in the discovery of the laws of the natural world. If this is a valid observation, then the Empirical Theorist, like Descartes, is trying to apply the model

of the natural sciences to another area of enquiry. The close similarity between dualist and Empirical Theory notions about the nature of knowledge suggest that the relationship is even closer, but the task of discovering the exact nature of that relationship is too large a one for me to attempt to tackle within the confines of this research report, without diverging from my main task.

In the practical sense, the implications for education of mind/body dualism are: an overemphasis on a particular notion of objectivity and the learning of 'facts'. 'Objective', 'factual' examinations tend to be the test of knowledge. Knowledge consists in ideas which can be tested for truth or falsity by checking whether they correspond to the appropriate 'facts' in the external world. These clearly form major parts of our approach to education, if one goes by what goes on in South African schools.

The implications of the dualist position outlined above are the formal implications. The mind/body dualist position can however also be seen to have less formal implications for education. One example would be the distinction between mental training ('A healthy mind...') and physical training ('...in a healthy body'), and the related discrepency between the worth accorded mental labour as opposed to manual labour - the mind (soul?) is seen as qualitatively superior to the body.

Gilbert Ryle's notion[13] of Descartes as trying to discover the laws of the mind in the same way as natural laws suggests that ideas about education as 'filling the mind with knowledge' in the same way as one might fill a bucket could have their origin here too. To fill a bucket one needs to know about the natural laws of gravity, fluid mechanics and properties of sol-

ids. The analogy with mind is that once one knows the laws of how the mind can be filled with knowledge, one can proceed confidently with the filling, as if the mind were a passive receptacle, bound by the laws governing its existence.

Another approach to education that could be seen as arising out of the dualist position is that approach which stresses the mental to the exclusion of the physical. That is, the process of education is seen as the communication of ideas at the mental level and not related to doing, seeing or practicing.

Clearly, a large number of approaches to education can be seen to flow from the assumption of a mind/body dualism. Let us now turn to Malcolm's critique of this position to see whether these approaches rest on an acceptable or unacceptable conception of mind.

(c) Malcolm's objections to mind/body dualism

Malcolm argues against mind/body dualism as follows:[14]

1- Mind/body dualism leads to the notion that there is a particular relationship between language and the thoughts/feelings it conveys.

For Locke,[15] words stand for ideas as labels and ideas thus precede words. This allows for a man well-stocked with ideas, but with no language, who has never labelled his ideas.

Locke sees language as having two functions:[16] first, to record our thoughts; and second, to communicate those thoughts to others. This notion allows for a man who has only used language for the former purpose, to record his own thoughts.

Locke says further[17] that we suppose our ideas to be both signs of the ideas in the minds of others and also to stand for 'the reality of things', but that these are extraneous to the meaning of words and obscure our notion of what words are.

An acute problem arises out of this, one which does not overly concern Locke, and that is the problem of whether different people have the same or different thoughts. As Malcolm puts it, 'what...can (it) mean, that another person's "invisible and hidden idea" is the same as mine?'[18]

2- According to the advocates of mind/body dualism, we learn concepts by introspection.[19] A man observes that he remembers and names this process 'memory'. Malcolm calls this introspective process 'inner ostensive definition'.

The important point to note about the process of inner ostensive definition is that it is private - 'no-one else can be aware of, can directly know, those phenomena in my mind I name "thinking", "remembering" or "believing".'[20]

3- If we cannot know whether different people have the same or different thoughts (a logical conclusion of Locke's position under 1 above), and indeed cannot even know what it may mean for another person's 'hidden' idea to be the same as mine (a second logical conclusion of Locke's position under 1 above) and if the process of inner ostensive definition is private of necessity (see 2 above), how can I know that other minds exist?

Because the mind/body dualists assumed that the only mind of which I can have direct knowledge is my own, they were committed to showing that knowledge of other minds came about by inference based on analogy.

J.S.Mill[21] outlines the argument as follows:- In myself I am conscious of a uniform sequence of events; modifications of my body, feelings and outward demeanor. I observe both the first and the last of these in other people in as regular and constant a pattern as in my own case. In my own case the first and last only occur by way of the intermediate link of feelings.

I thus conclude that an intermediate link, either the same or different to that in my case, must be present in others. By assuming the intermediate link to be the same, I bring others under the same generalisations that apply in my case. I thus conclude they have minds.

There are two problems with this argument. First, the argument does not claim to prove the certain existence of other minds, but rather claims to show the high probability of the existence of other minds. But if one considers that the number of instances I observe in which only the first and the last parts of the three-link pattern of events occur (in the numerous people around me) is far greater than the number of instances in which all three parts occur (in my own case), then it would seem less probable that the intermediate link occurring is the rule.

The second problem arising out of this argument is that of what bodies in one's environment one is referring to when inferring that they have minds. Mill talks about the 'walking and speaking figures'. If by this he means people, he has assumed what he effects to prove, because part of what we mean by people is that those people have thoughts and sensations. We already assume, by talking about people, that they have minds.

P.F.Strawson[22] supplements this second argument against the inference by analogy position by arguing that it makes no sense to argue 'from my own case' to conclusions about how to ascribe mental phenomena to other cases, because in ascribing the phenomena to my own case intelligibly, I must necessarily know how to ascribe them to at least some other case. In other words, one needs to know the rules of ascription of mental phenomena before one can appropriately ascribe them. These rules are de-

rived from an understanding of the ascription of mental phenomena in at least one other case - that of another human being. Again then, the argument assumes what it effects to prove.

The question as to whether other people have minds or not, concludes Malcolm, is not a meaningful question.

4- What are the consequences?

Descartes' viewpoint implies not only that a human mind could exist without corporeal embodiment, but that it could exist in a non-human body. There would be no logical limits to the nature of this body and any correlations between the states of the mind and the condition of the body would be a contingent matter. In other words, there are no conceptual links between the contents of a mind and the states of its body. 'It would not be part of the meaning of a mind's feeling anger or pain that its body was disposed thus and so.'[23]

Let us assume for the moment the assumption arising out of this view and the inference by analogy argument that there is a conceptual gap between the mental and physical, that our understanding of mental concepts is logically separate from our knowledge of the physical state or circumstances. I can thus observe anger in myself, but can I observe it in other bodies? One would want to say that it can be observed in other people, but not in inanimate bodies. But the conceptual gap between mental and physical reduces the nature of the body to irrelevance. I therefore cannot attribute anger to anything but myself.

Putting aside the above assumption, it is clear that we attribute things such as anger to people and not to inanimate objects, both because it does not have meaning to attribute anger (or pain etc.) to inanimate objects and because we know what it

means to have pain or be angry only by reference to human states.[24]

Descartes' viewpoint, if taken to its logical conclusion, leads to solipsism, the view that the individual can have certainty only about his own thoughts and that he has access to anything else only via his own thoughts. Further, solipsism involves the belief that it is not meaningful to suppose that there are thoughts or experiences other than the solipsist's own. This view is clearly unacceptable.

5- One objection to this conclusion is that one can in fact imagine a rock or chair speaking or thinking, as they are seen to do in cartoons. But, as Wittgenstein points out,[25] this can only be achieved by attributing human features such as a mouth, voice-box or mind to the object. 'Only of a living human being and that which resembles (behaves like) a living human being can one say: it has sensations; it sees; is blind; hears; is deaf; is conscious or unconscious.'[26]

Further, if one considers notions such as 'willingly', 'reluctantly' etc., then it is clear that we would not know how to tell if a tree, for instance, waved its branches reluctantly, for we do not know what it might mean for a tree to act out reluctance. A person, however, can act out reluctance. Notions such as reluctance mean what they do with reference to persons and their meaning is thus derived from the nature of persons, making it meaningless to apply them to anything other than persons. Mental terms of this type can only be applied to persons.

The living human being who thinks, feels and perceives is thus our yardstick for determining thought, feeling and perception themselves and it would make no sense to discard our standard in order to determine the nature of existence of that yard-

stick itself.

6- It is further necessary to show that introspection is not tne way concepts are acquired. This Wittgenstein does in his Philosophical Investigations.

He looks at what happens when a particular mental phenomenon occurs. Suddenly remembering something occurs at a particular moment in time. If introspection is the way we learn what memory is, then we could identify the event of memory that occurred at that moment. But in fact, while we can identify accompanying phenomena such as a sudden feeling of elation and we can see that this occurence may or may not be an actual instance of memory and we can identify different prompts to memory in different instances, we are unable to identify an occurence 'memory' over and above these accompanying phenomena.

Further, in a particular conversational situation, one does not have time to introspectively reflect on what one will say next, in most cases. Introspection is in fact an unusual state of consciousness, rather than being the norm.

Our inability to identify an occurence 'memory' over and above accompanying phenomena, the lack of time for introspection in ordinary conversation and the observation that introspection is an unusual state of consciousness lead Wittgenstein to conclude that we cannot acquire concepts by introspection.

7- This argument can be countered by referring to those mental phenomena which can be identified over and above their accompanying phenomena by introspection.

Bodily sensations such as pain, though also having accompanying phenomena, can be identified in some 'concrete' way. Locke's belief in the acquisition of concepts by introspection can thus apply to these mental phenomena at least and they may indeed be

seen as the simple ideas that combine to form complex ideas.

The only disagreement with Locke would be with regard to the notion that 'memory', 'knowledge' etc. are 'simple ideas of reflection';[27] but the origin of concepts, as a whole, would be from introspection.

8- Wittgenstein thus offers a different argument.

Locke and Hume see concepts as derived from experience. The experience of the colour red, for example, gives us the concept 'red', which will serve in future as the pattern, by comparison with which we can identify an instance of redness. We acquire concepts of mental phenomena such as 'pain' in the same way. Once acquired, the concepts are then named.

But what ensures the consistent acquisition or application of these concepts? Wittgenstein[28] asks us to consider the acquisition of the concept 'leaf'. We obviously do not need to experience every instance of a leaf in order to acquire the concept 'leaf', otherwise no-one would have the concept at all. What shape does our mental image of 'leaf' have? And what shade of green is it? What of brown leaves? The only solution is to say that we acquire the concept of a schematic leaf of a general leaf colour. The same applies to concepts of 'pain', 'red', etc.

But surely if the acquisition and application of concepts is so diverse that one must perforce acquire these mental images in schematic or generalised form, then we still need to know how to apply the schema. One thus needs a second-order pattern for showing how to apply each schematic image. But we still need to know how to apply this second-order pattern. One thus needs a third-order pattern for showing how to apply each second-order pattern. And so on, ad infinitum, generating an in-

similar regions of patterns. We must therefore conclude that first-order images are not enough to explain the acquisition of concepts adequately.

Patterns or copies derived from experience are thus neither necessary nor sufficient for understanding a concept.

So how then do I know what pain, for instance, is? We have individual experiences of pain, but we cannot define it or say what is common to various kinds of pain.[29]

One may say that for someone to understand the concept 'pain', he should be able correctly to say when he does and does not feel pain, that he should be able to recognise the behaviour and consequences accompanying pain in others and he should have a certain attitude towards the suffering of others. (Wittgenstein's language as use thesis).

One may say that a fourth requirement is that the person should have experienced pain in order to know the concept. Malcolm disputes this fourth requirement by postulating a man who has never felt pain, yet who can correctly say (when he is pricked for instance) that he does not feel pain, who can inflict pain in anger, who can recognise instances of pain in others and show the appropriate compassion. In other words, a man who can <u>use</u> 'pain' correctly.

There is a strong indication that this man understands the concept 'pain' to the same extent that someone who has never been in Brazil understands the sentence, 'I am in Brazil'. This is further ellucidated by comparing the pain-less man with a blind man. While the blind man can have an extensive knowledge about colours, he is unable to recognise a colour in front of him because of his inability to see.

The pain-less man, on the other hand, not only has an exten-

[illegible]ive understanding of pain (if [illegible] mentioned under 10-), but he also has the ability to [illegible] and appropriately react to it.

The suggestion here is that we explicate the notion of understanding a concept in terms of abilities - what a man can do.

12- The main objection to saying that the pain-less man has the concept 'pain', is that he cannot give himself an inner ostensive definition of it, but only understand the meaning of the word in terms of certain behaviour in certain circumstances. It gives knowledge of, not about.[30] (See also Gilbert Ryle).[31]

But we have seen that we have no way of knowing that what I call pain is what others call pain, taking the private nature of defining act. Inner ostensive definition does not provide us with the agreed meaning of the word 'pain' in the English language.

Further, I would have no way of knowing that that to which I was applying the term 'pain' in one instance was the same as that in another instance. The only way I can know is by applying criteria of identity bound up in the word 'pain' itself. The meaning of the word thus guides its application, quite the converse of the labelling notion bound up with inner ostensive definition.

Inner ostensive definition is thus empty and meaningless.

13- In rejecting inner ostensive definition as the source of concepts and recognising that the only way that I can know that I am applying a concept consistently is by applying the criteria of identity bound up in the word, I am endorsing Wittgenstein's remark, 'You learned the concept "pain" when you learned language."[32]

14- There are two major conclusions to be drawn from the above.

If it only makes sense to attribute mental concepts to a living human being (see 4- and 5- above) and in particular, in the context of the actions of a living human being (see 5-), then we must conclude that mind cannot exist and be provided with concepts in isolation from a living human body.

Further, if we learn concepts when we learn language (see especially 13- above) and language is an attribute of a society into which we are born (i.e. it precedes us) and is by its nature a social phenomenon, then we must conclude that mind cannot exist and be provided with concepts in isolation from a community/society of living human beings.

A number of other theorists have argued against mind/body dualism in various ways. I will now proceed to briefly outline the arguments of three of these; Gilbert Ryle,[33] Keith Campbell[34] and D.M.Armstrong.[35] The last of these is the most interesting to compare with Malcolm, as he argues from a materialist point of view. I will thus devote more space to Armstrong than to either Ryle or Campbell.

Ryle saw Descartes as being in the following dilemma. On the one hand he was faced with the evidence of Galileo's methods which claimed to be able to provide a mechanical theory that would explain everything occupying space, and on the other hand he was faced with the logical extension of that assumption, namely that man was simply a complex mechanical construction - nothing more. His response was to try and give an account of another set of laws, parallel to natural mechanical laws, but which dealt with another class of substance, the mind. For Ryle, Descartes error was in trying to apply terms and principles applicable to the material world to the sphere of the mental - he committed a category error which forced him to view mind as

a thing, although of a different category of substance to the material. In other words, he had to include a spiritual realm to make his enterprise meaningful.

Keith Campbell supplements the argument about category error in the following way:[36] Dualist positions rest on four incompatible assumptions, argues Campbell - 1) The human body is a material thing, 2) The human mind is a spiritual thing, 3) Mind and body interact, 4) Spirit and matter do not interact. The only alternative is Parallelism, either in the form where mental and physical events are seen as synchronised but unconnected or in the Epiphenomenalist form which sees the mental as effected by the physical, but not vice versa. The problem with the former is that it presents us with a new and more massive problem than that which it seeks to solve, that of what could possibly cause mental events, if there is no connection (causally) with body. The second form of Parallelism is problematic in that it makes it impossible for anyone to act on their feelings, decisions etc. - an unacceptable consequence.

D.M.Armstrong divides dualism into two categories[37]: the 'bundle' dualism of Hume (that characterises mind as a temporal series of non-physical items - 'perceptions' or 'experiences' somehow linked to a particular body) and Cartesian dualism (that characterises mind as a spiritual substance linked to a body, a physical substance, though not necessarily so).

The main problem with 'bundle' dualism, says Armstrong, is that there is no uniting principle according to which the non-physical items can be grouped together in order to classify them as mind. Hume himself suggested 'resemblance' and 'causation'. But it is quite possible to have mental experiences that resemble nothing experienced previously and it is possible for

two people to have experiences which closely resemble each other - do we say these are the experiences of one mind? So too with causation. Many experiences are causally related to past experiences, but it is quite possible to have an experience quite unconnected to previous ones, one caused by external factors.

Another suggested uniting principle is 'memory', but then if an experience is irrecoverably forgotten, we must necessarily say it did not form part of the chain of mental experiences of that mind - a clearly false position.

A fourth suggestion has been that it is the temporal continuity of the experiences that provides a uniting principle, but Armstrong rejects this as simply a restatement of the problem. We wish to know what may <u>constitute</u> that continuity.

The final possible uniting principle, according to Armstrong, is the possibility of the association of the chain of non-physical experiences with a particular body. That is, the body is the uniting factor. The problem here is that this necessary association with the body precludes the possibility of disembodied existence, which for Armstrong, must remain a philosophical possibility.

The second area which Armstrong attacks is Hume's notion of the chain of experiences being able to be broken down into individual items or experiences. In other words, says Armstrong, it is possible for a 'twinge of pain' to exist independently. But this is absurd, for a 'twinge of pain' presupposes all sorts of other things such as that someone must be <u>having</u> the twinge, that it is only a twinge of <u>pain</u> by virtue of its association with other pains, etc.

While Cartesian dualism[38] has distinct advantages over 'bundle'

dualism, in that it has a uniting principle for the mental - that it is spiritual in nature - it is this same uniting principle that damns Cartesian dualism. Nothing can be said about the nature of the spiritual except that it is the common denominator for mental phenomena. To Armstrong it thus seems like a convenient creation for ridding the dualist of his problems. Armstrong thus rejects the spiritual description of mind as empty.

Armstrong goes on to list a number of general problems for dualism[39], but I will not expand on these here, as I feel I have adequately covered his major arguments for the purposes of this report.

Briefly then, while Malcolm emphasises the role of the living human being and of the social, in the form of both language and action, to show the implausability of dualism, Ryle and Campbell appeal to category error and Armstrong appeals to the lack of a uniting principle, the impossibility of the individual existence of mental experiences and the emptyness of the notion of a spiritual substance.

D.M.Armstrong is important in another sense to Malcolm's argument, in that he claims, along with others,[40] that Malcolm (and Ryle) is arguing for a form of behaviourism when he appeals to what people <u>do</u> and <u>say</u> as being so important to determining whether they understand a concept or not. It is Ryle who provides a counter-argument.[41]

Ryle argues that the behaviourists look at behaviour and identify it with thought. Behaviour, for them, is reducible to movements, (I will deal with this in detail in section 3.). Malcolm, on the other hand, sees behaviour as action - the <u>physical display</u> of recognising, understanding, thinking, choos-

ing, etc. which are of another category, that is, not identifiable with behaviour, but apparent in the behaviour.

(d) Concluding remarks

In Malcolm's view, we have seen that mind/body dualism leads to the unacceptable solipsist position, if taken to its logical conclusion and that the notion, critical to this position, of asserting that concepts are acquired by inner ostensive definition, is meaningless. We must thus perforce reject mind/body dualism as a valid account of the nature of mind.

By rejecting mind/body dualism, we are lead to reject the attendant theory of the nature of knowledge. The idea that 'facts' exist 'out there in the world' and the related notion of objectivity must be discarded, as must the distinction between 'facts' (in the world) and 'ideas' (of the mind).

The implication for education is that the emphasis on the notion of objectivity which relies on a separation of mind and body (see p.10 - a notion of objectivity which sees facts as originating in the world and ideas as the true/objective or false perception of those independent facts) and the 'learning of facts' is unfounded. Similarly, 'objective', 'factual' examinations modelled on this view of the nature of mind are not tests of knowledge as they claim to be. The less formal distinctions between mental and physical training, the differing worth of mental and manual labour , as well as notions of education such as the 'bucket-filler' model mentioned earlier, must also be questioned.

Clearly we need a different conception of the nature of mind, one which includes the dependence of mind on the human body and its relationship with a community of living human beings. I will return to this in the conclusion of this report, but in

the meantime I will consider three alternative conceptions of the nature of mind that have been proposed: mind/brain identification; mind/behaviour identification and mind/structure identification.

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2. Mind/brain identification

(a) The origin and meaning of the concept

One type of reaction to the dualist notion of a separate mind and matter is to opt for a monism. There are three major types of monism: idealistic monism; 'neutral' monism and materialism.[1]

Idealistic monism takes many forms, seeing sensations, perceptions and mental processes as constituting the world, physical bodies and material processes as illusory appearances or matter as 'bundles of sensations' rather than illusion.

Another form of monism claims 'neutrality' between mind and matter, in which 'neutral' or 'pure' experience in certain relationships constitutes the physical and in others the mental.

I am not concerned in this report with either of these two types of monism, but will concentrate on materialism in two of its forms.

One variety of materialism is logical behaviourism which identifies mind and behaviour, translating statements of 'inner experience' into statements of observable behaviour. I will deal with this form in section 3.

The variety of materialism I will be dealing with here is 'scientific' materialism, which holds that everything in the world consists, in the final analysis, of the most fundamental elements of physics. This view is sometimes combined with behaviourism.

J.J.C.Smart is an exponent of this position.[2] He recognises the possible validity of describing anger, fear etc. as behaviour patterns, but also feels that this falls short of a complete description of mental experience, one which includes 'inner experience'.

Smart sees these 'inner experiences' as brain processes,

though he does at times concede that they may be brain processes.[3] It emerges from his work that he is not seeking to establish a logical relationship between experiences and brain processes in the sense that 'inner experiences' would be logically seen to be necessarily identical with brain processes, but rather he is attempting to establish the logical possibility that they might be so.[4] Therefore, if an 'inner experience' is a brain process. it is only contingently so.

It must be stressed that Smart is not trying to make statements about what we might mean when we report an 'inner experience' in ordinary speech, but rather to establish the possibility of the validity of a conception of mind which identifies mind with brain.

D.M.Armstrong[5] is another theorist who argues for mind/brain identification, claiming that the starting points for his theory can be found in the work of Smart and U.T.Place.[6] He describes his position as follows[7]:-

> 'It has been argued that mental states are states of the person defined solely in terms of causal relations, of a more or less complex sort, to the objects or situations that bring the mental states about and the physical behaviour that constitutes their "expression". In the same way, genes are described solely in terms of their causal relations to hereditary characteristics. (These hereditary characteristics could be said to be the "expressions" of the genes.) There is good theoretical (as opposed to observational) scientific evidence to identify genes with the DNA molecule at the centre of living cells. Assuming that our account of the con-

[illegible] mental occurrence is correct (Armstrong's [illegible]), is there not almost equally good evidence to identify mental occurences with physio-chemical states of the central nervous system?'

(b) The implications for education

There are two possible implications for education of holding to the mind/brain identity thesis. The first of these is that it becomes meaningless to talk about education and the second is that the meaning of education becomes modified to mean modification of the brain (by chemicals or other means).

In the conventional sense of what constitutes education, notions such as autonomy and intentionality play a crucial role. If, however, mind is seen as identical with the brain, then an educational occurence, which necessarily includes a change or development of the nature or degree of knowledge, which is of mind, will imply a physical modification of the brain. This precludes talk of things such as autonomy and intentionality unless their meaning is translated into descriptions of physical modification of the brain. But this changes their meaning. It is thus meaningless to speak about education in the conventional sense and hold to the mind/brain identity thesis.

This leaves us with the second possibility; a modified meaning of the term 'education'. The only way in which the term could be modified and still be compatible with this conception of the nature of mind, is by seeing the educative process as a process of brain modification, as I have already noted.

This could take a number of possible forms. The taking of a pill which contained the chemicals necessary to modify the brain in a certain way could be seen as an educational occurence. But I suggest that the mind/brain identity theorists, partic-

clearly because of their symmetr[illegible] degree of behaviourism, would opt for [illegible] ion, something like the following.

The light from an image in the world impinges on the eye, resulting in electrical impulses passing through the optical nerves to the brain, where a modification of nerve passage results. This occurence, in conjunction with similar occurences involving the many senses, togetner with the modifications going on in the brain, constitutes education. The educator must thus, in order to cause education to take place in the learner, create the appropriate environment, one which will modify the brain in the 'desired' way.

The main problem with this vie[illegible]s that it would be difficult to explain how the m[illegible]fication in the brain of the educator came about in order to make him want to or even know how to educate. It does not even make sense to talk about 'knowing'. What does it mean 'to know' if knowledge has been reduced to physical occurences in the brain? Notions like 'critical thought', 'knowledge', 'intentionality' and 'autonomy' no longer have meaning.

But we have returned to the same problem we encountered in the first possible implication for education of the mind/brain identity thesis. Clearly then, the mind/brain identity thesis precludes talk about education in any meaningful sense.

(c) Malcolm's objections to mind/brain identification

Malcolm argues against mind/brain identification in the following way:[8]

1- A contingent relationship between a thought, sensation etc. and some process in the brain, in their being identified with one another, implies that that identity should be able to b[illegible]

empirically proved or disproved.

Smart argues that the two are identical in the same way as a flash of lightning is identical with an electrical discharge.[9] U.T.Place agrees with him.[10] This means that what they are claiming is that thoughts, sensations etc. are identical with brain processes in the sense that they occur in the same place at the same time.[11]

In terms of empirical proof, clearly chemical, mechanical or electrical occurence inside the brain can be detected and measured. But how can one determine if the thought with which Smart sees that occurence as identical, had occurred inside the skull, at the same place as the brain process?

The only way in which this could be determined is by identifying the thought with the brain process, so that the detection of a brain process would indicate the occurence of a thought. But the identity of the two would no longer be contingent, because you would have adjusted the meaning of 'thought' to include its identity with a brain process.

Further, it clearly does not make sense to speak of the bodily location of a thought. This would imply that it was something that could occupy space in the body.[12] A bodily sensation may be said to have a bodily location, but this location is clearly not in the brain, but rather at the source of the sensation. A sensation may be said to occur in a particular space (a pain in my toe occurs within the space of my toe).

If the relationship of identity between mental states and brain processes cannot be empirically proved and it is clearly meaningless to speak about thoughts or sensations being located in the brain, then the conjecture that the two phenomena might prove to be contingently identical is meaningless.

2- Smart admits that his thesis of thought being located in the brain is incompatible with ordinary language,[13] but feels that it would be an easy accomplishment to adjust language in line with the thesis. But this would involve a conceptual adjustment, making the admission that as our concepts stand, the thesis has no meaning. It is thus not a logical possibility that the conjecture could be established as contingently true or false.
3- In addition to thinking that thoughts and experiences are brain processes, Smart proposes that the brain is that which has those thoughts and experiences. He postulates a human brain, kept alive in isolation from its former body and stimulated with electrodes.[14] That stimulation would get the brain to have the illusion of perceiving things, thinking things and experiencing things in its non-existent body. He concludes that the body is not essential for mental experiences and that it is the brain rather than the body that experiences these things.[15]

Smart is thus proposing that the human body is not essential for mental events and that it may turn out to be the brain rather than anything else that is the subject of experience.

If it is known that certain brain processes occur only when certain mental events occur and this hypothetical bodyless brain were to manifest a certain process in response to stimulation that is always associated with the hearing of a buzzing sound, it would still not logically follow that the person whose brain was being stimulated, in fact heard a buzzing sound. This is because it has only been assumed that mental events and brain processes are identical in a living person, not in some artificially stimulated portion of a dead body. 'Nothing was determined about the conditions under which brains hear buzzing sounds.'[16]

Further, if we imagine the brain of a person being removed and discarded, yet nevertheless continue to have a person who lives and thinks normally, then we will have shown the non-necessity of a brain for normal mental life. The point here is that concepts of the mental and concepts of inner physiology are not logically connected, so that hypothetical experiments and their hypothetical outcomes prove nothing in this case.

Also, bodily behaviour is crucial to our understanding and experience of the meaning of what people think, feel, see etc. (not in the behaviourist sense, but in the sense outlined on p.24). It is virtually impossible to describe what a person is thinking or feeling except by reference to their bodily attitude.

If we imagine Smart's bodyless brain again, but this time restored to the body of its owner after the artificial stimulation; if the owner reported having had certain experiences during the experiment, all that would have been established is that the artificial stimulation of the brain in isolation from the body produces the delusion that certain experiences have been had, in spite of their not having occurred and that to all intents and purposes, these delusions are thought by the subject to have occurred during a period of unconsciousness.

Clearly it is people and not brains that see, experience, think, display attitudes and so on. This is because it is people and not brains which are capable of engaging in the activities that make these concepts meaningful.

4- Finally, Smart speaks of 'inner experience' as that to which one has 'direct access'![17] Ironically, though he uses the term 'inner' here in the traditional figurative sense to mean private, in the light of his theory it perforce means direct access to brain processes. This we clearly do not have.

Smart's theory is thus in direct conflict with the above philosophical inclination from which it arises. If he retains the theory and discards the inclination, then he discards his objection to logical behaviourism, the subject of my next section.

At this stage I feel it would be useful to look briefly at an alternative argument used by K.Campbell[18] and at the reply D.M.Armstrong gives to the kind of argument Malcolm employs.[19]

Firstly, Campbell's argument. He outlines in some depth what is entailed in Central-State Materialism and the possible implications and objections. He admits that he was drawn to this position until he realised that the following argument could be brought to bear against it. If we imagine a camera which can internally process its own film, it does not stretch the imagination too far to compare that camera's 'perceiving' a green tree with a man perceiving the same tree. On the mind/brain identity thesis position, there is no real difference. Yet we would not want to say that the camera's 'perception' of the tree was in fact perception at all, in the human sense.

The Central-State Materialist can object that the only difference between the camera and a man is at the level of complexity. But, replies Campbell, if we postulate an imitation man, as complex in his perceptive abilities as man, if all he does is perceive in the way the Central-State Materialist supposes, then a vital element of human experience is still absent. If, for example, the imitation man and a real man both burnt their fingers, the imitation man would perceive that his fingers were burnt, but nothing more, while the real man would not only perceive this, but he would experience it as suffering, i.e. there

is a non-physical dimension to the experience of the real man which cannot be explained by mind/brain identity theory.

Finally, what does a mind/brain identification theorist like D.M.Armstrong reply to the objections of the sort Malcolm has levelled at his position? He calls them 'intellectually frivolous'.[20] At first this may seem to be a rather crude way of dismissing serious objections to one's theoretical position, but I think the reason lies in that Armstrong has characterised the problem in terms of his materialist position. He is concerned with the material world. Mind must be reducible to the material to be dealt with in a materialist theory such as his. Therefore, objections at the non-material level are seen as irrelevant, not part of the problem and thus 'intellectually frivolous'.

It is here that I should mention again, as I did in the introduction to this report, that there is a close methodological similarity between Empirical Theory and mind/brain identification. Both see the empirically-observable, material world as their object of enquiry, emphasising causal links in the material world and then extending these emphases to other areas of enquiry in which it is often inappropriate to attempt to apply them. It is thus not unlikely that mind/brain identity theory has its roots in an Empirical Theory approach. (As opposed to the postulation that I made in section 1 that mind/body dualism may have provided the birthplace for the epistemology of Empirical Theory).

(d) Concluding remarks

In Malcolm's view, we have seen that mind/brain identity theory is an unacceptable conception of mind because it is not logically meaningful to equate concepts of different classes with each other (see also Ryle on category mistakes[21]). While the

brain is a necessary condition for mind by virtue of the role it plays in making a person a living human being, mind is of a different category to the brain. Mind/brain identity theory must be rejected as a valid conception of mind.

Along with mind/brain identity theory, we must reject the implicit theory of knowledge that reduces knowledge to brain states and the distorted notion of education, which in fact is not education at all.

Having rejected the materialist notion of mind/brain identity, we must now consider the related logical behaviourist position which identifies mind with behaviour.

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3. Mind/behaviour identification

(a) The origin and meaning of the concept

In section 2.(a) I noted that of the various forms of monism that have been proposed as alternatives to mind/body dualism, I would concentrate on various forms of materialism. I dealt with mind/brain identification in section 2 and I will deal in this section with logical behaviourism, which identifies mind and behaviour. In section 4 I will deal with the related notion in cognitive psychology and linguistics that behavioural and linguistic skills can be explained in terms of structure - mind/structure identification.

Logical behaviourism involves the notion that the meaning of mental terms (thinking, anger, intention etc.) can be explained wholly in terms of bodily behaviour and the circumstances in which it occurs [1]. This entails the view that a statement about other minds or one's own mind has the same content as a statement of physical condition [2]. All mental statements are thus seen to be translatable into statements of physical occurence.

B.F.Skinner[3] explains this by referring to statements of inner experience as 'explanatory fictions'. For example, he says that to say that someone is thirsty does not explain anything, it merely indicates a tendency to drink due to a state of thirst. He prefers[4] to practice his form of psychology with reference to outward behaviour and to elements in people's environments - conditioning, expectation of reward, etc. In this Skinner differs slightly from the early logical behaviourists such as Carnap[5], in that they laid emphasis on physiological states. The principle, however, remains the same.

There are two main motivations for adopting the logical behaviourist position. The first of these is the belief, held by

Carnap and other members of the Vienna Circle[6], in the methodological supremacy of the Verification Principle. Only that which could be empirically verified, i.e. external behaviour or physiological state, could be accepted as constituting experience. There is in other words a link with Empirical Theory here in the direct sense, (see footnote p.2).

The second motivation for adopting the behaviourist position is that which arises out of the rejection of mind/body dualism as leading to solipsism. If a mental term refers to something non-physical, it follows that that term is only meaningful to the person who uses it[7]. This leads to an attempt to define mental terms in an unambiguous way - in terms of the observable, behaviour.

Logical behaviourism then involves the identification of mind with behaviour as a reaction both to the rejection of mind/body dualism and to the acceptance of the Verification Principle. Besides Carnap and Skinner, this approach can be found in the work of theorists such as Rogers and Thorndike.

(b) <u>The implications for education</u>

The implications for education of the mind/behaviour identification thesis involve the translation of terms such as 'education' itself, 'knowledge' and 'learning' into statements of behavioural objective or description.

Education becomes the process by which behaviour is modified. This can be done in two ways. If one uses the logical behaviourist framework of Carnap, then a physiological modification can be seen as the way in which behaviour should be modified. This shows a close relationship with the implications of mind/brain identification mentioned in section 2.

If, however, one opts for Skinner's emphasis, then it is

through modification of the environment that the behaviour of a person could be modified. This would involve conditioning, using positive (reward) and negative (punishment) conditioning to shape behaviour.

It follows from the above that teaching would be seen as the process of environment modification for the purposes of changing behaviour and that knowledge would be seen as constituted by behaviour. Something would be said to have been learnt when the 'appropriate' behaviour occurred.

A parallel may be drawn here between the educative process and the process of training an animal such as a dog. By rewarding the dog with food for approximating to the predetermined 'appropriate' behaviour and giving it a sharp rap on the nose when it behaved 'inappropriately', the dog's behaviour would eventually be shaped to coincide with that desired by the trainer. In much the same way, a person could be given praise or other reward for approximating to the behaviour a teacher desires and punished for deviating from this, thus shaping the person's behaviour 'appropriately'.

It is important here that it is necessary for the teacher's behavioural objective to be strictly behavioural. Differences in the degree of understanding of the 'learners' or even radical differences in their motivation would be of no consequence. The behaviourist could object to this by saying that it is precisely these mental terms or 'explanatory fictions' which must be discarded in favour of the behavioural version. However, there seem to me to be problems with this notion when it is considered that people having the same behaviour can see those behaviours differently or interpret them differently.

Consider two people, both of which have learnt how to operate

[illegible] for the [illegible], that they have both learnt to operate a lathe if what is important and they have both learnt the same thing. But one of these individuals thinks that the operation of a lathe is a recreational activity, designed to amuse the operator and not, as the other learner thinks, to produce a smoothly rounded bit of wood or metal. Surely there is something lacking in the learning of the person who sees lathe-operating as a recreational activity only. He has failed to come to an understanding of the social/pragmatic function of the lathe and thus of his role as its operator - enjoyment or non-enjoyment is a secondary concern perhaps. Yet for the behaviourist, both individuals have learnt the same thing, because they are able to produce the correct observable behaviour.

Let us put aside this problem for the moment and turn to Norman Malcolm's critique of the mind/behaviour identification position, to see if it is not perhaps with the logical behaviourist thesis that the problem lies.

(c) Malcolm's objections to mind/behaviour identification

Norman Malcolm argues against this position as follows[9,10]:

1- While we are forced to rely on physical actions and manifestations in other people in order to ascribe mental experiences to them appropriately, (e.g. his face contorted with rage), it seems absurd to say that one ascribes mental experiences to oneself in the same way. It would not make sense to note that one was angry on account of observing one's fingers trembling.

B.F.Skinner attempts to overcome this objection[11] by saying that a person becomes conditioned to recognising private stimuli on their own after repeatedly observing public manifestations, thus [illegible] private stimuli with the appropriate

behaviour.

This is however the equivalent of saying, 'I know that I am about to leave the room because I observe the signs in myself which usually precede leaving the room; I just picked up my coat.' This is obviously an inappropriate understanding of one aspect of the use of mental concepts, because the attribution of mental concepts to oneself is not merely a way of saying that certain behaviours have been observed in oneself, but they can have the function of describing mental experience. For example, the statement, 'I have just thought of something' can legitimately be seen as a description of a mental experience, while to say that it indicates that one has just observed certain behaviours in oneself which more fundamentally describe that experience than the attribution of a mental concept, is to misconstrue the meaning of that statement.

2- This assymetrical use of the criteria in ascribing mental concepts to myself and to others suggests that there may be a difference in meaning between the two ascriptions; that in saying,'He is afraid', I am referring to his behaviour, but in saying,'I am afraid', I am referring to fear itself. This is not so.

In experiencing fear, pain etc. I react by reporting my experience and behaving in the appropriate way, even though it is the fear or pain to which I am referring in reporting my experience. Similarly, in ascribing mental concepts to others, I am extrapolating from their behaviour (similar to mine) to the experience which prompts it - I am referring to the same thing. In other words, I have the same concept of pain (for instance) when I ascribe it to myself or to others.

3- Carnap outlines the logical behaviourist view of interpre-

tation of behaviour as follows:[12]

'The statements of an experimental subject are not, in principle, to be interpreted differently from his other voluntary or involuntary movements - though his speech movements may, under favourable circumstances, be regarded as especially informative. Again, the movement of the speech organs and of other parts of the body of an experimental subject are not, in principle, to be interpreted differently from the movements of any other animal - though the former may, under favourable circumstances, be more valuable in the construction of general sentences. The movements of an animal are not, again, in principle, to be interpreted any differently from those of a volt-meter - though under favourable circumstances, animal movements may serve scientific purposes in more ways than do the movements of a volt-meter. Finally, the movements of a volt-meter are not, in principle, to be interpreted differently from the movements of a raindrop - though the former may offer more opportunities for drawing inferences to other occurences than do the latter. In all these cases, the issue is basically the same: from a specific physical sentence, other sentences are inferred by a causal argument, i.e. with the help of general physical formulae - the so-called natural laws. The examples differ only in the degree of fruitfulness of their premises.'

Malcolm asks us to imagine a man called Peterson, who is a natural behaviourist; who sees other people in the way Carnap describes above. This man will not see facial expressions, but rather, changes in the geometrical and spacial arrangement of

surfaces. He will not hear speech and its meanings, but rather, changes in pitch and tone.

This can be compared to the idea that it is not the objects we see in our environment, but planes of colours, consisting of light waves of various frequencies. It would be illogical to infer from this that there are no objects, only planes of colour. The physics of perception is merely the vehicle of that perception and our picture of the world consists not in our perception, but in our understanding of what we perceive.

Petersen, in viewing people purely in terms of behaviours, or rather, movements, does not see <u>people</u> as we know them. He has a different notion of what it is that constitutes a person. He has no understanding of what he perceives except in terms of the physics of what he perceives, while we have an understanding of what we perceive in terms of what makes people people.

As Wittgenstein stresses, it is the ascription of thoughts to people as living human beings that makes them what they are, 'a corpse seems to us quite inaccessible to pain. Our attitude to the living is not the same as to the dead. All our reactions are different.'[13]

Clearly, logical behaviourism can be objected to in two ways: the logical behaviourist has misunderstood what it <u>means</u> to ascribe mental concepts to oneself, on the one hand, and has postulated an obviously false view of what we <u>mean</u> when we ascribe those concepts to someone else. Logical behaviourism, the view that mind and behaviour can be identified with each other, is thus an unacceptable alternative to mind/body dualism, in Malcolm's view.

It may be useful here to look briefly at what some other theorists have argued against the behaviourist position.

Gilbert Ryle[14] sees behaviourism as unacceptable because of its dependence on mechanist or para-mechanist theories. However, he sees its emergence as useful for the investigation it has provoked regarding what in fact we mean when we use mental terms.

D.M.Armstrong[15] sees the problem of benaviourism in somewhat broader terms, interpreting the positions of Ryle, Wittgenstein and thus also Malcolm as behaviourist, along with the traditional logical behaviourist position. He sees the value of what he calls behaviourism in wittgenstein's appeal to behaviour as that to which we have access in other people in order to attribute mental concepts to them.[16]

He attacks the behaviourist position on the grounds that it is unable to explain 'inner experience'.[17] Take for example, he suggests, the statement by someone that he has just worked out the solution to a mathematical problem 'in his head'. The behaviours that accompany the 'inner' solving of the problem are clearly not the solving process itself. Even if they were, we would still have to explain how it was that the person had the experience of solving the problem as if it were 'inner'. Armstrong concludes that while behaviourism (in the sense he uses it) has value in the wittgensteinian sense, certain categories of experience cannot be explained by reference to behaviour. behaviour is thus not sufficient to explain mind.

Armstrong's inclusion of the positions of Ryle, Wittgenstein and, by implication, Malcolm under the heading of behaviourism was briefly dealt with earlier (p.24), but warrants further comment here. Unlike the logical behaviourists who identify mind with behaviour, Wittgenstein *et al* refer to behaviour as that which is generally associated with other, non-accessible

experiences, experiences of another category than the physical, mental experience. In other words, where the logical behaviourist sees the behaviour of someone in pain as constituting that pain, Wittgenstein et al see that behaviour as indicating the experience of something other than the behaviour, i.e. the pain itself. A less concrete example could be Armstrong's of the person who works out a mathematical solution. While the logical behaviourist must appeal to observable behaviour as that which constitutes the solving, Wittgenstein et al can say that when the person tells us he has solved the problem, he means that he has had a mental experience of the problem-solving kind and we take him to mean just that.

From the above, it is clear that Wittgenstein et al's position not only recognises that behaviour does not constitute mind and that behaviour is insufficient for explaining mind, but also that their position satisfies the other requirement Armstrong mentions - that 'inner experience' must be explainable. It seems then, that Armstrong has misunderstood the positions adopted by theorists like Ryle and Wittgenstein and therefore inappropriately labelled them as behaviourist.

(d) Concluding remarks

In Malcolm's view, we have seen that mind/behaviour identification theory is an unacceptable alternative to mind/body dualism because of its basic misunderstanding of what it means both to ascribe mental concepts to oneself and to others. It must thus be rejected.

Along with mind/behaviour identification, we must reject the notion that education consists in the modification of behaviour. The problem mentioned in part (b) of this section with regard to the way in which the learner understands his learnt

behaviour can be seen to be directly related to the grounds on which we are forced to reject logical behaviourism itself - that there is a basic misunderstanding about what it means to understand etc. We are forced to reject the behaviourist notions of knowledge (as constituted by behaviour), learning (as only a change or changes in behaviour) and teaching (as the manipulation of environmental stimuli for the modification or shaping of behaviour).

I feel it is of particular importance here to emphasise that one of the consequences of this rejection is the rejection of the use of behavioural objectives by the teacher in designing teaching strategies. This aspect of the educational approach arising out of logical behaviourism is much emphasised in all teacher-training courses in South Africa and one of the criteria on which teachers are judged by school inspectors is their behavioural objectives. If we reject logical behaviourism, we must reject behavioural objectives too.

Having rejected the materialist notion of mind/behaviour identification, we must consider what alternatives are available. I will move on to an assessment of another influentual conception of the nature of mind, one related to mind/behaviour identification - mind/structure identification.

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1. N.Malcolm, Problems of Mind, 1971, George Allen and Unwin, London, p.80.
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11. B.F.Skinner, Science and Human Behaviour, p.262.

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14. G.Ryle, The Concept of Mind, 1949, Hutchinson, p.309.

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4. Mind/structure identification

(a) The origin and meaning of the concept

There are two forms in which this conception of the nature of mind is found. The first of these is the common layman's belief that in remembering or recognising something, there is a process of memory or recognition.[1] The second is the more formal notion found in the work of both Piaget and Chomsky that there is 'in' a human being 'a system of rules', 'an abstract structure' or a 'mechanism';[2] some sort of guiding process that enables people to apply language and concepts appropriately.

In his paper, 'The myth of cognitive processes and structures',[3] Norman Malcolm includes the following quotations from Chomsky's work to illustrate:-

> 'The person who has acquired knowledge of language has internalised a system of rules that relate sound and meaning in a particular way. The linguist constructing a grammar of a language is in effect proposing a hypothesis concerning this internalised system.'[4]
>
> 'It seems clear that we must regard linguistic competence - knowledge of a language - as an abstract system underlying behaviour, a system constituted by rules that interact to determine the form and intrinsic meaning of a potentially infinite number of sentences.'[5]
>
> 'It is reasonable to regard the grammar of a language L ideally as a mechanism that provides an enumeration of the sentences of L in something like the way in which a deductive theory gives an enumeration of a set of theorems.'[6]
>
> 'It appears that we recognise a new item as a sentence not because it matches some familiar item in any simple

way, but because it is generated by the grammar that each individual has somehow and in some form internalised. And we understand a new sentence, in part, because we are somehow capable of determining the process by which this sentence is derived in this grammar.'[7]

'The child who learns a language has in some sense constructed the grammar for himself on the basis of his observation of sentences and non-sentences (i.e. correction by the verbal community).'[8]

In other words, mind/structure identification involves either the notion that there must be some structured occurence in the mind for thought to take place or the more formal notion that there is an internal guiding system of rules by reference to which a person uses concepts or language.

(b) The implications for education

The central implication for education of the mind/structure identification thesis, as I see it, is that education will be seen as consisting in the exposure of individuals to an appropriate environment. The appropriate environment would be determined by two things: the maturity of the learner in terms of the development or application of internal structures and the instance in the environment of those elements suitable for the application of the appropriate inner structures. In other words, the inner system of rules must have reached a degree of complexity suitable for the exposure of the individual to more complex structures in the form of a controlled environment - that is, an environment containing elements conducive to the internalisation of those rules.

At this point it is necessary to note that both Piaget and Chomsky employ the notion of inmateness, though in slightly

different ways.

Piaget sees the individual as passing through a series of sequential developmental stages[9], unvarying in their sequence. Each of these stages is characterised by a structure or mental process, which determines what mental operations the individual is capable of in that stage. The full realisation of these abilities as dictated by internal structures is dependent on two things: biological maturation and the richness of the appropriate stimuli in the environment. Thus, in the Piagetian framework, education consists in creating the environment which contains those elements appropriate to the greatest possible development of the structures characteristic of the developmental stage in which the learner is.

Chomsky has a similar notion,[10] though he sees the structures of language as being present in their complete form at birth. As the individual is exposed to more and more language, the structure is filled with the appropriate words and then applied by the individual. In other words, for Chomsky, it is the richness and degree of language to which the learner is exposed that determines the degree to which they are able to internalise and apply the elements of language and grammar. For Chomsky, the emphasis is thus also on the manipulation of the environment.

In other words, mind/structure identification theory implies that education consists in the exposure of the learner to the appropriate environment, in order for learning to take place.

(c) Malcolm's objections to mind/structure identification

Norman Malcolm argues against the less-formal notion of mental processes in the following way:[11]

1- What is the process of remembering? If one imagines a situa-

[illegible] complicated [illegible], it is easy to recognise [illegible] trying to remember; thinking of when you last [illegible] looking for, where you took it etc. But can [illegible] identify what process occurs at the moment when you remember? One can identify a feeling of relief or elation and perhaps certain physical reactions such as the relaxing of bodily tension, but not a process that can be described as memory. As Wittgenstein says, 'we are trying to get hold of a mental process...which seems to be hidden behind those coarser and therefore more readily visible accompaniments.'[12] The same applies to the 'process of recognition', the 'process of understanding' etc.

It becomes clear that the physical and other accompaniments of mental phenomena have lead people to imagine that these consist in processes, whereas in fact no process can be identified.

Malcolm goes on to deal with the more formal notion as follows:[13]

'The philosophical assumption behind the postulation of an internalised structure is that in speaking or thinking, a person must be guided. Chomsky claims that a person knows how to use language because of the presence in him of a guiding system of rules.

Malcolm sees this notion as derived from the traditional theory of Ideas. A child is taught the word 'dog' by way of a few examples. He then applies that word correctly to all new instances of dogs, in spite of their vast differences in size, colour etc. The traditional theory of Ideas says that he does this by forming an ideal Idea of a dog from his original examples, then using this Idea as an object of comparison in new encounters with animals to ascertain whether this is a dog or not. This notion can be found in Locke.[14]

tion where one has misplaced something, it is easy to recall a process of trying to remember; thinking of when you last used what you are looking for, where you took it etc. But can one identify what process occurs at the moment when you remember? One can identify a feeling of relief or elation and perhaps certain physical reactions such as the relaxing of bodily tension, but not a process that can be described as memory. As Wittgenstein says, 'we are trying to get hold of a mental process...which seems to be hidden behind those coarser and therefore more readily visible accompaniments.'[12] The same applies to the 'process of recognition', the 'process of understanding' etc.

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Chomsky's notion of structures is similar, seeing these as a set of axioms from which one deduces the sentences one utters.

2- The first objection to the idea of structures is that if language can be seen as governed by structures, then why can we not say that all activities are rule-governed? But it is difficult to conceive of walking down the street or eating breakfast as generated by a system of rules.

Further, this system of rules must be the ideal with which one's actual speech or action is compared. But does it make sense that my eating of breakfast is in such and such a way less ideal than that in my internalised structures? Or that my speech differs in such and such a way from ideal speech?

Wittgenstein offers the following analogy,[15] 'The regulation of traffic in the streets permits and forbids certain actions on the part of drivers and pedestrians; but it does not attempt to guide the totality of their movements by prescription. And it would be senseless to talk of an "ideal" ordering of traffic which should do that; in the first place we should have no idea of what to imagine as this ideal. If someone wants to make traffic regulations stricter on some point or other, that does not mean that he wants to approximate to such an ideal.'

In other words, it is not certain that it makes sense to speak of an internal ideal system of rules with regard to language or other behaviour.

3- The second objection to the notion of mind/structure identification is that the postulation of these structures leads to the postulation of an infinite regress of structures.

Malcolm illustrates this with reference to the notion of Idea. If we say that someone knows that a creature he sees is a dog by seeing that the creature fits his Idea of a dog, how

does he know that this is an instance of fitting? Surely he needs a second-order idea to serve as his model of fitting. But then a third-order Idea is necessary to guide his use of the model of fitting. Eventually an infinite regress has been generated and nothing explained. For Wittgenstein, the notion of thought as rule-governed is necessary, but those rules must be neither ideal nor originate internally to the individual. For him the rules are social and, most importantly, they are neither necessary nor sufficient for explaining mental phenomena such as thought.

This criticism of the notion of Ideas can be equally effectively applied to the notion of structures. Malcolm thus rejects mind/structure identification as an alternative conception of the nature of mind.

(d) Concluding remarks

In Malcolm's view then, mind/structure identification is a logically unacceptable conception of the nature of mind, both because it is uncertain whether we can know what it means to speak of an internal ideal system of rules and because the postulation of guiding structures leads to the generation of an infinite regress of structures.

If we reject the notion of mental structures as unacceptable, we must perforce reject the implications it has for education; that education consists in the exposure of individuals to the 'appropriate' environment as determined by biological maturity and the occurence in that environment of elements appropriate to the structures of that stage.

I must note here that there has been considerable emphasis in education in South Africa on the idea of education as the creation of the appropriate environment. There seems to be a

widespread 'liberal' belief that this in some way allows the child to develop 'naturally'. I will not attempt to enter the debate surrounding naturalism here, except to say that there does seem to be a close connection between the implications of mind/structure identification and the naturalist position. Further, the theories of Piaget and Chomsky are closely allied to these tendencies in education and linguistic education respectively.

In the previous sections I have pointed out the similarities betwen the conception of mind and its implications and the principles and methodology of Empirical Theory. In the case of mind/structure identification, I believe there is again a similarity to be noted. Empirical Theory is noted for its extension of the causal laws of the natural world to the area of social science. In a similar way, mind/structure identification looks for a causal explanation 'in the mind' to account for thought. This could be seen as constituting a category error.[16]

However, having rejected mind/structure identification as a valid conception of the nature of mind, along with mind/body dualism, mind/brain identification and mind/behaviour identification, as well as the implications these have for education, what, in the light of Malcolm's work, is the alternative? I propose that, through an evaluation of both the negative and positive elements of the implications of Malcolm's work (and thus also Wittgenstein's work) it may be possible to formulate at least some idea of what may constitute a more acceptable conception of mind and thus, of education. This I will attempt in my conclusion.

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Conclusion

Before proceeding with my conclusion, I must stress again that in attempting to explore the implications for education of the work of Norman Malcolm on the nature of mind, my conclusions are dependent on the validity of Malcolm's arguments. In other words, rather than critically analyse Malcolm's work, I have suspended the debate of which his work is part and proceeded with my report as if his arguments are valid. In my conclusion I will not therefore attempt to question the validity of the arguments presented in sections 1-4 of this report, but rather look at what can be concluded, given that I have suspended the critical attitude in this way.

There are two ways in which I will conclude: in terms of the negative conclusions of this report thus far and in terms of the positive conclusions that may be inferred with reference to an alternative conception of the nature of mind and its implications for education.

(a) The negative perspective

Norman Malcolm notes in the preface to Problems of Mind[1] that it should not be expected that his version of the Wittgensteinian arguments on problems of mind should somehow add up to another theory - 'philosophical work of the right sort merely unties knots in our understanding. The result is not a theory but simply - no knots!' In this section I will conclude with regard to the knots that have been untied in the area of the nature of mind and its implications for education. In section (b) I will consider if we cannot, in spite of the rejection by Malcolm and Wittgenstein himself, construct some sort of positive perspective.

For Malcolm the knots that have been untied are as follows:-

Mind/body dualism must be rejected on the grounds that it leads logically to solipsism, an unacceptable position; the materialist notion of mind/brain identification is unacceptable because of the category mistake that has been made in equating mind and a physical organ, the brain; the materialist idea of mind/behaviour identification is rejected on the grounds that it involves a basic misunderstanding of what one means when one attributes mental concepts to oneself and to others; and the related notion of mind/structure identification is unacceptable because it is not clear that it is meaningful to speak of mental structures on the one hand and because it leads to the generation of an infinite regress of structures on the other.

Our concern is however with the knots that have been untied in the area of education as a result of Malcolm's work. These are as follows:- The idea that education is concerned with the acquisition of 'facts' which exist 'out there in the world', the idea that 'facts' and 'ideas' are independent, the related notion of objectivity and the less-formal notions that the education of body and of mind are in some way distinct, that mental and manual labour are unequal in worth and the 'bucket-filler' model of education must all be rejected along with mind/body dualism; the notion that education consists in the modification of the brain, by whatever means, must be found unacceptable along with mind/brain identification; the idea that education is the modification of behaviour through control of physiological or environmental factors and the related idea that knowledge is constituted by behaviour must be rejected along with mind/behaviour identification (logical behaviourism); and the notion that education consists in creating the appropriate environment in which learning can take place (that envi-

ronment which contains the elements appropriate to the structures present at the stage of development of the learner), and the related idea that a child will in some way develop 'naturally' in the correct environment, must be found unacceptable along with mind/structure identification.

It is interesting to note that all of these notions of what education is, except perhaps that associated with mind/brain identification, are widely held in educational circles and taught in teacher-training programmes in South Africa and elsewhere. If they are all unacceptable, there are far-reaching implications for education in general and teacher-training in particular. The need for an alternative conception of mind and thus of education becomes a matter of extreme importance.

It is further interesting to note that there are extensive similarities between the implications of these four positions and aspects of Empirical Theory (as noted earlier). Mind/body dualism leads to an epistemology identical to that of Empirical Theory, while mind/brain identification is a manifestation of the tendency which may be seen as arising out of the Empirical Theory drive to accept as valid only empirically observable phenomena. Similarly, the mind/behaviour identification thesis is related to Empirical Theory in the explicit acceptance of the Verification Principle by the Vienna Circle as the only acceptable test of validity. Finally, the mind/structure identification belief that the appropriate use of knowledge and language necessarily requires an internal guiding system of rules might arise out of the Empirical Theory emphasis on causal relationships. How close these relationships in fact are is a matter beyond the scope of this report to deal with, so let it suffice to say there are interesting parallels between Empirical

Theory and the conceptions of mind dealt with here, ranging from epistemology, through validity checks to methodology.

Having established what it is not possible for education to be in the light of Malcolm's work, that is, having untied the knots, it is natural, both from a philosophical and practical educational point of view, to try to establish what may be a more acceptable conception of education. But, because one's conception of mind indicates what is educationally possible, it is necessary to look too at what may be a more acceptable conception of mind than those rejected by Malcolm.

(b) The positive perspective

A number of theorists have reviewed Wittgenstein's Philosophical Investigations in order to elucidate what conclusions may be drawn from this work, - see Strawson[2], Feyerabend[3] and Norman Malcolm himself.[4,5] However, of these theorists, only Feyerabend ignores Wittgenstein's stated position that he has no positive theoretical position, claiming that he can in fact extrapolate from Wittgenstein's work to a definite positive theory.

There are two points I must make here. Firstly, I feel that in view of Wittgenstein's belief in the function of philosophy as excluding unacceptable positions by logical argument, but not going further to beyond the metatheoretical position and doing the work of the theorist rather than the philosopher, we must proceed with great caution in considering a positive perspective, showing very clearly what may validly constitute that perspective. This leads to the second point.

Secondly, I feel that any positive statement about what may constitute the nature of mind (and its implications for education) should not go beyond a positive statement of the elements

of argument and position employed in Wittgenstein's arguments in the negative sense. For example, the statement that solipsism is an unacceptable position, while not indicating a single positive alternative, does indicate the range of alternatives within which an acceptable position may be found - all those other than solipsism.

(i) An alternative conception of the nature of mind. What I wish to propose here is mind as a category of experience and activity.

A notion common to both mind/body dualism and mind/brain identification is that we can speak of the mind, that is that the term 'mind' refers, as a noun, to some entity. In the case of dualism, this is a spiritual entity; in the case of identification theory, a physical entity, the brain. Crucial to our understanding of the nature of mind is a rejection of this notion. Mental concepts such as 'memory', 'understanding', 'recognition' and 'thought' are clearly not the names of the constituent parts of some entity, they are verbs which describe certain types of activity. Similarly, mental concepts such as 'pain' and 'anger' do not refer to parts of an entity, but rather to categories of experience.

Central to the mind/body dualist position is the category error noted by Ryle[6] in which the dualist tries to establish the laws of 'the mind' in the same way as one might establish natural laws. And central to the mind/brain identity thesis is the category error noted by Malcolm[7] in which the identity theorist equates mind with a physical organ, the brain. At the heart of these category errors lies the common assumption that 'mind' refers to some sort of entity. The rejection of these positions as category errors rests on the use of the term 'mind'

in a different way, - as referring to a category of experience and activity as outlined above.

How can this category of experience and activity be characterised?

Let us consider first the role of the physical. Wittgenstein argues repeatedly[8] that it is the living human being only to which mental concepts can be attributed. It is part of what makes a living human being what he is, that he has mental experiences and mental activity. The presence of a living physical body is thus a prerequisite for mind, a necessary condition. But does this mean that mind is merely a category of the physical? Wittgenstein's rejection of mind/brain identification as a category error shows that this is not so.[9] Mind is something other than the physical, though it is in some way closely bound up with the physical.

The rejection of logical behaviourism eliminates another sense in which mind may be seen as related to the physical - in the sphere of behaviour. In other words, mind and behaviour cannot be equated.[10]

We have seen that mind is a category of experience and activity other than the physical, but that it is related to the presence of a living human being. In what way is this so? Ryle somewhere suggests that 'mind' and mental terms are in fact adverbial in nature. For example, one may say that someone acted 'mindfully', to indicate that associated with his physical actions was a disposition which belongs to the sphere of the mental. I suggest that human action is action (rather than movement) by virtue of the association of the mental sphere of experience and activity with that action. The living physical human being is so therefore by virtue of that category of his

experience and activity which can be called mental.

What can be said to govern this category of experience and activity? Or is it just random?

Firstly, there is a relationship with the physical in the sense that pricking someone's finger results in their experiencing pain. The stimulation to the body is physical, as are the nerve impulses that result, but over and above these there is a mental experience we call pain. This results in the person withdrawing their finger to avoid the pain. The category of experience we call mental is thus closely related to the category we call physical in that they interact with each other. The physical receives stimulation from the environment, but mental activity is involved in interpreting, deciding on and prompting action as a result of that stimulation.

One can however argue that the example of pain as a result of a pinprick is a bad one, as the resultant withdrawal of the finger is simply involuntary movement, rather than action. While this may be so, as a result of the experience of pain in that instance, the person's future action may be designed to avoid a second painful experience or they may come to a deeper understanding of the experience of pain. It is not the involuntary movement I am concerned with here, but rather the experience of the pain and, especially, the future effect it has on action via mental activity prompted by the experience. This can be extended to more complex experiences.

Secondly, the category of experience and activity we call mind is, in Wittgenstein's view, rule-governed. This is not in the sense used in mind/structure identification,[11] where there is an internal, ideal system of rules, but in the sense of rules of language learnt in the context of society. These rules

govern thought in the sense that [illegible] language[12] can be seen as being con[illegible] its correct use in that language system.

From the above, mind can be seen to be [illegible], non-physical category of experience and activity, closely relate[illegible] to the physical in the sense that mental activity is effecte[illegible] by physical stimulation and governs physical action (as opposed to movement), where rules can be said to be acquired via lan[illegible]uage in the social context. Concepts, constituted by the ru[illegible] of their use, have a central function in this category of ex[illegible]perience and activity.

To conclude, when we say that someone thinks, remember[illegible] recognises, we mean he engages in a category of activity wh[illegible] is non-physical and rule-governed. When we say that someone [illegible] angry or in pain, we mean that he is having an experience o[illegible] sort or another which is non-physical. In both cases above, [illegible] activity or experience may be prompted by the physical or ac[illegible]companied by physical behaviour, but these are something other than the mental activity or experience itself. Finally, when we say that someone acquires a concept, we mean that he ha[illegible] added to his repertoire of rule-governed, non-physical activit[illegible], further rules via language which increase the scope of hi[illegible]ential activity and experience in the category we call mind. I must add here that when I talk about non-physical activity, I mean that thinking, for example, is something a human being is capable of <u>doing</u>, but that it is non-physical, not in the sen[illegible] of being spiritual etc., but in the sense that thought cannot be said to be of that sort of thing that can be said to occ[illegible] at a particular place.

What are the implications for education of this non-th[illegible]

of mind?

(ii) The implications for education. I will attempt here to spell out what notion of education can be derived from the limited account of mind I have attempted above.

Firstly, what sort of epistemology arises out of the above account? Knowledge consists in concepts, which are constituted by the rules of their use. These rules collectively constitute mind. Knowledge constitutes mind, therefore, in the sense that the experiences and activities that can be described as mental are governed by those rules which constitute the concepts forming knowledge. Further, knowledge is acquired via language. It is thus socially acquired.

In the light of this epistemology and the conception of mind outlined under (i), what is education? Clearly, education is concerned with the development of mind, that is, with the development of the quality and range of experience and activity we refer to when we talk of mind.

How can this development be achieved? Firstly, because the activity and experience is rule-governed and these rules are acquired via language, the primary task of education is the development of the range of concepts in the individual's repertoire. Through the acquisition of more concepts, more rules are added to his repertoire and the range and depth of the activity and experience constituting mind thus increased. This is done via language. Therefore, education is concerned with involving individuals in language activities conducive to their acquisition of concepts. I suggest that this will entail reading, writing, listening, speaking, discussing, debating etc. as broadly as possible.

Because of the close relationship between the mental and

the physical, I would suggest that the acquisition of concepts via language would be accompanied by the range of physical experience relevant to the concepts being acquired. In other words, acquiring the concept 'cat' would be more effectively accomplished if the acquisition of that concept via language was supplemented with actual experience of cats. This leads to the next consideration.

Once the concepts have been acquired and the relevant rules thus added to the rules governing the mental (though they would probably be able to be constantly refined), it seems logical that those rules will then be used in the subsequent activity and experience of the individual at the mental level. In other words, having acquired the concept 'suffering', one's thoughts and attitudes and also one's actions become modified by the rules constituting that concept. It seems to me that education also has a role to play here. Through encouraging critical thought, reflection and other application of concepts acquired, the educative process is taken a step further.

Based on this conception of the nature of mind, education is thus concerned with the acquisition of concepts via language, in a social context and, if possible, in the context of the physical reality to which those concepts are applicable; with the development of the critical, evaluative and decision-making powers of the individual, that is, the application of the acquired concepts.

To summarise then, according to my account of the nature of mind, education consists in the following:-

1. The acquisition of concepts through engagement in as much as possible and as rich as possible of the social language activities, e.g. listening, talking, reading, writing, discussing,

debating etc.

2. The supplementation of the acquisition of concepts with as much as possible of the physical experience relevant to the concepts being acquired, e.g. touching, seeing, hearing, tasting, smelling, doing, interacting etc.

3. The practice of applying those acquired concepts, e.g. reflecting, critically evaluating, choosing, deciding, adopting attitudes, structuring action.

(c) Concluding remarks

In this research report I have explored the implications for education of the work of Norman Malcolm on the nature of mind, assuming that Malcolm's arguments are valid. I have done this by giving an account of what the various conceptions of mind are that he has dealt with, an account of what I see as the implications for education in each case, an outline of his arguments and some further comment. I concluded by summarising the body of the research in the negative sense and attempting to formulate a positive account of the nature of mind. This positive account was not intended to be an exhaustive alternative theory of the nature of mind and its implications for education, but rather, a broad statement of the bounds I see as having been established by Malcolm's work (in the Wittgensteinian tradition).

I must conclude by noting that, within the bounds of a report of this size, it is not possible to explore the relevant issues in as much depth as one would like, but that given that constraint, I am satisfied that I have achieved the aim set out in the introduction: to spell out the implications of Malcolm's work for education. I have recognised the issues raised by his work and briefly outlined a possible solution.

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12. L.Wittgenstein, Philosophical Investigations, Sec.384.

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