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Teaching as Tacit Integration

Abstract

The purpose of this paper is to ground the teaching act in a theory of mind by delineating both the structure and process of that act as an instance of Michael Polanyi's theory of "tacit knowing," his distinctive feature of all human consciousness. The paper opens with a brief account of how the activity of teaching is currently conceived, and is followed by a sketch of Polanyi's theory of tacit integration. The paper closes with a view of the teaching act seen as an instance of such tacit integration, through a tripartite structure consisting of general pedagogical skills, pedagogical knowledge of subject matter, and philosophical reflection of a pedagogical nature.

Résumé

Cet article vise à fonder l'acte d'enseignement sur une théorie de l'esprit en délimitant à la fois la structure et le processus de l'acte d'enseignement en tant qu'instance de la théorie de la "connaissance tacite" de Michael Polanyi, selon qui cette connaissance serait une caractéristique distinctive de toute conscience humaine. L'article s'ouvre sur une brève description de la façon dont l'activité pédagogique est actuellement conçue; vient ensuite une brève description de la théorie d'intégration tacite de Polanyi. L'article se termine sur un aperçu de l'acte d'enseignement en tant qu'instance d'une telle intégration tacite par le biais d'une structure tripartite comprenant les aptitudes pédagogiques générales, la connaissance pédagogique de la matière et les réflexions philosophiques à caractère pédagogique.

A theory of teaching presupposes a theory of mind in terms of which the act of teaching may be seen as a particular manifestation. Teaching has been traditionally "observed" by means of an "observation grid" which rates, in numerically ascending order, things like "professional qualities," language use, evidence of preparation, and "delivery," a range of "observables", from sequential development, pacing, and class management to encouragement of learners, evaluation of learning, and "closure." The observation grid fails to take into account (1) the conceptual substratum underlying its "measured observables," (2) the nature of the teaching act itself conceived independently of, and prior to, its overt exercise, and (3) the structure of the processes which are occurring within the teacher while engaged in the act of teaching. What is required of the observation grid is a conceptualization of the teaching act such that its measured observables derive coherence. Thus, what is required is some theory of mind in terms of which the act of teaching may be seen as a particular manifestation.

Various psychological theories relating to the nature of the activity of mind and, by extension, to the nature of the activity of teaching, are not themselves the outcome of some antecedent feats of psychologizing but, rather, are the outcome of prior philosophical reflection. Psychology will never of itself reveal either the nature of mind or the activity of teaching. However, philosophical conceptions of mind as found in philosophy of education have not been particularly successful either in shedding much light on the mental operations involved in the teaching act.

The Romantics and the Formalists

The proponents of different philosophical conceptions of teaching fall roughly into one of two general categories, "romantics" and "formalists." For the romantics, who see the activity primarily in terms of a range of personal qualities or attributes, teaching is ultimately an idiosyncratic activity, one where the teacher is not made but born. Michael Oakeshott (1972) points out that where "instructing" concerns the transfer of information, "imparting", the real mission of the teacher, involves communication of "the tacit or implicit component of knowledge, the ingredient which is not merely unspecified in propositions but is unspecifiable in propositions" (p. 167). However, Oakeshott's "imparting" is unclear as to just how something which is unspecifiable in propositions can be communicated. Its structure and process are not articulated. Its exercise is idiosyncratic. R. S. Peters (1967), in spite of his linguistic approach, may also be found among the romantics. He points to a "contagion" between teacher and student, of "subsidiary processes" where "[i]f the teacher gets too self-conscious about them, the business gets blurred. He has to have what Lawrence called 'the holy ground' between teacher and

taught” (p. 12). Like Oakeshott, Peters never gives greater specification to the crucial concept of those subsidiary processes.

At the other end of the continuum from the romantics are the formalists, those who attempt to characterize the activity of teaching in terms of some “objective” feature, whether conceived in observable terms or in terms of attributes logically entailed in the “concept of teaching”. The romantics failed to clarify the activity of teaching by rendering it idiosyncratic, however the formalists fail to engage the activity at all. Teaching, according to some (Dearden, 1967; Ennis, 1981), is viewed as a “polymorphous concept”. One could be engaged in a whole range of different behaviours and still be engaged in teaching. However, this concept becomes empty because that range of behaviours cannot be infinitely polymorphous.

Israel Scheffler (1973) claims his “rule model” of teaching constitutes a happy compromise between a mechanical “impression model” and an intuitive “insight model”, but goes on to say that teaching is “more analogous to lion-hunting than to spelling with respect to rules. No rules designed to improve the likelihood of success are both exhaustive and helpful to the would-be teacher, at least as far as we can tell” (p. 71). One is left wondering, as a consequence, what the content of Scheffler’s rule model might be.

Paul Hirst, the British analytical philosopher of education, initially derived teaching practice from the particular “form of knowledge” in which it was embedded. In the case of history, Hirst (1967) pointed out that “before we can carry out any empirical investigation of teaching methods we are faced with the difficult task of getting clear what is involved in, say, thinking historically, and thus in learning to think in this way” (p. 45). He subsequently (1982) reversed this view, maintaining that “[n]o understanding of educational activities in terms of formal disciplines can . . . ever provide an adequate basis for determining a body of professional practices” (p. 178). As a result there can be no such empirical investigation of teaching methods since no understanding of the activity of teaching can ever be derived from the relevant formal disciplines.

Recently, in what appears to be a return to the original Hirstian perspective, Hunter McEwan (1989) maintains that “[w]hat is needed to illuminate the nature of the act of teaching something to someone, then, is to provide a clearer understanding of the nature of teachers’ thinking about the subjects they teach” (p. 67). McEwan proposes the expression “pedagogic interpretation” where (1) a distinction is made between “explanation” which relates to matters concerning the natural world, and “interpretation” which relates to what is already known about the world,

and (2) the teaching act is to be seen as an exercise in interpretation, where teachers “adapt the content of instruction (what is known about the world) to the minds of their students” (p. 68). McEwan never reveals just why it is wrong to speak of explanation in connection with, say, history or why it is wrong to speak of interpretation in matters relating to the natural world. The major difficulty is that he never shows what is involved in that understanding of the nature of teachers’ thinking about the subjects that they teach or what is involved in adapting the content of instruction to the minds of their students. When one is engaged in pedagogic interpretation one is **necessarily** engaged in teaching since that is what “teaching” means, but McEwan’s process of adapting the content of instruction to the minds of students is never shown.

Like the romantics, the formalists touch upon aspects of the teaching act, but fail to engage the nature of that activity itself because a unifying theory of mind, which provides the foundation of any theory of teaching, is absent. Within the conceptual space provided by the extremes of the romantic and formalist views, an attempt will be made here to give an account of the teaching act as embedded in and as a manifestation of the theory of mind contained in Michael Polanyi’s theory of “tacit integration,” a concept which ascribes common structure and process to all conscious, purposive human activity.

Tacit Integration

Structure of tacit integration

For Polanyi, all acts of consciousness are structured by relying “subsidiarily” on a range of clues or “particulars” while directing focal or explicit attention to the object, performance, or meaning under scrutiny. Such subsidiary awareness was not to be confused with subconscious or preconscious awareness. “Focal and subsidiary awareness are definitely not *two degrees of attention* but *two kinds of attention* given to the *same* particulars” (Polanyi, 1961, p. 463. Italics in original). For example, one can give either focal attention to the words on this page, or one can give them subsidiary attention while directing focal attention to their meaning. When one relies subsidiarily on the words while directing focal attention to their meaning one does not do so in a formal or explicit sense, but rather in an informal, tacit sense. We are aware of the words in terms of the meaning upon which we have fixed our attention.

Such subsidiary-focal awareness, for Polanyi (1975), structures all conscious activity. Further, such awareness is not automatic but rather “is formed by the act of a person who integrates one to the other” (p. 38). This unavoidably person quality of tacit integration renders the concept of a wholly explicit, focal, or “objective” way of knowing meaningless.

In Polanyi's structure of subsidiary-focal awareness, subsidiary awareness is subsidiary only by virtue of its function in the "tacit triad" where the person (A) integrates the clues (B) into their bearing on the object of explicit awareness (C). As a result of their so functioning, the subsidiary particulars now "look different" than they did in isolation since "we are aware of that from which we are attending to another thing in the appearance of that thing" (Polanyi, 1964, p. 59). This "phenomenal" aspect of tacit knowing indicates, for example, that we are aware of the features of a friend's face tacitly, only in terms of our focal awareness of the total appearance of his face.

In addition to its functional and phenomenal aspects, the act of tacitly integrating clues into their bearing on the object of explicit attention serves to bestow meaning upon those clues. With the "semantic" aspect of tacit integration, Polanyi (1959) points out that we now become aware of the particulars "in terms of the whole on which we have fixed our attention" (p. 30). The total appearance of the friend's face renders its features meaningful, such features being the particulars of that "comprehensive entity" which they jointly constitute. Finally, since the act of tacit integration establishes a meaningful relationship between subsidiary particulars and the object of explicit awareness, the "ontological" aspect of tacit knowing renders it identical "with the *understanding* of the comprehensive entity which these two terms jointly constitute" (Polanyi, 1967, p. 13. Italics in original). In other words, there is no way in which we can transcend our own acts of tacit integration, our own understanding of a comprehensive entity, and proceed to compare such understanding with that entity independently of our understanding of it. There can be no depersonalized acts of knowing.

Process of tacit integration

As the *from-to* structure of tacit integration is present in all acts of knowing, ranging from perception to discovery, so the process of tacit integration (what Polanyi calls "indwelling") embodies the activity itself across the spectrum of awareness. To understand — to perform acts of tacit integration — is to come to live in the object of such understanding in a relationship similar to that which we know almost exclusively by relying upon it for the purpose of attending to something else.

Our body is a collection of such things; we hardly ever observe our own body as we observe an external object, but continually rely on it for observing these objects outside, and manipulating them for our own purposes. Hence we may identify the knowing of something by attending to something else as the kind of knowledge we have of our own body by living in it. (Polanyi, 1961a, p. 299)

Indwelling, the process of understanding, extends from the skilled use of tools through knowing other minds to our theories and generalized view of the nature of things. We indwell in our own conceptual frameworks to render reality meaningful, and, in so doing, we are necessarily committed to that framework in terms of which meaning is made. We cannot scrutinize our spectacles while using them to scrutinize something else. Since all acts of knowing are grounded in a range of subsidiary particulars by virtue of which those acts derive their meaning, such integrations are irreducible to an "objective" analysis of that range of particulars since the basis of such an analysis must have its basis in a further framework to which the one doing the analysis is himself then committed. Similarly, tacit integrations are irreversible in the sense that they cannot be traced backwards to their origins by a series of formal steps. When we shift our attention from the meaningful result of an integration and focus on the subsidiaries "their integration is wiped out. The subsidiary particulars cease to have a bearing on their prospective target and are reduced to an aggregate of meaningless objects" (Polanyi, 1969a, p. 88).

For Polanyi, tacit integration constitutes a claim to know, a claim with universal intent and not, as with subjectivism, merely the articulation of a purely passive experience. "Insofar as the personal submits to requirements acknowledged by itself to be independent of itself," Polanyi (1962, p. 162) maintained, "it is not subjective; but insofar as it is an action guided by our individual passions, it is not objective either. It transcends the disjunction between subjective and objective." In Polanyi's transcendence of the subjective-objective dichotomy, as embodied in acts of tacit integration, egress from the bifurcation of romantic or formalist accounts of the act of teaching may be envisaged. There emerges between these two extremes a hierarchical and interrelated construct, each part of which contains its own subsidiary-focal structure, and each part of which stands in subsidiary-focal relation to the other part.

Teaching as Tacit Integration: In General Terms

The hierarchical and interrelated construct has as its base a number of general pedagogical skills, the exercise of which may be characterized in subsidiary-focal terms. At the median level, those general subsidiary skills themselves become subsidiary to a distinctly pedagogical knowledge of subject matter which itself is a product of subsidiary-focal acts of tacit integration. Finally, there is a philosophical reflection of a pedagogical nature, the "semantic" whole on which we have fixed our attention and in terms of which the particulars (i. e., general pedagogical skills and pedagogical knowledge of subject matter) derive their coherence or meaning. It is in terms of such philosophical reflection of a pedagogical nature, now tacit, now focal, that the standard of pedagogical skills and

knowledge may be assessed. Teaching viewed as an exercise in tacit integration at these three levels seeks, on the one hand, to avoid a formless romanticism by virtue of its structure; on the other hand, by virtue of the process of indwelling, it similarly seeks to avoid an empty formalism.

It is not difficult to sketch the act of teaching as tacit integration in structural terms. In respect to the functional aspect of tacit integration, the teaching act may be conceived as one in which the teacher's awareness is directed from a range of distinctly pedagogical particulars towards its focal target, the skillful and effective performance of the teaching act itself. As with other acts of tacit integration, teaching is triadic in nature since the teacher (A) relies upon those particulars (B) in making them bear upon, or jointly integrating them into, the object of explicit or focal awareness (C). The range of subsidiary pedagogical particulars looks different than it did in isolation before the particulars were integrated into the triad as "ingredients" of the teaching act itself. With respect to the semantic aspect of tacit knowing, the act of teaching now becomes the meaning of those pedagogical particulars and we are aware of them in terms of that coherent entity of which they constitute the component parts. Finally, the ontological aspect of teaching as tacit integration serves to underwrite that activity conceived as a real comprehensive entity.

The process of teaching viewed as an act of tacit integration becomes an act of indwelling in those pedagogical particulars which we assimilate as part of ourselves and which we project into the act of teaching. This indwelling presupposes a commitment to such particulars in the sense that one cannot, while teaching, strike a posture of doubt or of impartiality towards them. In the same way, the teaching act is irreducible to that which is explicitly known in its terms, and the process of pedagogical indwelling is irreversible in the sense that one could not trace the process back to the subsidiaries. In effect, any description or assessment of the teaching activity can be done only by a comparable act of indwelling, where, by "comparable" is to be understood as indwelling in another, yet not unrelated, tacit framework of subsidiary particulars. Is this merely another manifestation of the romantic view? As with all human activity, there is necessarily a residuum of unspecifiability and in this the act of teaching is no exception. Yet teaching must submit to standards acknowledged to be independent of its own particular exercise. As such, teaching viewed as tacit integration is not idiosyncratically subjective, yet, because it is also an action guided by individual passions, it is not formalistic either. It transcends the disjunction between romanticism and formalism.

The subsidiary particulars of the teaching act viewed apart from their integration dissolve into meaningless objects, thus an unspecifiability attaches to any attempt to reverse the process of tacit integration involved in the teaching act back to those subsidiary particulars. Since the integration of the subsidiaries is of a different order than their simple enumeration, a complete mapping of those subsidiaries of which the teaching act is the focal embodiment will never capture the concept. Again, since the subsidiary particulars of the teaching act viewed apart from their integration dissolve into meaningless objects, an unspecifiability attaches to any attempt to reverse the process of tacit integration involved in the teaching act back to those subsidiary particulars.

Hierarchical and interrelated structure

In spite of unspecifiability, an indistinct yet coherent outline of teaching as tacit integration may be glimpsed by reference to its hierarchical and interrelated structure as embodied in general pedagogical skills, a pedagogical knowledge of subject matter, and philosophical reflection of a pedagogical nature.

General pedagogical skills. Viewed apart from their tacit integration into skilled teaching performance, general pedagogical skills will dissolve into meaningless particulars. They must be embodied in a particular act to be observed, but it makes no sense to say, like some (Barrow, 1990), that the notion of generic pedagogical skills makes no sense. In the same way that artistic skills are not observable independently of their embodiment in works of art and skillful application of the principles of justice are not observable independently of their embodiment in concrete courtroom judgments, so general pedagogical skills are not observable independently of particular classroom performance. These skills do not exist focally in the form of some sort of free-standing entities, but rather subsidiarily, as the tacit framework within which successful performance is embodied.

In addition to acts of perception and scientific discovery, the execution of skillful performance of any kind results from the successful integration of what Polanyi calls the “premises” of that skill by the performer into such attention to its execution. Such premises, according to Polanyi (1962),

. . . cannot be discovered focally prior to its performance, nor even understood if explicitly stated by others, before we ourselves have experienced its performance, whether by watching it or by engaging in its ourselves. In performing a skill we are therefore acting on certain premises of which

we are focally ignorant, but which we know subsidiarily as part of our mastery of that skill, and which we may get to know focally by analyzing the way we achieve success (or what we believe to be success) in the skill in question. (p. 300)

Three levels of unspecifiability attach, then, to any account of skillful performance: (1) the premises of a skill cannot be discovered prior to experiencing its performance; (2) in the performance of that skill the performer her/himself is focally ignorant of the premises of its exercise; (3) after the performance of the skill we may get to know the premises of its exercise focally by analyzing the way we had achieved success, but we might also be mistaken. In the case of general pedagogical skills, those who have not taught skillfully will not even understand the premises of skillful teaching; the skillful teacher is unaware, in the course of teaching, of the very premises which render that teaching skillful; finally, such premises of skillful teaching might be understood focally by an analysis of skillful teaching, but, on the other hand, they might not be.

A distinction should be made between those premises which are unique to the individual and those which are, at least in principle, transferable to beginning teachers. Three examples of transferable premises of teaching are articulated here.

(1) *Structuring*. Nothing of value happens in a classroom without a subsidiary structure, and such a structure does not occur fortuitously. To be effective, structure must be unobtrusive and fluid. Conceived in terms of both content and time, structure should function tacitly while focal attention is directed towards the ebb and flow of classroom dialogue. In skillful teaching performance, structure is never in the focal mode. Further, structure, though subsidiary, is not itself rigidly so since it is in interaction with a host of other subsidiary, and sometimes focal, currents at play in the classroom.

(2) *Distancing*. Skillful teachers monitor the effects of their influence on their students since their purpose is neither to pirouette nor to attempt to produce carbon copies of themselves. Distancing relates to that complex of subtle interactions which spring from the distinctive nature of the student-teacher relationship, one designed to allow the student space to develop. It is a subsidiary skill which finds its expression in establishing nonauthoritatively the limits of student freedom in the classroom, the tacit boundaries of appropriate conduct and expression. The skill can be achieved at least in part by precept.

(3) *Pedagogical questioning.* Teaching is neither merely lecturing nor instructing but rather a dialogical exercise in which the teacher relies subsidiarily not just on structure and content but also on the character and ability of particular students to respond in such a way that development occurs. Pedagogical questioning is the quintessential general pedagogical skill. While it is neither a mechanical exercise nor a diffused, unfocused activity, skillful questioning is that skill by which the student-teacher dialogue is initiated, sustained, directed, and enriched. It is a skill transferable to beginning teachers more by apprenticeship with one already skilled in the art than by explicit precept.

Pedagogical knowledge of subject matter. Knowledge of a particular subject area, organized, articulated, and shaped by dialogical communication with students for the purpose of understanding is a special case of tacit integration, amenable to analysis in terms of the structure and process of subsidiary-focal awareness. Pedagogical knowledge of subject matter is not to be confused with a simple knowledge of subject matter since the latter in no way entails the ability to teach it, but consists rather of pedagogical skills shaped by both a knowledge of and a feeling for a particular subject domain which jointly bestow upon such skills their distinctive nature. Embodied in a particular subject domain, pedagogical skills derive coherence in terms of the subject matter on which we have fixed our attention.

A pedagogical knowledge of subject matter is to be distinguished from general pedagogical skills not only in terms of their distinctive functions in the subsidiary-focal relation but also because such knowledge of subject matter is articulated knowledge. In the act of producing an articulation, language itself lies in the subsidiary mode while it is brought to bear upon its focal target, the meaning of that articulation. Correspondingly, in the act of comprehending an articulation, language lies in the subsidiary mode while it is brought to bear upon understanding the meaning of that articulation. A pedagogical knowledge of subject matter may therefore be given greater specification in terms of what Polanyi (1974) has referred to as acts of “sense-giving” and “sense-reading”.

Suppose we travel in a country we have not visited before. By the end of the morning we will be full of new experiences and may report them by letter to a friend so that he may read our message and try to understand our experiences. This is a sequence of three integrations. The first is an intelligent understanding of sights and events, the second the composing of a verbal account, and the third the interpretation of this verbal account with a view to repro-

ducing the experience which is reported. The first two integrations are the work of one person, while the third is done by another person, the friend addressed by the first. We may note also some variation in the character of the three consecutive integrations. The first triad is mainly cognitive; it has the structure we met in the process of perception and, more strikingly perhaps, in the identification of a specimen by an expert. The second triad, which puts the result of the first into words, resembles more the performance of a practical skill, while the third returns once more to the cognitive type. The first triad is more a sense-reading, the second more a sense-giving, and the third, once more, a sense-reading. (p. 186)

With slight variations, Polanyi's complete act of communication, his "triad of triads," may be seen as paradigmatic of the act of teaching as tacit integration. In the initial act of sense-reading, the intelligent understanding of sights and events, we find the counterpart in the teacher's intelligent understanding of his subject matter, where, by "intelligent" is now to be understood not only the structuring or patterning of subject matter for comprehensible transmission by way of dialogical "communication between student and teacher, but also some" **conception** of his subject matter which serves as the basis of such structuring or patterning.

Since it involves conveying the meaning acquired by an intelligent knowledge of subject matter, the second triad, that of sense-giving, may well constitute the quintessence of actual pedagogical performance. In what Polanyi called "conceptual subsumption," the letter-writer conveyed his meaning by the use of universal terms, words which can apply to a range of objects and ideas which can differ in every particular. There is no explicit procedure to account for the subsumption of particulars under a general term. For example, the conception of a "tree" for Polanyi (1974)

... arises by the tacit integration of countless experiences of different trees and pictures and reports of still others; deciduous and evergreen, straight and crooked, bare and leafy. All these encounters are included in forming the conception of a tree, which is what we mean by the word 'tree'. (p. 191)

In the same way, with a pedagogical knowledge of subject matter, teachers tacitly integrate countless encounters with the concepts distinctive of their subject domain as they grope for words to convey them. No

explicit procedure can account for the words they use in the classroom nor for their assessments of significance, adequacy of explanation, and so on. Those previous encounters with concepts distinctive of their subject area are brought to bear as clues to the conceptions under which they are subsumed; the conceptions, in their turn, serve as exemplifications of those encounters by virtue of which they derive their meaning. In addition, previous pedagogical experience is subsumed jointly with previous acts of conceptual subsumption related to subject matter. It is in connection with these previous experiences that distinctive methods of pedagogical sense-giving arise, methods now conceived not in some narrow rule-governed sense but rather as they relate to ethos and style which then, in their turn, become subsidiary to the performance.

The third and final triad may also be applied to the teaching act itself. Where a truly dialogical relation exists between student and teacher, pedagogical knowledge of subject matter involves alternative acts of sense-reading and sense-giving. Not only do the teachers sense-read their subject matter and convey its meaning to the student in acts of sense-giving, they also sense-read the responses of the students, their particular acts of sense-giving so that they can, if required, modify their further acts of sense-giving. Where the recipient of the letter was passive, in the pedagogical encounter the student actively intervenes in the teacher's acts of sense-giving. It is this dual activity of sense-giving and sense-reading on the part of both student and teacher, an activity which again is inaccessible to any explicit procedure, which defines what is meant by a pedagogical knowledge of subject matter.

Philosophical reflection of a pedagogical nature. Where a pedagogical knowledge of subject matter harnessed undifferentiated general pedagogical skills in the performance of pedagogical acts of sense-reading and sense-giving, so now philosophical reflection of a pedagogical nature constitutes the "distal pole" of such knowledge and skills in terms of which they derive **their** meaning. The exercise of pedagogical skills and acts of pedagogical sense-reading and sense-giving, in other words, are not isolated performances but rather acquire coherence to the degree to which they are the embodiments of philosophical reflection of a pedagogical nature. Such reflection may be seen as a broader, sustained act of sense-reading in the domain of educational theory and its manifestation in pedagogical practice whereby one comes to have some conception of what one is doing.

By tacitly relying on theoretical understandings while in the activity of teaching, understandings of either a foundational or teleological nature, one may acquire what Polanyi called "connoisseurship". It is important to point out that Polanyi (1967) made no distinction between theoretical and practical knowledge since,

[t]hese two aspects of knowing have a similar structure and neither is ever present without the other. This is particularly clear in the art of diagnosing, which intimately combines skillful testing with expert observation. I shall always speak of 'knowing,' therefore, to cover both practical and theoretical knowledge. (p. 7)

In the activity of teaching, theoretical understandings in the "art of knowing" become the tacit counterparts of the premises of skillful performance where, like the art of diagnosing, the performers "know many more things than they can tell, knowing them in practice, as instrumental particulars, and not explicitly, as objects" (Polanyi, 1962, p. 88). In its turn, the exercise of pedagogical connoisseurship functions to enrich one's theoretical understanding, one's philosophical reflection of a pedagogical nature. Theory and practice function in a symbiotic, but also in a tacit, relation. Where general pedagogical skills provided the tacit framework for the operation of a pedagogical knowledge of subject matter and such knowledge, in its turn, the framework for philosophical reflection of a pedagogical nature, so now such reflection animates and guides that knowledge and those skills.

Conclusion

Oddly, in view of its centrality, the act of teaching is one of the most under-theorized aspects of educational theory. Under the aegis of a positivist intellectual hegemony, the act of teaching was seen as reducible to a series of overt behaviour as measured on an observation grid. The difficulty was not only that the purportedly "objective" observation grid was never itself objective but that the teaching act viewed from the perspective of the teacher himself was never engaged. Similarly, where psychology in general purports to be one of the "sciences of man", the conceptions guiding its practice are not themselves "scientific" but rather philosophical. The consequence is that psychology needs philosophy to "get started," but this need was precisely what positivism in its various psychological guises denied. Finally, philosophy of education itself attempted to portray the activity of teaching in evocative but ultimately empty terms, an emptiness resulting from the absence of a theoretical base in terms of which that portrayal might gain some coherence. The present paper constitutes an attempt to provide such a theoretical base. The act of teaching is here seen as a manifestation of Michael Polanyi's theory of tacit integration in which there exists a hierarchical and inter-related structure of pedagogical skills, knowledge, and philosophical reflection all standing in a subsidiary-focal relation to the other by virtue of the act of the teacher who indwells in them.

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