

# Indeterminacy and the Construction of Personal Knowledge

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**ABSTRACT** Key Words: indeterminacy, constructivism, Personal Construct Psychology, post-critical philosophy.

*Polanyi's post-critical philosophy contains a tension between the personal commitment of the knower to the apprehension of knowledge and the understanding of the incomplete, or potentially mistaken, nature of current understanding. This essay addresses this tension, both theoretically and practically, by drawing parallels between Polanyi's theory and George Kelly's Personal Construct Psychology. The two approaches share many similar assumptions about the development of knowledge. Application of Kelly's perspective may assist us in developing direct awareness of our active participation in creating knowledge, and helping us to articulate some of our underlying assumptions. Such activities facilitate movement toward more comprehensive understanding.*

Philosophers of knowledge have recurrently addressed the relationship between knowledge and truth, and more particularly have questioned whether we may consider our knowledge as objective (Lewin, 1991). Polanyi's (1958; 1969) post-critical philosophy presents a refreshing and potentially liberating perspective on these issues. Polanyi described personal knowledge as an active process based on a knower's awareness of coherence among particulars previously seen as independent or uncomprehended, an experience of something hidden but now potentially available to understanding. We come to see the particulars that we originally held in focal awareness as manifestations of a more comprehensive entity and we then experience them subsidiarily within the focal awareness of the new entity. Belief in the universal validity of the entity, a belief often tacitly held in the context of unarticulated and unarticulable assumptions and faith, drives our commitment to explicating the entity in a way that others may find compelling.

Polanyi viewed commitment to this way of knowing as inherently hazardous. We presume that this comprehensive entity actually exists, and thus it may reveal itself in a number of unpredictable ways. It may later appear radically different than what we originally anticipated. Since we derived the original conception of the proposed entity from a small set of particulars, further awareness may reveal a wide variety of additional particulars and implications that range far beyond the initial conceptualization. Thus, we might find it useful to assume that our current ideas or concepts about the universe, or its individual comprehensive entities, whether tacitly held or well articulated, do not reflect ultimate truth. Knowledge of reality must, inevitably, remain indeterminate.

Polanyi believed that the pursuit of higher order understanding takes place in the context of a passionate and personal commitment to incipient knowing. This commitment involves dwelling within tacitly held beliefs and assumptions that may remain mostly unconscious, and pursuing that knowledge with universal intent. Awareness that knowledge remains indeterminate may create an apparent paradox in the process of personal knowing, to the extent that we recognize the partial, and possibly erroneous, nature of this knowledge. I suggest that as seekers of knowledge we must embrace the tension between the indeterminacy of our knowledge and our commitment to it, in order to pursue new understanding and yet avoid the tendency to accept prematurely a particular interpretation or believe that we have arrived at a final truth. Although we might assent to this proposition, we may find some difficulty in applying it to our own understanding. An appropriate psychological model might provide us with some useful practical assistance in addressing the necessary balance between commitment and indeterminacy.

This essay attempts to elaborate on this issue by comparing certain Polanyian concepts to relevant ideas

within the language of constructivist psychology. I suggest constructivist psychology as particularly compelling because of its consistency with, and relevance to, Polanyi's view of human knowledge. Constructivist approaches to psychology [e.g., Piaget's (1970) genetic epistemology] view people as responding to a reality they have constructed from experience, rather than assuming they react directly to an objective environment. In order to understand human processes, the psychologist must examine the personal interpretations by which people give meaning and predictability to their encounters. Mahoney (1988), in an extensive explication of constructivist metatheory, emphasized its personally proactive and creative stance toward the development of knowledge, and provided a good overview of the history of constructivism and its current proponents. From a constructivist perspective, we acknowledge a real world, but understand that we can never perfectly know it. It also includes a view of human knowledge as an organized system in which higher order processes, portions held tacitly and unconsciously, govern and constrain the evolution of personal knowledge. Finally, it agrees with Polanyi that we can never fully justify knowledge, which must inevitably rest upon a personal claim.

### **The Human Construction of Alternatives**

Among constructivist psychologies, the Psychology of Personal Constructs (Kelly, 1955; 1979) provides a particularly suitable framework for addressing the issue of indeterminacy in the pursuit of personal knowledge (McWilliams, 1988a). Both Polanyi and Kelly published their major theoretical works in the 1950s and 1960s. Although I did not locate any direct reference to Polanyi in Kelly's published writings, the approaches of Kelly and Polanyi complement each other very well and many of Kelly's followers have cited Polanyi's theory and have drawn parallels between the Kellian and Polanyian perspectives (e.g., Mair, 1977a, 1977b, 1979; McWilliams, 1988a, 1988b; Morris, 1977; Radley, 1977; Thomas, 1979).

Kelly and Polanyi used intriguingly similar root metaphors. Polanyi described the scientist as a "personal knower," while Kelly described the knower (humans in general) as a "personal scientist." My desire to understand and further elaborate Kelly's metaphor led me to Polanyi's work, which provided me with a deeper understanding of the implications of viewing people as scientists. Both Kelly and Polanyi emphasized the active, personally constructed nature of human interpretations and a cautionary orientation to the relationship between those constructions and the reality they purport to represent. Kelly and Polanyi also agreed on several major assumptions about the relation of knowledge to reality: an inherently orderly universe actually exists, humans behave so as to come to know it, and they come to know it through a personally meaningful process based on perceiving recurrent patterns or themes among the particular events of their lives. Finally, both approaches emphasize the deep personal involvement of the individual in the process of knowing and the necessity of personal commitment to the articulation and elaboration of our understanding.

Kelly's personal scientist metaphor reflects his suggestion that we might usefully understand human psychological processes by acting as if all people operate under the same principles with which scientists claim to operate. Thus, we might view people in general as constructing a theoretical model of the world with which they have interacted, deriving from that understanding hypotheses that lead to predictions about specific situations, testing their hypotheses through their behavior, and revising their understandings on the basis of the consequences of their actions. Kelly further believed that we might usefully approach our presently held knowledge as a human invention, actively constructed to help us to predict particular events. From Kelly's viewpoint, each individual attempts to make meaning from experience by noting both comparison and contrast in the recurrent patterns among particular events, seeking general themes and transcending the obvious.

Personal Construct Psychology rests on a philosophical assumption called “constructive alternativism,” the proposition that we may subject all interpretations of the universe to revision and ultimate replacement. Kelly contrasted this assumption with a view he labelled “accumulative fragmentalism,” the belief that current human knowledge consists of “jigsaw puzzle” fragments of ultimate truth and that we elaborate it by accumulating more fragments until we know everything. Within Kelly’s model, we may revise our interpretations during the process of articulation and may ultimately replace them as we develop even better understandings. Kelly even applied this understanding to constructive alternativism itself, suggesting that some future understanding will ultimately replace it as well.

Kelly suggested that we might find utility in approaching all beliefs or interpretations as tentative and *ad interim*, with the expectation that we may discard them in favor of more useful beliefs that we will construct in the future. He proposed that the exact correspondence between human constructions and reality lies at some infinite point in the future. Kelly clearly modeled the application of this perspective when he applied it directly to his own theoretical position.

The theoretical statements propounded are no more than partially accurate constructions of events which, in turn, are no more than partially perceived. Moreover, what we propose, even in its truer aspects, will eventually be overthrown and displaced by something with more truth in it. Indeed, our theory is frankly designed to contribute effectively to its own eventual overthrow and displacement (Kelly, 1979a, p. 66).

Kelly designed his model explicitly to reflect upon itself — as a theory about how people develop theories. Thus, what it says of people in general applies equally to itself. This notion of “reflexivity” occupies a key role in Kelly’s position. We may usefully expand the concept of reflexivity to include a conscious stance toward knowledge by making personally applied constructs or interpretations themselves an object of study. We find it more difficult to hold up a concept or belief as truth when we have conscious awareness of the process by which we constructed that idea.

Kelly stated his theory formally (1955), with a fundamental postulate proposing that human processes orient toward anticipation; he also articulated a set of corollaries that elaborate on that proposition. Anticipation occurs through the use of constructs, bipolar dimensions of appraisal that replicate recurrent themes among events. He distinguished constructs from the more classical notion of a concept, indicating that construction includes both comparison (seeing similarity among events) and contrast (seeing differences among events). This process leads us to develop and use dimensions of appraisal that involve contrasting poles. Abstract concepts such as “good vs. bad,” “true vs. false,” or “positivist vs. post-critical” as well as more concrete constructs such as “electrical vs. mechanical” or “baked vs. fried” provide guidelines for seeing repetition and difference and preparing for future implications. Individuals develop construct systems with a hierarchical organization among components, and make choices based on their attempts to make their system more elaborate and effective. The system evolves through the successive anticipation of events, and varies to the extent that it admits new events to its range of understanding. The components of a person’s system may not necessarily relate logically to each other. Although some people see this as a “cognitive” theory, Kelly clearly considered it to deal with the whole person and to encompass emotion, cognition, and behavior.

Application of these theoretical notions led to a variety of methods, called “Repertory Grid Techniques,” for eliciting individuals’ personally meaningful construct dimensions, describing their organization, and providing a basis for reflection on the process of construing events (Fransella & Bannister, 1977). Bell (1988) described in some detail the relationship between components of Kelly’s theory and various repertory grid techniques. The value of these personal construct techniques for the personal knower lies in their utility as a tool for facilitating reflexive analysis of how we use constructs (McWilliams, 1988a). With the advent of computer technology, numerous methods exist for

eliciting constructs from individuals, providing immediate feedback on how they use and relate them, and generating an organizational model (Sewell, Adams-Webber, Mitterer & Cromwell, 1992).

Once we articulate constructs, we may subject them to reflexive study. Kelly (1955) proposed several dimensions of “diagnosis” for appraising how we use constructs. These dimensions themselves serve as meta-constructs: constructs that we can use to view other constructs. Hence, they also function as bipolar dimensions along which we might assess similarity and difference, in this case in the processes of human knowing. We might find several of these dimensions relevant to the open-ended search for knowledge. For example, we can view constructs as incidental, subsuming a small variety of events, or comprehensive, including a large variety of events within their purview (McWilliams, 1988b). We organize constructs with superordinate and subordinate relations to one another, and with lines of implication between these levels. We may use constructs loosely, leading to varying predictions, or tightly, leading to more specific predictions.

Kelly and Polanyi agreed that we cannot always verbalize our understanding; we may “know more than we can say.” Polanyi’s discussion of the “tacit vs. articulate” dimension described how we can never fully articulate the assumptions on which our knowledge rests. Although in fundamental agreement, Kelly’s (1955) psychological approach emphasized ways to assist people in more fully articulating their tacitly held constructions (Neimeyer, 1981), and he addressed this issue by using a construct he called “level of cognitive awareness.” We can describe a construct expressed well in word symbols as having a high level of cognitive awareness (or “articulate”). On the other hand, a person may construe events, and incorporate them into experience, but may not verbalize or otherwise have consciousness of the process. Kelly described this “tacit” state as having a low level of cognitive awareness.

Kelly (1955) elaborated on this dimension by describing several ways an individual might use constructs with a low level of cognitive awareness. Since a complete construct includes both comparison and contrast, its full articulation requires an understanding of both poles of the dimension. An individual may, however, have conscious access to only one pole of the dimension and thus may find difficulty in articulating the entire dimension. In newly emerging scientific knowledge, the scientist may attempt to apply existing concepts to new observations that do not ideally fit the concepts. These newly identified events or patterns may not fall well within what Kelly called the “range of convenience” of the existing theory, the events for which the concepts provide maximal predictive utility. In such cases the constructs do not enable the individual to make precise predictions or discriminations. Additionally, people may remain inarticulate about their constructs if they conflict with other, particularly higher-order, constructs within their systems.

I find Kelly’s *propositional vs. preemptive* construct dimension particularly relevant to the issue of indeterminacy. As with other diagnostic dimensions, it refers not to the constructs themselves, but to how we apply them. A person uses a construct preemptively by restricting its elements or particulars to itself exclusively, often leading to a “nothing-but,” prejudicial understanding. Preemptively, for example, we might say, “Light *is* a wave and nothing but a wave.” Although we find it necessary to preempt in order to solve particular problems, over-reliance on this type of usage grossly restricts the possibilities and denies the prospect of re-viewing or re-interpreting the situation (Bannister & Fransella, 1980). Propositional use of a construct carries no implications about other ways in which we might understand a relevant event. Propositionally, for example, we might say, “Among various ways of looking at light, we might see it as a wave, or a particle, or perhaps as an expression of the Holy Spirit.” Propositional construing leaves events open to a wide range of possibility.

Elaborating on a propositional approach, Kelly (1964) proposed an *invitational* mood to language. The conventional indicative mood of the English language suggests that if we say “Light *is* a wave,” we imply that the quality of “waveness” inheres in the nature of light. The validity of the statement derives from light, and not the speaker. In an invitational mood the speaker takes full responsibility for attributing a quality to an event, and suggests to the listener

that we might consider a particular interpretation of the event. For example, “Suppose we regard light as a wave?” Casting a proposition in an invitational mood leaves the listener in a state of expectation which could lead to further questions, and leaves the subject open to alternate interpretations.

Further developing the suggestion that ideas and reality do not correspond isomorphically, and that our search for knowledge might benefit from considering a wide range of alternative perspectives, Kelly proposed that we do not necessarily have to disprove one interpretation in order to entertain an alternative. In this respect Kelly and Polanyi agree that our potentially fallible knowledge may not directly represent the actual universe, and that reality may reveal itself in unexpected ways. However, pursuit of the implications of their approaches might lead us to take different actions. The constructivist approaches may help to call attention to the participation of the individual in creating meaning. Constructivist theories vary from “weaker,” suggesting some inherent properties to environmental events, to “stronger,” emphasizing the dominant role of the individual (Soffer, 1993). A “strong” approach to constructivism might regard interpretations as propositions that we have personally invented, and suggest that we have no obligation to assume that the universe actually corresponds to these particular constructs. In the process of pursuing our personal knowledge, we might find utility, as well as liberation, in simultaneously entertaining, and committing ourselves to the elaboration of, a range of alternate possibilities.

### **Commitment and Openness**

This discussion began with the question of how a knower can balance the seeming paradox in Polanyi’s understanding of the personal, passionate commitment to the universal validity of presumed knowledge and, at the same time, an awareness that knowledge remains indeterminate. From the Kellian perspective, the knowledge to which we make such deep commitments derives from our personal constructs. Each individual holds personal commitments to certain higher order, core constructs, even when tacitly held, that serve to guide the types of inquiry and interpretations that arise for that individual. We respond emotionally to changes in constructs, whether the changes stem from validation, invalidation, or other outcomes (McCoy, 1977). In a significant sense, each of us has no option other than to “march to the beat of our personal drummer,” even if we hear the beat only faintly.

Similarly, Polanyi (1958) described the extent to which presuppositions that underlie inquiry and interpretation remain unknown and inarticulate. We implement them through a process of “in-dwelling” in which we experience them subsidiarily, in a manner similar to how we experience our bodies, and accept them uncritically. They function as the framework through which we make contact with a deeper reality. In an analogous conception, Kelly (1979b) described the importance of the active application of our constructions. He defined “aggression” as the active elaboration of constructs, an audacious process that involves risking being wrong by committing oneself to the active test of constructs, through direct experimentation. For both theorists the passionate quality of these commitments reflects their compelling nature.

The evolution of knowledge requires that we have the freedom to dwell within personal systems of understanding, use our initiative in testing our commitments, and to contemplate the comprehensive entities toward which this in-dwelling leads. How might we address the tension between our personal commitment to the universal validity of our knowledge and our recognition that knowledge remains indeterminate? I suggest that we can cultivate intentional awareness of our “dwelled-within” or “aggressively tested” frameworks for knowing. Application of a reflexive analysis of the use of personal meaning systems, through observing the constructs and the construction process, could facilitate articulation of this tacit system and enable us to make it more conscious. This proposition

reflects a theme articulated by a variety of approaches to human growth and evolution, whether developmental, therapeutic, or contemplative. Observing the subjective experience and treating it as an object leads to a transformation of consciousness, in which the previous framework for knowing becomes a part or component within a new, higher order framework (Kegan, 1982). This perspective parallels Polanyi's description of the way that particulars once perceived focally become subsidiary in the focal awareness of a more comprehensive entity. Of course, the new framework contains still other tacitly held assumptions, and we can never complete the transformative process to articulation of all assumptions. Examination of the way that personal meaning systems function, and awareness of the personally constructed nature of belief, however, can enable the knower to articulate some of the tacitly held presuppositions shaping belief. Through reflexive processes, in which we articulate the "unconscious" or tacit framework, we might transcend aspects of the unknown nature of the existing framework, leading to the unconscious indwelling with a new higher-order framework (Wilber, 1983) which, of course, contains other tacitly held assumptions.

Conscious awareness of the framework of understanding may appear to contradict Polanyi's statement that significant portions of it necessarily must remain unknown and tacit. Such awareness may also appear to hinder full commitment, and the effective application of skill, because it draws focal awareness away from the comprehensive entity and onto the subsidiary particulars of the knowledge system itself. However, a new, higher order framework generates a higher order skill that might include within it the ability to see beliefs and constructions as hypotheses rather than as reality. This approach also has liberating qualities, for understanding that we do not know ultimate truth relieves us from the burden of seeking external justification for personally meaningful knowledge, even when we have articulated it to a level that others find compelling. Finally, it provides us an opportunity to acknowledge actively our higher level participation in the creation of knowledge, in the context of our awareness of the unity of all phenomena. Thus, it might furnish a method for approaching what Barfield (1988; Hocks, 1991) described as a sustained and experienced acceptance of the intimate connection between human consciousness and phenomena, and for furthering our journey toward deeper personal participation in the creation of our knowledge.

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