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7. SCHOOL LEARNING AS HUMAN GROWTH

Modal Dynamics of Learning

INTRODUCTION

As a social institution, the school has multiple functions, both in relation to other institutions and to different individuals, and there are surely different opinions about the current core function or fundamental reason of the schooling. My intention here is to elucidate the reason for the school, in the normative rather than in the historical sense (Popkewitz, 2014). I believe that it is possible to answer this question, at least in general, by conceptual inference. All such inferences are of course conditional and require that we accept some grounding premises; my main premise is that schools and schooling are deeply connected to learning, which I believe is a very commonly accepted view.

For present purposes, the school is assumed to be a setting for a special kind of learning, as human growth – that is, Bildung. Learning is defined as a change in the subject's competence: those internal dispositional properties that make it possible for her to act in the environment as she does. The process of learning is then analysed as the dynamics of modalities of human competence, arriving at a more detailed picture of the structure of human growth.

Like competence, the concept of modality is adapted from semiotic theory and refers to the set of special features typical to all authentically subjective competences, especially of a human being. These modal features are captured in natural language by modal subverbs like *want*, *can*, *know* and *must*. While all learning of any subject of action seems to follow this same dynamics, human growth must be differentiated from all other learning. To this end, learning can be analysed as consisting of three different (although overlapping and perhaps recurring) levels: pragmatic, social and existential learning, enabling a broader understanding of what is and what should be happening in school learning.

The aim of the present analysis is to suggest that, in addition to the question of *what* in curriculum debates – what content, subjects and areas should be included or excluded – the question of *how* should also be taken into account. Here, I refer not only to the *how* of the learning process, which, of course has been a seminal part of curriculum discussion (cf. Hlebowitsh, 2004, p. 262). Rather, the question concerns the *how* of learned competence as an object of education: how students will act in their social positions and roles, whatever their particular tasks may be.

This emphasis on depth rather than breadth of learning goals will of course affect how school learning should be organized. Secondly, the differentiation of modal categories of learning to separate categories of tasks, goals and contents of education (as in Bloom's well known taxonomy of cognitive, affective and psychomotor goals) will be considered suspect (Anderson & Krathwohl, 2001). While such distinctions may be of some relevance, it is also fruitful to try to see learning and competence as a whole to be modalized, combining all modalities rather than just one or two at a time.

SCHOOL AS BRIDGE TO A SECOND NATURE

John McDowell famously approached a central anxiety of modern philosophy in questioning how a human being as a natural creature can have reason and knowledge of the world that are commonly regarded as transcendental features (McDowell, 1996, xi). His solution to the problem is rooted in the concepts of second nature and Bildung. Human reason is first depicted (by reference to Aristotle) as a second nature, by which he means the habits of thought and action, based on the potentialities of the normal human organism and learned by "initiation into conceptual capacities which include responsiveness to other rational demands besides of those of ethics." In the absence of a useful and succinct English expression, he characterizes that process of initiation by means of a term from German philosophy: Bildung (McDowell, 1996, p. 84).

While McDowell develops this conception of second nature from Aristotle, stating that the notion is all but explicit there, Hegel deploys it very explicitly in the *Outlines of the Philosophy of Right* (§151): "the habitual practice of ethical living appears as a *second nature* which, put in the place of the initial, purely natural will, is the soul of custom…" In the supplementary text, he continues: "Education is the art of making people ethical. It considers them as natural beings and shows them the way to a second birth, the way to change their original nature into a second, spiritual, nature, and makes this spiritual level *habitual* to them" (Hegel, 2008, p. 159).

In his main philosophical texts, Hegel does not explicitly consider what he means concretely by this reference to an art of education or what might be the role of the school therein. In his philosophy of right, he describes a society's three main (ethical) institutions as family, civil society and the state. While education happens partly within the family, its function is to prepare children to leave their families and enter as free persons into civil society (§175): "Thus the individual becomes a *son of civil society* which has as many claims upon him as he has rights against it" (§238, 218). As the highest form of spirit, the state also plays the leading role in education. Hegel suggests that the best method of educating a child in ethical conduct is to make her a citizen of a state with good laws (160): "It is by becoming a citizen of a good state that the individual first comes into his right" (161).

This insight that school and education are connected to and indeed dependent on society is crucially important. John Dewey, who was much inspired by Hegel,

is well known for his promotion of this idea. According to him, the school should be "a miniature community, an embryonic society" (Dewey, 1932, p. 15), which may be characterized as the principle of the contextuality of education. In other words, education is social action, necessarily embedded in the cultural and structural context of the surrounding society. Secondly it means that the prevailing society requires a certain kind of education for its members; in Hegelian terms, civil society has many claims. This contains both general requirements concerning the ability to navigate society and to behave properly. In addition, within the many specialised parts of society where an individual acts, institutions (and especially employers) set specific requirements. One of the main tasks of the state is to moderate and fairly coordinate these special requirements and needs. On that basis, the third meaning of the principle of contextuality can be formulated as the transformation of societal determination to pedagogic determination (Benner, 1996).

In a pre-modern society, such as that of Aristotle, there was no school system in its modern form, and no need for one. From our modern point of view, the process of modernization has meant the continuous and accelerating increase of complexity in society. Not only has knowledge expanded but the need for knowledge has increased, and the objects of knowledge have multiplied – in production and technology but also in the moral and ethical spheres, with increasing division of labour, travel and migration. The dependence of education on the prevailing culture and society was immediate and direct. Previously, school was not needed as a bridge to society, as children could follow their parents, learning required skills and knowledge through natural socialization – societal and pedagogical determinations were one and the same. In the modern context, this socialization model of education has become obsolete as social complexities have made it dangerous or impossible for parents to bring children into the workplace or other settings. Now, school is where societal determinations are transformed into a safer and more accessible curriculum.

But this conception of school as a bridge from the child's natural existence or family environment to civil society does not fully comprehend the function of schooling. The founding father of the modern school system, J. A. Comenius, stated that the function of school education is not so much to initiate children into membership of society but rather to prepare children for something that does not exist but will in the future (in this case, the heavenly empire on earth), as well as to repair society, which was seen to be in a state of turmoil and turpitude (Comenius, 1928). This principle has been central in the European philosophy of Bildung (under the slogan *Höherbildung der Menscheit*), in reform pedagogics and later in critical pedagogy.

However, G. S. Counts, a noted critic of Deweyan progressive education, insisted that this approach had not elaborated a theory of social welfare "unless it be that of anarchy or extreme individualism" (Counts, 1932, p. 7), and that instead of being thought of as the prevailing society in miniature, the school should rather be a model society or a model of an ideal society. I consider this idea of the function of school as grounded in the principle of an open (and better) future. To the analytic ear, this may

sound like an unnecessary politicization of education and an unfounded idealism about the possible effects of education on social structures. But there are also more realistic grounds for this kind of thinking, of which the most important is that the momentum of social and cultural change seems to be accelerating.

It was characteristic of pre-modern society that culture and society seemed to remain relatively stable from generation to generation; changes became visible only when the lives of older and younger generations were compared. Now, it seems that remarkable and irrevocable changes occur during the lifetime of every generation, making it reasonable, for instance, to talk about adult education. Changing environments and responsibilities mean that adults can no longer get by on the capabilities acquired during their youth. There is no reason, then, to socialize young people into the prevailing culture and society because these may cease to exist within their adult life, and they will need other skills and knowledge beyond those taught in school. It follows that school should be a bridge from a current society to the future society.

But this presents a problem: how can we know what the future society will be like? And if we cannot foresee that, how can we build a bridge to get there? This problem is further complicated by Barnett's concept of super-complexity (Barnett, 2000). Not only has the environment – the structures and resources of life – become increasingly complex but our interpretative frameworks have come to be contested: We can no longer be sure how best to interpret and understand the complexities of our environment or what interpretative framework to choose. At the same time, we must realistically grant that all our actions have some effect on the future. This is especially true of actions like education, the effects of which will, by definition, be known only in the future. We know only that the future will be different from the present but not how, or whether it will be better or worse. Perhaps we can predict that it will be still more complex than the present. But in knowing that our education actions will effect change, it is natural and reasonable to try to ensure that the future will be better.

Dietrich Benner defines this open future principle as a "non-hierarchical order between societal forms of practice" (Benner, 1996, p. 95). By this he means the more or less independent and differentiated forms of practice in modern society, as in politics, arts, religion, ethics, production and education. And it is precisely these forms of practice that create the societal determination to be transformed into pedagogic determination in school by means of teaching and curriculum. This second principle assumes that the possibility of an open and better future can best be maintained if every individual develops her dispositions and abilities as broadly and deeply as possible. By implication, this is immediately hindered by exclusion from some area of culture, to be replaced by some other area. In short, Benner's formulation can be interpreted as a negative warning about what education must not do. In particular, we must not allow any area to gain precedence over the others. To understand this bridge function more positively, then, in terms of what we should do in school, we must return to the question of learning.

HUMAN GROWTH AND LEARNING

How, then, might school fulfil its function as a bridge from here to some unknown future? McDowell situated the creation of second nature as Bildung, which he understands to be a much broader concept than school. In any event, we may think of school as a very important environment in which the process of Bildung can and should take place. I would suggest that, at least as a technical translation, Bildung can be taken to mean *human growth* (see Pikkarainen, 2012). In our modern, super-complex situation, it may no longer be adequate to understand Bildung as becoming fully human, as Kant characterized education, but rather as growth *as* humans. The root of the word Bildung is *Bild*, or image, referring originally to human beings as in the image of God. Today, it is perhaps more difficult to say what kind of image a human being should be, or of what, as more emphasis is placed on the processual character of Bildung. To begin, it may help to take a look at the concept of growth.

The basic meaning of *growth* is that something changes and becomes bigger. This mathematical conception of growth concerns a function; in a growth function, the value of the variable of interest (the dependent variable) increases when another variable (the independent variable) – for example, time – also increases. In this kind of function, we are interested only in the changing value of one variable at a time; the occurrence of growth depends on the change in only one variable. (Of course, we may also be interested in other independent variables as causes of that growth.) An important everyday example of this kind of mathematical, one-variable growth is economic growth. We know that many variables affect economic growth, and we believe that it may entail many kinds of changes in our lives and production, but ultimately, it is measured by only one variable: money.

Another important case of the growth concept in everyday discourse is biological growth (Growth, 2015), referring to such phenomena as the growth of plants, animals and children. The main difference between this biological type of growth and the previous mathematical (and economic) type of growth is that the latter is multidimensional in character.[1] The difference can be also described by reference to the distinction between quantitative and qualitative. In mathematical growth, one variable changes its value in one dimension, which is typically imagined as a vertical line. When a value grows, it goes up; when it diminishes, it goes down. While the quantity changes, the quality of the variable remains the same – or at least it should remain so. In contrast, biological growth can be imagined as advancing in many directions. Of course, it is possible to attempt to reduce that multidimensionality to many individual variables, each growing one-dimensionally along their own coordinates. But we still have the qualitative problematic – that to understand this kind of growth, it is not enough to sum together the quantitative changes in individual variables. Instead, we must assess the qualitative features and differences of these variables. This is especially important where growth may require the diminution of some features as others gain. This entails a qualitative transition, which can

sometimes be very radical in biological growth processes, as for example in the metamorphosis of butterflies.

In some cases, quantification of a multidimensional qualitative growth process may be possible and viable, as in a predetermined biological process such as the growth of a butterfly from the original larva. Though any single variable may develop nonlinearly (for instance, size may first grow and then diminish and then grow again), we can envisage beforehand the changes and phases through which the process will advance and assign numerical values to the separate phases of the process for dimensional evaluation. Very often, we turn a blind eye to the qualitative and just use some available measure. The same applies when we evaluate the growth of a human being in terms of years of life or indeed when we invoke money as a measure of wellbeing.

In the case of human growth (or Bildung), this reduction of qualitative multidimensionality to a single quantitative measure must be strictly avoided. This concept must also be clearly differentiated from biological growth, although both have much in common. Both are qualitatively multidimensional, and both are irreversible by virtue of complex qualitative changes. It is often thought that human growth is somehow based on biological growth, especially because during school years, they typically coexist. Now, however, with increasing adult education, adults also find themselves back in school to learn.

The two important differences between biological and human growth are that the latter is not predetermined or foreseeable, and secondly, human growth is not bound to the characteristics of the species but rather to the culture. The first distinction means that human growth cannot in principle be evaluated by any measure because we cannot know in what direction and in what relation it may advance. This strange and paradoxical deduction follows in part from human growth's connection to the development of human culture; we might even say that the development of the culture is a fundamental part of human growth.[2]

However the most crucial difference between biological and human growth is that while the former is realized as observable (at least in principle) changes in the physical nature of the growing subject, the latter is a consequence of learning. The dictionary definition of the verb *learn* is defined as "gain or acquire knowledge of or skill in (something) by study, experience, or being taught."[3] I refer here to those areas of knowledge and skill involving a general technical concept of competence (see Pikkarainen, 2014a). Many of the difficulties of capturing the concept of learning follow from the peculiar characteristics of competences. One cannot gain or acquire competences in the way that one can acquire money, food or other things or resources that may be called *objects*. On this view, learning would be a strange type of action; indeed, rather than thinking of it as an action at all, learning can be thought of as a process that happens to us (Oelkers, 1985, pp. 212– ; Siljander, 2002, p. 26), but in many ways, it remains connected to our actions.

We could say that education and schooling represent an important societal activity simply because they are thought to influence and direct people's future actions;

learning and competences are the tool or medium of this influence. Competences, knowledge, skills and so on are special kind of properties of any subject that enable it to act in the way that it acts (Greimas & Courtés, 1982, pp. 44–46; Pikkarainen, 2014a). Action can be defined as a two-way circular interaction between subject and environment (Pikkarainen, 2010), comprising outward effects from subject to environment (deeds) and inward effects from environment to subject (perceptions). In this way, action is determined from two directions: by properties and events of the environment on the one hand and by the competencies of the subject on the other. It follows that there are two possible ways of influencing someone's actions: through environment or through competences. While changing the environment may lead to noticeable changes in action, these changes are likely to persist only as long as the environment remains the same. Clearly, this is not sufficient when targeting an unknown future; to that end, it becomes necessary to change the competences of students.

Competence is in principle a non-empirical property (see Pikkarainen, 2013) that only becomes manifest when the subject acts. In that sense, it is a theoretical construct that we create by inference and assumption on seeing the subject act. This inference of competence is always insecure; when we see a subject doing X in environment Y, we can be sure that they have the competence to do X in Y, once and at just that moment – any more than this is a guess. We cannot know what kind of competence it is, what else X can do that is similar or different, whether they can do it in slightly different environment or again in a similar one. As with other similar uncertainties, more repetitions of actions will lend more probability to our inferences and guesses, but the basic insecurity will remain, both for external observers and for the subject themselves. This is a significant and well-known challenge for the evaluation of learning; even the best learning tests will have very limited reliability. Taking account of the previously mentioned qualitative multidimensionality of human learning and the unknown requirements of future environments, it therefore seems better to develop more versatile actions for learners rather than any special tests (cf. Hlebowitsh, 2011).

Here is also another difficulty: competences cannot be affected in the same way as normal empirical properties of our environment because they are beyond the reach of the actions of other subjects or of the subject themselves. How then do competences change? Partly by chance and partly alongside the processes of biological growth (and decay), but for the most part, it probably occurs as and because the subject acts. Traditionally, learning is characterized as a transformation of competences that happens as a result (or rather as a side effect) of a subject's own action. Again, learning is not an action in which the subject draws on their own competences, but in interaction with their environment, their own competences may change to some extent. Here, it is important to note that (a) we always do only that for which we already have a competence; (b) we can never do anything for which we do not have a competence and (c) in doing something for which we already have a competence, we can acquire a competence to do something we could not do before. So, it is not

exactly true that by playing violin we can learn to play violin. If we can learn to play violin, we did not have that competence already. However this is not a paradox, because by playing violin badly we can learn to play it better. In short, to learn something, we must do something else.

What kinds of competence should be created in human learning? This question would be easy to answer if we had prior knowledge about the future of mankind and/or if we had a sound and reliable consensus about what kind of future we want. Unfortunately – or perhaps fortunately – we have neither. One natural starting point would be to construct the curriculum around the most central, foundational and stable competences required in the different areas of societal action, both current and historic. This futurological task would involve identifying various development tendencies – how one area may grow while another will diminish. Especially in its Bennerian formulation, the open future principle explicitly criticizes this kind of prediction. We should not try to determine the future by means of calculations and preferences based on our own current situation and experiences; rather, we should try to keep the future open, assigning jurisdiction to students as the inhabitants of that future society. To this idea of autonomy I would add a note of caution: that at least some of the typical and central current challenges will continue to worsen in the future. These might include (super-) complexity, radical change, general or relative lack of resources, social inequality, and technological and political risks. These problems are critical because they place the whole existence of humankind under threat. Additionally, they are perhaps not solvable by normal adaptive problem solving methods because they originally emerged as side effects of earlier problem solving. Instead, then, overcoming them may require more or less radical alterations to both the means and ends of human action.

Future-able action competences should make it possible and probable that people can act in free and creative ways. A rapidly changing and super-complex environment requires that all actors – not only leaders and managers – can make autonomous and independent decisions in new situations where no pre-existing norm or rule is available (Levin, 2012). Critical thinking is not enough; action should also be critical and creative. At the same time, these decisions should be reliable and reasonable. This may sound paradoxical but creativity does not imply irrationality, and individual choice need not mean an absence of collective understanding. The evaluation of a proposed action's reliability and rationality will naturally require time and discussion. In practice, the reliability and rationality of individual free and creative action demands ethical responsibility on the part of the actor (Pikkarainen, 2014b); without that, no favorable outcome can be expected. Naturally it is also essential that actions should be as informed and skilful as possible, but these qualities are not enough in situations where there is strong pressure to make selfish and unethical decisions. Only ethical responsibility can lead to the acquisition and use of adequate information and skills.

MODAL DYNAMICS OF LEARNING AND ACTION

What, then, is the mechanism of human learning? While it seems unlikely that any special laws of learning are to be found (cf. Oelkers, 1995, p. 687), the thesis of similarity is perhaps the most law-like learning principle. This states that while we must do something else in trying to learn to do X, it is more probable that we will learn X by doing something relatively similar to X than something relatively different. Any precise quantitative formulation of this principle is impossible or unusable because the similarity and difference of actions is always also qualitative. However, we can try to analyse how learning takes place in action, which may prove useful in planning teaching and study activities. The concept of modal competences (Greimas, 1987, chapters 7 and 8) seems helpful in this analysis. We can think of a competence as a disposition or ability to do something. In this sense, competences might include singing a song, riding bicycle, writing an essay or swimming across the pool. When we see someone performing an action, we can infer that she has just that competence. In addition, we may assume that she has countless other competences that are not manifest at that moment.

Why do certain competences rather than others manifest in a certain situation and in a certain way? This depends in part on the situation or setting, but it also has to do with the competence itself. In addition to the special performance content of the competence, there is its modality or modalization. The general structure of modalization is independent of content and provides a formal means of analysing the differences and similarities of distinct competences. In addition, it offers a tool for considering the dynamics of both action and learning at a theoretical level. In logic, there is a long tradition of modalities research. The concepts of possibility and necessity have been studied as alethic modalities since the Middle Ages, and more recently, G. H. von Wright and others created deontic logic for the study of concepts of obligation and permission (Garson, 2014). While logic studies the truth of clauses and of inferences between them, Greimas adapted modalities to his semiotic theory to study the meanings of any expressions that essentially all describe the actions of some subject. The modalities of competence (and so also of action) can be reduced to the four main subverbs of typical natural languages: *want, can, know* and *must*.

The modality of wanting (volitional modality) is clearly the most foundational, as it can be assumed that no subject does anything they do not want to do. Although it is easy to invent counterexamples against this categorical formulation, it remains the case that some kind of active and voluntary intention or volition or choice is associated with our concept of action. In the area of education, the concept of motivation has been of essential importance, as to learn something, a student must do something, and motivation is needed for that doing. The teacher's task is to try to motivate students – that is, to make them want to act in a proper way. It is seldom clearly understood that motivation is not only a tool for teaching and learning but also an aim, as the necessary part of the acquired competence. For Herbart, this

was clear; the educative instruction should create interest in the taught content (Herbart, 1901, p. 32). As a goal of learning, this modality might be called *interest* or even *enthusiasm*. We can say that it is of no use to teach mathematics or music without at the same time trying to create a zest for calculation and an eagerness to play music.

For action, however, the modality of wanting is not enough. Sometimes, you just cannot do something in spite of great eagerness and desire; in those cases, the modality of *can*, or alethic modality, is missing. Typically, this happens when that doing is not possible in the current environment. For all your eagerness, without a bicycle, you cannot ride and without water you cannot swim. If you just want to move, you can choose walking instead of riding or swimming, and that will suffice. It is typically the case that you can do something if you happen to use a method that suits the situation. As an inward effect of the action circle, perception offers the subject necessary feedback about the state of alethic modality – that is, the actual success of the action. This feedback determines our emotional valence and affects our concomitant doings. Typically, good feelings of success can strengthen the positive alethic modality of capability and feed one's eagerness to do the same again. Small failures and problems may cause irritation, affecting efforts to try again by other means and/or in other situations. If this continued effort leads ultimately to success, the temporary irritation may amplify the emotion of satisfaction, building persistent self-efficacy and the competence of hope (Snyder, 2002). In contrast, recurrent failure may lead to negative alethic modality, underachievement and fatalism, and to the extinction of wanting.

The third modality, knowing, is both the best known (because it is so near to the specific content of the competence) and the most ambiguous and equivocal. These aspects are connected. The centrality of knowing has prompted much conceptual specification and argument, leading to confusion. The first and most basic problematic differentiation is between knowledge and skill. As a modality of competence, these are just the same thing, a question of the reservoir of experiences accumulated by the subject when wanting and trying to do something in different ways or environments – sometimes succeeding and sometimes coming to nothing. This is perhaps the most common way to think about learning: as a method of trial and error. Here, the concept of tacit knowledge (Polanyi, 1998) is very useful because it does not differentiate between knowledge and skill. The subject has certain methods it can deploy – for example, ways to move its organs and itself – and in addition, it can apply them in suitable environments. The greater this reservoir, the more probable it is that the action will be successful and consequently that the volitional and alethic modality will develop. Conversely, a more developed competence of hope can cause the growth of (tacit) knowledge as a result of active search of one's environment and experimenting with different operations. Only when the subject in a social environment possesses human language will part of this cognitive competence differentiate as linguistic and propositional knowledge (cf. Sebeok, 1985).

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The modality of must (deontic modality) can best be understood as originating in a restriction or a second level modalization of the volitional modality. Paradoxically, it can be described as a subject's ability to do something else that it wants to do. More understandably, it can be thought of as another desire that can displace an original one. Typically, knowledge can create this kind of setting, where the subject wants to do something but knows that it cannot be done at the moment. It can be even dangerous to try, and so the current desire must be resisted, even when very strong. Emotionally, such situations are charged and controversial. This modal competence can also be found among animal subjects, but its most important function is in human learning, and it provides the foundation for the possibility of moral responsibility. The learning of moral responsibility is a complex and multiphase process that requires the development and interplay of all four modalities. This process is the basis and core of human growth and should be the conscious and, ultimately, the most important goal of school education. Traditionally, this task of education is often understood as the development of virtues or character. Virtues and good character traits are of course important moral resources (Glover, 2014 [1999]), and every student must have the opportunity to develop her dispositions in all areas of human action. However, the most important factor may be the training of the deontic modality.

There is a real possibility of misunderstanding the deontic modal competence. Although it definitely does not refer to any absolute conditioned obedience to any authority or rule system, it may require something like it as a development phase. The learner must learn to resign her own will to another will – not because the other will is stronger (in the sense that it can constrain or threaten her) but because the other will have better reasons behind it. At some stage, this means that the learner can trust others and their good intentions. The key issue is that this modal competence relates to self-regulation of action. The development of this self-regulation can be drafted theoretically as three levels that do not exclusively follow each other but are rather nested and overlapping (Kukkola & Pikkarainen, in press). The first level is *pragmatic*. Here, we can imagine the subject acting with objects, fulfilling needs by utilizing objects from their environment. At this level, the deontic modality, as described earlier, appears as a technical norm based on knowledge: if you want to do X, you must do Y. If you want to eat, you must wait until the food is nearer. The subject must repress a desire in order to satisfy it, or give in to a smaller desire in the moment to satisfy a greater desire in the future. As we can clearly see, this level never ceases to affect us. We will always have pragmatic tasks and problems, but these should not perhaps be seen as independent technical questions but as in many ways connected to the later levels.

The second level is social. This level is much more complicated and must probably be divided into sub levels in later analysis. Here, the subject must take account of the desires of other subjects and of common group desires as well as their own. There can be many reasons for this; someone can be a resource, a tool for my ends, so I must please her. Or I may represent a tool for a stronger subject and I must obey her for my own safety. Or I can like and admire the other subject and so wish to submit

to her desires. This last occasion arises, for example, when a mother subjugates her own well-being to the needs of her child.

Traditionally, education has been understood as social activity and socialization, yet very often, school has been understood as a place for plain pragmatic learning.[4] Especially among subject teachers, it is not uncommon to hear that they see it as their main or sole task to transfer or create the required knowledge and skills of their subject area. Yet the whole action of education is social interaction, and its goal is to create competences for social action. Because human beings are through and through social beings, human growth takes place only in social settings. It does not seem possible to teach neutral or non-modalized content competences and modal competences separately; they must be learned together.

Human beings are not only social but also rational. These two characteristics, though certainly deeply connected, are not identical; many animals (like ants and bees) are social, but they are not rational in the same sense as human beings. Their rationality represents only means-ends rationality (if the separation of means and ends makes any sense in their cases). Human rationality does not so much mean practical efficiency in all our actions but rather an ability to question both means and ends, to seek and to offer reasons (cf. Brandom, 2009). In this sense, our rationality is not so much a feature of our existence or actions; rather, it is a certain type of action that is connected to other actions. This action is originally social and requires human language as a medium. Earlier, action was analysed as comprising outward and inward effects. Now, we must add another dimension of external and internal action. External action consists of empirical deeds and perceptions; internal action consists respectively of an outward internal activity (planning) and an inward internal activity (evaluation). This model is depicted in Figure 1.
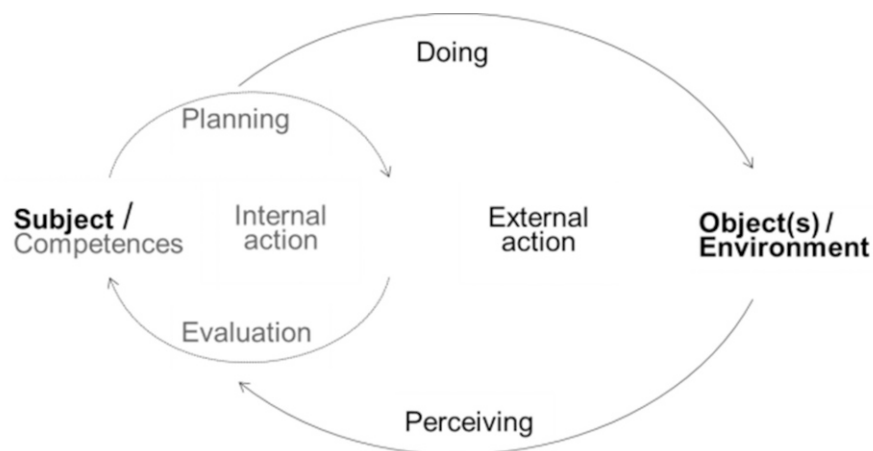

Figure 1. Model of action

We can assume that human thinking, the strong and peculiar internal action of human beings, develops through linguistic social interaction and discourse. Planning and evaluation discussion is a form of internal-external action that differs significantly from the normal communication also found among other more or less social animals. Communication is an effort to affect the other subject's action, to make them do something or to prevent them from so doing. Instead, discussion involves collective planning of some possible action and perhaps further common evaluation of environment and earlier actions. Here, the use of language requires adherence to common rules, as well as to earlier common plans and evaluations. Any rule or common decision can always be questioned, but this presupposes other common rules and decisions, making the interaction somewhat impersonal and independent of any individual authorities.

This logic of discussion paves the way to a third level in the development of deontic competence and human growth as a whole. This level can be called *existential*. This does not refer to the basically irrational foundationlessness of individual autonomy sometimes stressed in existentialist philosophy. Rather, individual responsibility and conscience involves responsibility to rationality and reasons grounded in social reality but whose validity is not based on any contingent authority or decision event. This highest level of human rationality and ethical responsibility must not be seen as detached from mundane moral resources and learned principles but as an ideal of increasingly universal evaluation and the development of morality in more and more complex and conflicting ethical problem situations.

CONCLUSIONS

In principle, one should not try to develop a theory of education from a theory of learning, as such a move will quickly lead to vicious circular inferences, such as the following. If children learn by method X, their education must be organized by method Y to cause children to learn by method X. But surely they already learn in that way? Here, the course of the argument has hopefully been different. Beginning from the question of why school exists, it was assumed that school is needed as a special kind of bridge between the spheres of children and adults on the one hand and between the current and future society. The kind of human growth needed for such a bridge was then established, as well as the kinds of action competence that should be learned. A central assumption was that, in preparing for an unknown and probably yet more complex and problematic future, we must emphasize educational content that has traditionally been called formal. In other words, it is important what people can do, but it is even more important how they do it. This formal structure of competence was analysed using modalities as a theoretical tool. The questions of teaching, studying and educational interaction were assigned to further research.

Conclusions about the function of school and school learning can be summarized as follows. First, the school must clearly and deliberately provide an environment that differs from current society. While it must simulate some basic features of current,

previous and desired future societies, more of its properties should be planned on the basis of requirements for human growth. To foster learning, school should stimulate students' actions, as we learn only when we act. Boredom should be minimized and should arise only when demanded by learning. Action should be organized so that, whatever its content, it will be challenging and rewarding, creating interest and eagerness, hope and a sense of capability, skill and knowledge, and above all, a sense of duty and moral responsibility. All activity should be accompanied by rational discussion about relevant concepts, reasons and alternatives. In a word, school should be a model of an ideal society.

Is this possible? Surely, more or less. Is it not already so? Our success in this regard will determine the continuation and development of our culture and a better future for our children.

NOTES

1   Although biological growth of an individual organism can be defined as mathematical growth of its cells, size or weight, this definition is quite uninteresting as such.
2   This is why Bildung is a broader concept than school or education – it also includes action that maintains and develops human culture. For example, the work of a writer can form an important part of Bildung (i.e., advancing human growth), but it is still not reasonable to categorize it as education, let alone as schooling.
3   It is interesting to note that, from the 13th to 19th century, it was usual in English to use "learn" as a synonym for "teach." Now, this is regarded as incorrect usage, but here we can see the origins of the ambiguous current usage of "learning" as a synonym for "education," and why it is thought of as an action proper, as in the term "e-learning." (Source: Oxford English Dictionary)
4   It is easy to think that the social level is the first level and that the pragmatic level would develop from it by abstraction of all the soft and ambiguous human stuff to concentrate on purely technical questions. While it is true that this kind of abstraction and concentration has happened in technology and engineering, it must be stressed that technology and engineering are themselves very social actions and a development of societal structures (Latour, 2005). Rather, human beings are social from the beginning, and the pragmatic level is only a theoretical concept here. To see a "pure" pragmatic level, we must look at some of the non-social animals. For human beings, the purest pragmatic level may occur in the earliest months of life.

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