

CHAPTER 3

Memory in action – thinking in action – Vygotsky’s contribution to tacit knowledge theory

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Abstract: By supporting Goethe’s claim: “*In the beginning was the deed,*” Vygotsky argued like a tacit knowledge theorist, even before such a concept was introduced. Still, in the academic discourse on tacit knowledge he is seldom mentioned. In the present chapter, the author will redress this deficiency. Based on a comparison of selected conceptual contributions from prominent tacit knowledge theorists with theoretical perspectives from Vygotsky’s approach, the author shows that the two approaches are closely related. This applies to the fundamental assumption that perceptual representations on the internal plane are operationalized in action terms, as well as to the assumption that practice functions as a relationship between external reality and our thinking about it. In addition, the author shows that Vygotsky also anticipates the assumption of tacit knowledge theorists that children’s utterances initially are operationalized by their external, expressive characteristics. In this way, children’s utterances are constituted as speech acts, which are interpretable within meaningful contexts. Finally, Vygotsky also anticipates the assumption of tacit knowledge theorists that very early in their development, children demonstrate mastery of prosody and intonation in their linguistic practice. At the same time, however, he asserts that the theoretical mastery of such competencies can only be articulated in retrospect, if at all. This means that Vygotsky also anticipates Polanyi’s famous claim that “we know more than we can tell”. The author ends his discussion by suggesting that the tacit knowledge tradition should be taken more seriously by educationalists, especially when it comes to understanding the relationship between theoretical and practical knowledge. This also applies to teacher training.

Keywords: tacit knowledge, speech acts, language acquisition, meaningful imitation, memory in action, play

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Introduction

The connection between thought and word is not a primal connection that is given once and for all time. It arises in development and develops itself. Vygotsky (1987, 284) comments the matter in the following way: “In the beginning was the word.” Goethe answered this Biblical phrase through Faust: “In the beginning was the deed.” Through this statement, Goethe wished to counteract the word’s (Vygotsky 1987, p. 284) overvaluation. Gutsman has noted, however, that we can agree with Goethe that the word as such should not be overvalued and can concur in his transformation of the Biblical line to: “In the beginning was the deed.” Nonetheless, if we consider the history of development, we can still read this line with a different emphasis: “*In the beginning* was the deed.” Gutsman’s argument is that the word is a higher stage in man’s development than the highest manifestation of action. He is right. The word did not exist in the beginning. In the beginning was the deed. The formation of the word occurs nearer the end than the beginning of development. “The word is the end that crowns the deed” (Vygotsky, 1987, pp. 284–85).

The emergence of modern science gradually led to the hegemonic position of the epistemological assumption: that theoretical knowledge is primary. Practical knowledge was reduced to applied theory (Molander, 1990). An oppositional discourse was inspired by Polanyi (1967) and his slogan, “We know more than we can tell”. According to this statement, theoretical knowledge is secondary, as it can be articulated only in retrospect, based on the analyses of practical experiences (Johannesen, 1984, 2007; Molander, 1990; Åsvoll, 2009).

Despite the implications of the introductory quote, Lev Vygotsky is seldom mentioned in the discourse inspired by Polanyi (1967). With his formulation, “*In the beginning* was the deed”, Vygotsky, however, anticipated Polanyi’s argument that practical knowledge is primary. Furthermore, through the formulation that the word crowns the deed, he anticipates the assumption that theoretical knowledge needs to be articulated in retrospect, on the basis analyses of practical experiences.

The inherent assumption that I will discuss in this chapter is that Vygotsky anticipated several assumptions of tacit knowledge theorists – before the concept was, as such, introduced. Of course, it is not possible to fully substantiate such an assertion within the framework of a single book chapter. Taking the assumption that the child’s initial expressions of

communicative speech have an action character as a point of departure, I will, nevertheless, make an honest attempt.

In the first part, I will establish a general conceptual framework based on theoretical perspectives obtained from the philosophers Ludwig Wittgenstein and John Austin, and the social scientists Pierre Bourdieu and Donald Schön. In the second part, I will introduce some perspectives in Vygotsky's approach, derived from the assumption that children's early communicative speech has an action character. In the third part, by making an articulate comparison between Vygotsky's approach and articulate tacit knowledge perspectives, I will demonstrate that he anticipates several tacit knowledge conceptions.

In and of itself, this discussion represents new perspectives on Vygotsky's theoretical thinking. Secondly, it may also shed some new light on the psychological mechanisms behind the emergence of tacit knowledge. Last, but not least, the correspondence between assumptions of the tacit knowledge tradition and theoretical assumptions in Vygotsky's theorizing may serve to broaden the validity of both approaches.

The tacit knowledge tradition – some central perspectives

Bourdieu suggests that experiences internalized in a workplace will constitute a knowledge without concepts, thought patterns that are deeply buried in subconsciousness and which he therefore calls *habitus*. In addition to being of a subconscious character, *habitus* also constitutes a rather *conventional* conception of reality, which Bourdieu describes as *doxic* (see Østerud, 1995).

This argument demonstrates that Bourdieu considers practice as a relationship between the external reality on the one hand, and our thinking about it on the other, an assumption he shares with Wittgenstein (Johannesen, 1984, 2007), as well as with Schön (1983, 1988). Theoretical knowledge can only be articulated in retrospect, based on the analyses of practical experiences (Johannesen, 1984, 2007; Molander, 1990; Åsvoll, 2009).

Further, it is a widely accepted assumption within the tacit knowledge tradition that professionals typically acquire competencies related to separate phenomena through first-hand experience, by means of handling them in a first-person perspective over time (Grimen, 2008; Johannesen, 1984, 2007).

According to Wittgenstein, the focused actions are further familiarized through repeated experiences over time (Johannesen, 2007), at the same time as the involved process will be expanded so that the conceptualized circumstances, the separate phenomena as well as the situation within which the phenomenon occurs, are included. In this way, they are reflected in a physiognomic perspective, while they are gradually also taken for granted. If, over time, one has learned to eat porridge with a spoon, the images that are accumulated through the act of eating will gradually include both the spoon(s) and the bowl(s) of porridge.

The primary implication is that the involved knowledge concepts are obviously based on experiential premises. According to Bourdieu, however, also ideological premises for how one should think, perceive and act will be conveyed through the process of action. The characteristics of the social positions and phenomena that the individual perceives will also be internalized as a code or a mental structure. Thus, it is not a question of either individual or collective experiences (Bourdieu, 1977, cited in Østerud, 1995).

In this way, Bourdieu (1977, cited in Østerud, 1995) reformulates the assumption that the separate phenomena, as well as the situation, are perceived from a physiognomic perspective, at the same time as they are also taken for granted. His formulation, however, is that they constitute a rather *conventional* and doxic conception of reality.

The implications of Bourdieu and Wittgenstein, then, are that representations which are acquired through first-hand experience in a first-person perspective over time will be *generalized* in perceptual categories, but of a certain character. Further, they also assume that when certain aspects of a situation are subject to contextual specification, other aspects and dimensions will simultaneously (locally and temporarily) be omitted from the negotiation of meaning, as they are taken out of the immediate discourse context and taken for granted (as part of the framework).

When the holistic context in which the focused phenomenon constitutes a foreground figure is pushed into the background, it will constitute a meaningful context which functions spontaneously, because it fades away from conscious attention. Thus, the singular phenomenon and the context are being shaped and reshaped in relation to each other in a processes of foregrounding and backgrounding (Linell, 1992, p. 256). At the same time as there always *is* a meaningful context, it is most often taken for granted through the process of familiarization (Smedslund, 1983, p. 19, cited in Wold, 1996, p. 61).

Language and action

Based on this conceptual background, Wittgenstein claims that practical and linguistic knowledge are interrelated. They appear as two aspects of one and the same type of knowledge. Accordingly, practitioners will accommodate the use of language in the relations between particular *norms* (collective codes) on the internal plane and do so in individual action on the external plane (Johannesen, 2006, p. 173).

The implications of this general argument have been concretized by recent psychological research, which demonstrates that children can already, at an age where their utterances still have a mainly analogue character, distinguish between different intonation contours in their receptive speech and modulate them by appropriate pitch, quality and volume in their own productive speech (Scherer, 1982, pp. 155–160) (cf. Vygotsky, 1986, pp. 241–242, 1987, p. 271). Just by changing the intonation contours, the child can distinguish between signaling praying, challenging, surprising and doubtful intentions, and articulate them in accordance with current internal norms of prosody (Tomasello, 1988).

This, then, is a perfect illustration of the slogan, “We know more than we can tell”. Further, it may explain the rather paradoxical observation that mother-tongue speakers can easily formulate utterances in full compliance with prevailing grammatical rules and norms of prosody, while at the same time they are seldom capable of articulating the rules involved or even the fact that rules are involved at all (Sveen, 1996).

The more general explanation within the tacit knowledge paradigm is related to the assumption that practice constitutes a relationship between the external reality on the one hand and our thinking about it on the other. Collective codes are generalized in a way that implies that the separate phenomena as well as the situation are perceived in a physiognomic perspective, which constitute a rather *conventional* and *doxic* conception of reality.

Donald Schön: Thinking in action

The fundamental thesis that practice constitutes a relationship between the internal plane and our actions on the external plane has been adopted by Donald Schön (1983, 1988). However, he has also reformulated it. On the

one hand, Schön states that professionals, through their work experiences, accumulate a wide range of examples, images, interpretations, forms of understanding and actions on the internal plane (cf. knowledge without concepts). On the other hand, the involved competencies they articulate are, in action terms, knowing or thinking in action. Instead of contemplating, then, professionals "... reflect in the midst of action without interruption; their thinking reshapes what they are doing while they are doing it" (Cervero, 1988, p. 44; cf. Kirkeboen, 2007).

In an extension of this argument, Schön suggests that when professionals are faced with problems they have not yet mastered, their primary approach is to recreate the phenomena involved in such a way that they are made relevant in relation to already accumulated knowledge. Thus, their reflection in action will both widen and rearrange the range of representations, so that they can be applied to new phenomena (Lauvås & Handal, 1991). Accordingly, a process of generalization in action, like the one Wittgenstein labels familiarization, where the separate phenomena as well as the situation are perceived from a physiognomic perspective, is also involved.

Speech acts

The argument that practical and linguistic knowledge are closely inter-related and appear as two aspects of one and the same type of knowledge was elaborated by Austin (1962).

When we say, "It is cold here", our intention may, of course, simply be to establish the fact that the temperature in the room is low, as Austin (1962) points out. The (relatively) fixed core meaning of the sentence may thus be described as a collection of elementary factual assertions, or propositions, which clarify the truth conditions of the sentence and express which preconditions must be present for what the sentence claims to be true.

With the same sentence, however, we may warn, predict, command as well as pray, promise, or ask, Austin argues (1962). Thus, the utterance "it is cold here" can both act as a call to close the window, as an accusation that someone should have lighted a fire, etc. Because we can make one and the same sentence serve several different purposes by changing the intonation contours, the descriptive assertion content of our utterances most often becomes of secondary importance

(Vagle et al., 1993, p. 92). Instead, the utterance often functions as a speech act.

When this is the case, it is because the situation and the context have the ultimate decisive function, both for how an utterance is intended and for how it is interpreted (Searle, 1969; Vagle et al., 1993, p. 92). When external, expressive aspects of speech – the prosody – is *foregrounded*, the holistic background will be pushed into the background, where it is taken for granted, at the same time as it retains its function as a meaningful context (cf. Linell, 1992, p. 256).

Vygotsky’s perspectives on early language acquisition, with the tacit knowledge tradition as a background

Initially, the adult and the child maintain contact of a social and emotional nature, where pointing and gestures are used together with laughter and babbling (vocalizations) (Vygotsky, 1987, p. 110):

... both mother and child [are] making and responding to a wide *variety of expressive, deictic and praxic movements* of hands that are coupled to *body movements, posturings and facial and vocal expressions*. (Tomasello, 1988, italics added; Trevarthen, 1992, p. 122; cf. Brock et al., 2009, pp. 126–27).

From a Vygotskian perspective, there are two interrelated implications to this. On the one hand, vocal expressions occur alongside laughter and gestures, as undifferentiated aspects of action in general. “Speech, perception, action and motivation constitute an undifferentiated entity” (Vygotsky, 1933/1976, p. 550). On the other hand, “The mechanism of meaning is present in the social act *before* the emergence of consciousness or awareness of meaning occurs (Vygotsky, 1978, pp. 77–78). In other words, sound production is “... subjectively intelligent and consciously purposeful before the appearance of speech” (Vygotsky, 1987, p. 110), as an action.

Thus, according to Vygotsky, it is a common assumption among children that everyone’s thoughts are the property of everyone, even when they are not expressed at all (Vygotsky, 1987, pp. 263, 263–65). The child’s early vocal expressions are considered as collective monologues, with a potential to function both as communicative and a kind of self-addressed or egocentric speech.

On the one hand, when the child's expressions are linked to his practical activity, they really do operate on his mind and influence it (Vygotsky, 1987, pp. 78–79), although they are limited to babbling and vocalizations (Vygotsky, 1987, pp. 263–65, 1987, p. 259). With development, this kind of self-addressed speech will gradually have "...an independent (...) function that facilitates intellectual orientation, conscious awareness, the overcoming of difficulties and impediments, and imagination and thinking". In other words, "... egocentric speech [is] has a *mental function*" (Vygotsky, 1987, p. 259).

On the other hand, in *its structure*, egocentric speech is external (Vygotsky, 1987, p. 260). Already in the child's instinctive imitation, the monologue is characterized by "... an affective coloring, an affective attitude, an emotional reaction, or a volitional tendency ... [corresponding closely] ... to the adults' judgement" (Vygotsky, 1998, 1987, p. 164) (cf. Meltzoff et al., 1991, p. 398).

Vygotsky's general argument was elaborated by Halliday (1975), who remarked that what may launch a common project for the child and the adult is action as an undifferentiated entity. Comments and assessments of this theme, however, are "... conveyed largely by variation of the voice", i.e., by the intonation contours.

In this way, the inherent mechanism of meaning in the child's vocalizations encourages the adult to guide the child by mirroring it towards the gradual discovery that intentions are transferred in a systematic manner by the external, expressive aspects of speech themselves (Vygotsky, 1987, p. 271, 1986, pp. 241–242). Over time, the child's instinctive imitation is exceeded and replaced by a meaningful version. Although its vocalizations are based on the very same external, expressive aspects of speech, they still function as speech acts.

In this way, egocentric speech as an instrument for thinking is transferred into communicative speech and therefore differentiated from general action. In this way, the initial relationship between speech and action is gradually reversed. While vocalizations defined by their external characteristics are foregrounded, they are also generalized through familiarization, while general action will be backgrounded, constituting the meaningful context needed for the interpretation of speech (Vygotsky, 1976, p. 548).

This development is reflected in Vygotsky's conception of meaningful imitation, in its function as well as its structure. Meaningful imitation, in its

turn, however, reflects Vygotsky's conception of word meaning (Vygotsky, 1934/1987, p. 250).

Word meaning

According to Vygotsky, word meaning should be considered, as a movement from: "... thought to word and from word to thought" (Vygotsky, 1934/1987, p. 250). Already at an early stage then, Vygotsky considers experience as an internal relationship between the child as an individual and a given aspect of reality. Word meaning is a unit of personality and environment as it exists in development (Vygotsky, 1984, p. 382, in Minick, 1987, p. 32).

In their first years of life, however, children cannot make the movements required on the internal level exclusively. They will have to be established in imitation, as movements in the relation between holistic, internal imitation on the one side and external imitation in action on the other. In internal imitation, word meaning emerges as a hypothesis. In external imitation, it is operationalized in action, making the child's thinking available for the adults' mirroring in cooperation.

Also, for the very young child, word meaning is an operation, even if this is the case only in the literal sense of the word, a *movement* from internal to external imitation, and from external to internal imitation, as a sensory-motor activity. This is substantiated in Vygotsky's well-known claim, that action is "... subjectively intelligent and consciously purposeful before the appearance of speech" (Vygotsky, 1987, p. 110). When Vygotsky considers "the deed" as being more fundamental than "the word", however, it also applies to the assumption that the words themselves function as acts, as speech acts in Austin's (1962) sense of the word.

Meaningful imitation and language acquisition

Vygotsky's general position is that the child hears a word that he does not understand in a phrase that he does. Later, he hears it again in another phrase. Through continuous language exposure, aggregates of associative connections will gradually be accumulated as traces of memory on the inner plane: "... in early childhood [memory] is one of the central psychological functions upon which all the other functions are built ... For the

very young child to think means to remember; ...”, according to Vygotsky and Cole, (1978, p. 50).

When the aggregates that are accumulated in the child’s natural memory are recognized in its cooperation, they mobilize the child’s motive to use the word (Vygotsky, 1987, p. 171). But as the child’s memory is holistic, it is the situation of which the word is a part which is mobilized at the internal level, not the separate word. In this way, Vygotsky’s internal imitation is also holistic (Vygotsky, 1987, p. 187), representing a *vague understanding* of the word’s meaning in perceptual terms (Vygotsky, 1987, p. 171).

Although the notions that constitute meaningful imitation in internal imitation have a perceptual character, their dynamic extensions in external imitation are still action (Vygotsky, 1932/1998, p. 227). In this way: “Internal and external actions are inseparable...” (Vygotsky, 1976, p. 550). By being articulated, the child’s “word meaning” develops from being an associative quantity to becoming a thought operation or a concept (Vygotsky, 1934/1987, p. 250).

In addition, Vygotsky also considers imagination, interpretation and will as “... internal processes in external action” (Vygotsky, 1976, p. 550). When phenomena are reproduced in external imitation, they will also be characterized by “... the generally expressive rather than the objective, elements of external activity as such” (Vygotsky, 1932/1998). “The impressions which originate from reality will alter in nature, grow or shrink in relation to its natural dimensions” (Vygotsky, 1972, p. 45, cited in Lindqvist, 1995, p. 47).

As imagination works by its images, it also supplies the child’s feelings (wishes) with an internal language of an aesthetic nature (Vygotsky, 1972, p. 33, cited in Lindqvist, 1995, p. 46), which also allows the child to evoke a suitable context. For example, the content of the child’s first words will emerge as mental illustrations, works of art or “fairy tales” about the phenomena rather than as objective reproductions (Vygotsky, 1987, p. 154).

Finally, when the internal representations are operationalized in action in external imitation, they are generalized by their expressive characteristics. Not only are their utterances perceptual in character, but they are also stylized by their exaggeration of their intonation contours. According to Vygotsky, the child’s early vocalizations will appear as “graphic representations” (Vygotsky, 1987, p. 226) or even figures (cf. figure – background), in correspondence with what Austin (1962) characterizes as speech acts. This also indicates that Vygotsky is perfectly aware that it is the interaction

between the context and the act which make transfer of intonation through prosody interpretable.

In sum, this indicates that Vygotsky's argument corresponds quite closely to Wittgenstein's assumption that the process of familiarization which takes place through practice is gradually expanded to include the physiognomy of the conceptualized circumstances, i.e., the singular phenomenon (the utterance), as well as the situation and context within which it occurs (Johannesen, 2007). Vygotsky's argument may also reflect Bourdieu's thesis (Bourdieu 1977, cited in Østerud, 1995) that the generalization mediated by action reflects a *conventional* and doxic perspective.

This assumption is articulated more explicitly in Vygotsky's discussion of (role) play, as we shall return to below.

Play = memory in action

Primarily, Vygotsky considers play as constituted by memory processes on the internal level which are operationalized in action on the external level, as "memory in action". At the same time, however, he emphasizes that the memory processes involved are closer to *recollections* of something that has happened (Vygotsky & Cole, 1978, p. 103). Vygotsky's choice of terminology indicates that what he has in mind is a process of dynamic *reflection*, a meaningful, not mechanical, imitation as already indicated.

The background for this is that small children for several reasons lack the competencies that are required for participation in everyday life. Thus, their reflection in action will very seldom take place with the real world as a context (cf. Berk & Winsler, 1995, p. 53; Brock et al., 2009, p. 57). For children to be able to experience those phenomena that emerge as hypotheses in their memory in action, they need to create a suitable holistic context in their internal imitation. As imagination supplies the child's feelings (wishes) with an internal language of an aesthetic character (Vygotsky, 1972, p. 33, in Lindqvist, 1995, p. 46), they realize their memory in action by means of the combining ability of imagination (cf. Nicolopoulou, 1988/1999). This is the background for Vygotsky's description of play as "... an explicit imaginary situation ..." (Nicolopoulou, 1999, p. 429, cf. Vygotsky, 1976, 1933).

Further, it is action as an undifferentiated entity that launches what may constitute a common project for the child and the adult in play, as already indicated. Thus, it is both observable action and general role behavior, speech acts included, that are articulated in role play. Therefore, the child's

memory in action will reflect a set of thoughts, values, tastes and behaviors, which furthermore are taken for granted by the child and presumed to be universal or “normal” (Brock et al., 2009, p. 57).

The collective codes that are, in this way, implicated in the child’s acts, however, need to be recognized spontaneously by other participants for role behavior to constitute a collective activity (Bredikyte & Hakkarainen, 2018; Zachrisen, 2013). Like Winnicott (1981, cited in Öman, 2012, p. 125), Vygotsky (1933/1976) also assumes that play will occur in a space referred to as “the third room”, a space between the real world and the child’s internal subjective world.

Vygotsky in relation to Schön

Vygotsky’s assumption that play is memory in action is closely related to Schön’s conception of thinking as reflection in action. In the same way as the professionals in Schön’s context, children in their everyday life, according to Vygotsky, accumulate a wide range of (graphically represented) examples, images, interpretations, forms of understanding and actions – collective codes – on the internal plane. In the same way as Schön’s professionals, Vygotsky’s children – in play – demonstrate their competence through thinking (memory) in action.

Further, where professionals in the workplace try to recreate new phenomena in a way that makes them relevant in relation to already accumulated knowledge, children in play are enabled to use their memory contents in forever new combinations, by mobilizing the combining ability of imagination. Thus children, in the same way as professionals, are enabled to widen and rearrange the existing range of examples, images, interpretations, forms of understanding and actions on the internal plane. From Vygotsky’s point of view, “Imagination is not the antithesis of memory; [Instead] It *supports itself* on memory” (Vygotsky, 1972, p. 33, in Lindqvist, 1995, p. 46).

When it comes to tacit knowledge theorists in general, the comparison suggests that language skills develop on a relation between (perceptually represented) norms – in internal, holistic imitation – and their operationalization in action – in external imitation. So when Vygotsky points out that children can express themselves orally in accordance with semantical, phonological, morphological, syntactical and pragmatical rules for language use already by the age of four (Vygotsky, 1987, p. 205), his general explanation – corresponding to that of tacit knowledge theorists – is that

children, by means of the interplay between internal, holistic and external sequential imitation, are enabled to formulate utterances spontaneously and in full compliance with prevailing grammatical rules and norms for prosody. As theoretical knowledge of prosody and intonation can only be articulated in retrospect, based on analyses of practical language use, Vygotsky, like Polanyi (1967), claims that “We know more than we can tell”.

Summary and conclusion

Although Vygotsky is seldom mentioned when tacit knowledge is discussed, I have in this chapter introduced an argument which shows that children – in his opinion – demonstrate very early in life that they know more than they can tell.

On the one hand, he argues that children’s vocalizations are linked to their practical activity, that they have a *mental* function. On the other hand, and at the same time, however, he also claims that when children convey intentions, they largely do so by varying the intonation contours. Further, by mirroring the child’s vocalizations in a certain way, the adult, according to Vygotsky, can create a foundation for the emergence of meaningful imitation based on acts which reverses the initial relationship between speech and action.

Through continuous language exposure, the child in its holistic memory accumulates aggregates of associative connections, which, when recognized on later occasions, represent a *vague understanding*. What is mobilized in internal, holistic imitation initially, however, is the perceptual representation of the separate words as an aspect of the situation. In external imitation, they are articulated in action. Thus, word meaning in imitation emerges as a thought operation at a very early stage.

In addition, in repeated action the vocalizations will also be generalized by their excessive, expressive characteristics and, in this way, operationalized as speech acts. Through processes of foregrounding and backgrounding, which take place in the relation between holistic, internal imitation on the one side and external imitation in action on the other, vocalizations adopt “word” meaning, in the sense that they become interpretable as speech acts within the perspectives of a surrounding meaningful context.

The argument was elaborated by Vygotsky (1933/1978) in his discussion of role play, which he perceives as a memory process, which, however,

interacts with the combining ability of imagination. On the external level, the synthesis is operationalized in action.

Conceptualized as memory in action, Vygotsky's understanding of play is quite closely related to Schön's (1983, 1988) conception of reflection in action. Both parties assume that a wide range of experiences are accumulated and represented perceptually on the internal plane, and both parties presuppose that the representations are operationalized through thinking (memory) in action.

Furthermore, while Schön's (1983, 1988) professionals try to make the new phenomena they are exposed to relevant by recreating them in relation to already accumulated knowledge, Vygotsky's children mobilize imagination in order to be able to use their memory contents in forever new combinations. Thus, both professionals (at work) and children (at play) are enabled to widen and rearrange – generalize – their existing range of experiences in internal imitation in external action.

This demonstrates that Vygotsky shares the assumption suggested by Wittgenstein and Bourdieu, that language skills are developed in a relation between (perceptually represented) “norms” on the internal plane and their operationalization in action on the external plane. However, he points out that it is the interplay between internal, holistic and external sequential imitation which enables them to formulate utterances spontaneously, but still in full compliance with prevailing grammatical rules and norms for prosody.

In sum, the comparison between Vygotsky and tacit knowledge theorists presented in this chapter demonstrates that their perspectives are very closely related. Most fundamentally, this applies to the assumption that practice – including the use of language – constitutes a relationship between the external reality and our thinking about it.

Further, it applies to the assumption that perceptual representations on the internal plane are operationalized in action, and that the process of familiarization which takes place through repeated practice is gradually expanded to include the physiognomy of the conceptualized circumstances also.

Thus, the kinship between Vygotsky and tacit knowledge theorists also includes the assumption that utterances are operationalized by their expressive characteristics, and therefore constituted as speech acts in external imitation, at the same time as they become interpretable within a meaningful context, in internal imitation, through the processes of foregrounding and backgrounding.

Finally, Vygotsky anticipates the assumption of tacit knowledge theorists that mastery of prosody and intonation are demonstrated in linguistic practice very early in a child's life. Theoretical knowledge of such phenomena can be formulated only in retrospect, based on the analyses of practical language use. In this way, Vygotsky also anticipates Polanyi's (1967) claim that children "know more than they can tell".

The close connection between central perspectives in the tacit knowledge tradition and Vygotsky's approach indicates that his thinking may shed new light on the mechanisms behind the emergence of tacit knowledge in childhood, especially where language development is concerned. More precisely, Vygotsky argues for the central role played by meaningful imitation. At the same time, the kinship between the approaches indicates that tacit knowledge perspectives should probably be taken more seriously among educationalists than they seem to be at present.

Initially I quoted Vygotsky's formulation, "*In the beginning was the deed*". At this point I would like to specify, however, that his intention was by no means to underestimate the significance of language for development and learning, as he considered the word as "... the end that crowns the deed!" (Vygotsky, 1987, pp. 284–85). It is the other way around.

To be able to crown the deed, however, the child – as well as the teacher student – depends on the accumulation of a wide range of examples, images, interpretations, forms of understanding and actions on the internal plane. Furthermore, to widen and rearrange their existing range of experiences, both children and teacher students also need to generalize their experiences, and do so by using them "in forever new combinations".

But as theoretical knowledge must be based on analyses in retrospect, the actual practical experiences must be widened and rearranged from a theoretical point of view. Not as narratives, but as analyses of narratives which are constituted as practical syntheses. This, however, is a topic I have discussed in another article (Engen, 2011; Grimen, 2008). With a slight reformulation of Vygotsky's statement, my concluding suggestion is that "Theory (imagination) is not the antithesis of memory. It *supports itself* on memory (of practice)".

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