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Organizational Learning and Adult Development:
What We Know About People's Capability to Learn

Abstract
I outline the benefits of Capability Management for structuring, delivering, and maintaining effective learning programs in corporations. Following a short overview of capability research since the 1950s, I introduce a methodology for differentiating levels of learning capability, and give examples of its output. I thereby bring Capability Metrics to the attention of the Chief Learning Officer.

The Developmental Story Line since 1970

Even 30 years ago, teachers and learners alike held the notion elaborated by Jean Piaget, that human development, so visibly progressing through school learning, ended at about age 25. At that time, a majority of people reached the level of formal logical thinking that enabled them to deal with abstractions. This meant that nothing novel was likely to happen in people's minds between ages 25 and 100, and that there was no such thing as an "adult learner," except perhaps in terms of experiential learning and heightened discipline.

Today, the developmental story line reads very differently, due to research in developmental psychology that is beginning to carry over into HR, OD, and organizational psychology. The new story line is not simple, but its "bottom line" is: *organizational learning and human development between ages 25 and 100 are strongly interrelated, and therefore, corporations can no longer afford to disregard the fact that learning and adult development form parallel strands*. Distinguishing, as Chris Argyris does, between "espoused theory" (what people say they do) and "theory in use" (what people actually do, albeit unnoticed by themselves), we can say that organizational learning is fundamentally a progression in theory-in-use. This progression results in higher self-awareness of the meaning making behind one's decision making and relationship with others. In short, the adult learner's actual program of action (theory-in-use) is subject to the impact of adult development, resulting in two important outcomes: a progressively higher self-awareness of one's own position in the world (including the organization), and a progressively higher ability to deal with complexity, inner and outer. In fact, in impact these two outcomes outweigh "personality" which is made so much fuss about today, since personality largely articulates them, being their 'mouthpiece.'

We can simplify the developmental story line and its impact on the workplace by introducing the term " work capability" introduced by Elliott Jaques (1994, 1998). Jaques, a disciple of Piaget, researched levels of work complexity in organizations and found to his delight that they corresponded with levels of abstract thinking managers could be credited with. Jaques measured levels of work complexity by the "longest targeted completion time" of the tasks associated with a particular organizational role or stratum of work. The longer the time span (and thus the higher the level of abstract thinking), the higher the level of work complexity a person could optimally function on. This finding also implied that managerial learning was a function of capability. As

Jaques put it, it was a function of "current potential capability" indicated by level of abstract thinking. Jaques found four such levels (1 to 4), repeating recursively across four "maturational bands" (A to D), thus altogether 16 levels of learning potential. The maturational bands represented "future potential capability," a second determinant of managerial learning. Jaques' findings represent a milestone in developmental as well as learning research.

But insight into learning did not stop there. Missing from Jaques' findings was a concern with Argyris' theory-in-use, which was shown to be linked not only to logical capability, but to self awareness (Laske, 1999). While Jaques had assumed "future potential capability" to be innate maturation, the Kohlberg School at Harvard since the late 1960s showed that there was an open-ended "postformal" capability built on top of logical capability, encompassing growth of self awareness as a major piece (Kegan, 1982, 1994). The broader notion of work capability arising from this research today comprises logical capability as well as self-awareness as cornerstones of adult learning. Aspects of personality such as emotional intelligence, self-conduct, and task approach have been shown to be largely articulations of capability in the broad sense. This led to a notion of capability comprising three aspects: (1) level of present performance ("current applied capability"), (2) cognitive disposition ("current potential capability) and (3) developmental level defined by self-awareness ("future potential capability").

What do these research findings portend for how large corporations can provide well targeted learning and development opportunities for their employees?

Consequences for Organizational Learning
Two major consequences are easily apparent:
- Since development of work capability over the life span can be detailed in terms of levels of self awareness and types of abstract thinking, and tied to levels of work complexity, corporations can no longer afford to treat learning as a one-dimensional opportunity "for all," but must begin to assess capability levels as a basis of designing efficient and well-costed learning programs.
- Since efficient learning programs, on- or off-line, ultimately depend on levels of work capability, corporations need an assessment methodology transcending the ubiquitous opinion surveys that only regard "espoused theory" (what people say), targeting instead "theory-in-use" (what people actually do, dependent on their capability level).

Regarding the first point, most HR Directors, especially if acculturated to the balanced scorecard, presently assume that it is the "HR System" (from compensation to performance management systems) that determines workers' behavior. For this reason, they pay little or no attention to what workers fundamentally "bring to the table" in their daily contribution (that is, their capability levels), except for "competency" assessments during the hiring and succession planning phases. However, as Jaques has persuasively shown, competency (that one "has") is not commensurate with capability (that one "is), and matters only for present performance level (current applied capability), not current and future potential capability. In short, 'competency' is blind to potential. In fact, the USE of competency entirely depends on capability level (potential), and that is what HR departments should pay primary attention to.
Likewise, Corporate Universities and e-learning ventures today are all "sold" on the concept of competence and skill. They don't yet understand capability levels, nor do "learning management systems" incorporate them. Notions of 'blended learning' are still blind to the fact of "garbage in, garbage out," as software engineers are used to saying. In this context: tell me your learners' capability levels, and I will predict your true ROI from learning investments. Corporations clearly have a choice as to whether to un-couple organizational learning from adult development after age 25, or not. Capability research does not bode well for those who do.

Regarding the second point, what tools can corporations use today to establish a link between capability assessment and organizational learning? They are the same tools by which to build, as Jaques puts it, "requisite" organizations showing balance of work stratum with capability levels. Such new tools are being created as we speak. (See www.requisite.org, www.cdremsite.com, and http://www.sei.cmu.edu/pub/documents/01.reports/pdf/01mm001.pdf). I am most familiar with CDREM™, the Corporate Development Readiness and Effectiveness Measure, and therefore will outline how insight into capability levels of the workforce can aid organizational learning efforts in light of CDREM™.

CDREM™ uses *Capability Metrics* to distinguish between capability levels of homogeneous groups of the workforce. The Metric is interview- and questionnaire-based since it is focused on theory-in-use, not espoused theory (as opinion surveys are). It is the purpose of the Metric to partition workforce groups into three subgroups: those above, at, and below chosen capability standards. In this way, the Metric relates expectable learning outcomes to different capability ceilings. The Metric is based on standards associated with the complexity of work levels in an organization, as shown in Fig. 1, below:
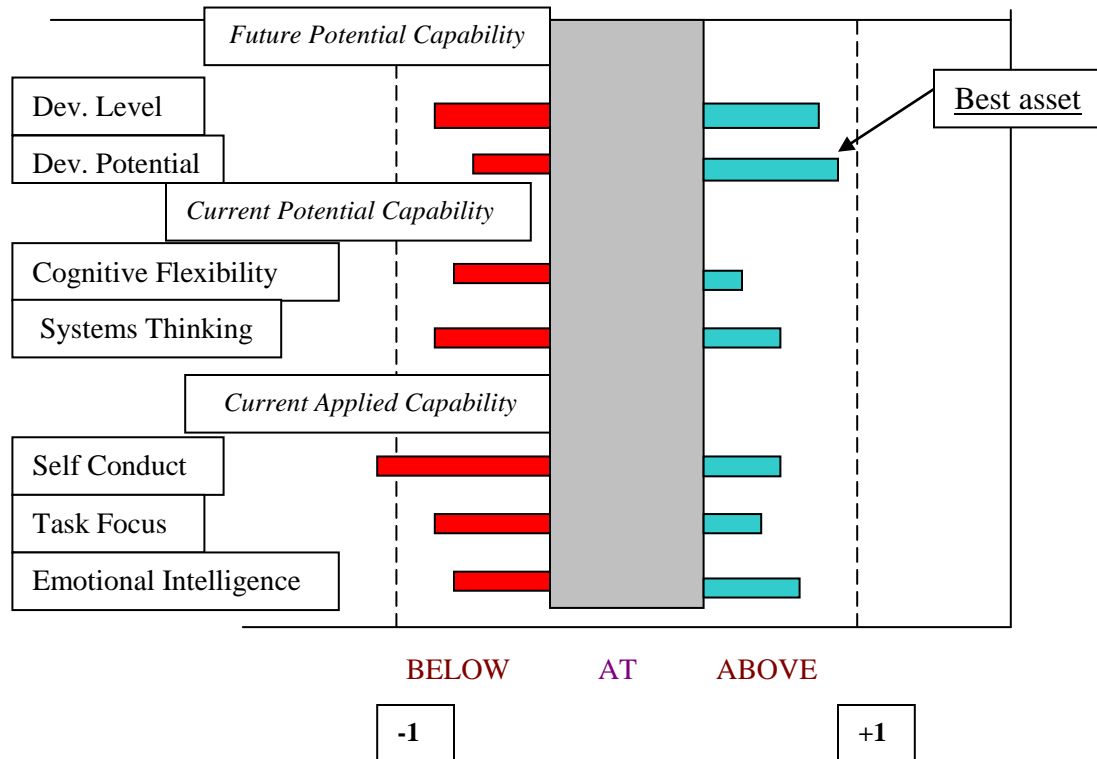
**Capability Standards
for Different Levels of Work Complexity**

Level of Work Complexity (Stratum)	Largest Time Span of Tasks* (Managerial Span)	Type of Complexity of Mental Processing** (Current Potential)	Developmental Level*** (Future Potential)
I	1-3 months	B1	2/3 to 3/2
II	3-12 months	B2	3(2) to 3
III	1-2 years	B3	3(4) to 3 /4
IV	2-5 years	B4	4/3 to 4(3)
V	**5-10 years**	**C1**	**4 to 4(5)**
VI	10-20 years	C2	4/5 to 5/4
VII	20-35 years	C3	5(4)
VIII	35-50 years	C4	5

* "longest targeted completion time" of tasks at a particular level of work complexity
** research by E. Jaques (1991, 1994); *** research by R. Kegan (1982, 1994)

According to the hypothesis stated in the table (empirically validated since 1999), it would not be good "ROI thinking" to design learning programs disregarding the link between columns 2 and 3, and most likely a waste of resources to disregard the link between columns 3 and 4. This is so since capability levels (columns 3-4) are linked to levels of work complexity (column 1) via time span (column 2). Current and future potential also determine learning outcome, quite irrespective of "competence" (since no degree of competence will help you if you don't have the current and future potential to use it). It is the function of the Capability Metric to structure efforts to deliver organizational learning, by getting at the capability levels outlined in columns 3 and 4. A Metric for discovering learning potential is shown in Fig. 2, below:

Fig. 2, Capability Metric for Discovering Learning Potential in Stratum V (of middle management)

Legend:
Below: below learning capability standard (subgroup A)
At: measuring up to learning capability standard (subgroup B)
Above: exceeding learning capability standard (subgroup C)

As shown, a middle management sample of 50 members appears divided into three subgroups, "below, at, and above" learning capability standards. The standards (line 5 in Fig. 1) are associated with level (stratum) V of work complexity. On the right side, in red, is indicated the proportion of sample members found "below" standards, while the proportion of those "above" standards is shown on the right, both expressed in % of members meeting standards (the middle grey column). As the reader's eye can easily make out, "there is more red than blue" in the diagram, signaling the fact that those below capability levels required for stratum V outnumber those above standards. (This is surely not a "requisite organization.") However, the proportions of 'below' and 'above' differ for the three different aspects of learning capability.

While learning capability in terms of "current applied capability" (present performance level) is 'in the red,' thus nothing to brag about, "current potential capability" (immediate learning potential) as measured by cognitive profile is more promising, and "future potential capability" (developmental potential) even more so. (In the latter, the proportion of 'blue' clearly outweighs the 'red.') The Metric shifts attention from level of present performance as an indicator of learning potential to cognitive and self-awareness indicators of developmental promise. Even without delving into the confidential individual data behind the Metric (which cannot be accessed without sample members' consent), and the set of 'people properties' the Metric is ultimately based on (which defines 'learning potential'), the message is clear. The corporation commissioning the Metric can be given fairly precise guidelines for dealing with two main issues:

first, whom to involve in the learning, and second, how to tailor learning programs to people's (in this case, middle management's) actual capability levels. A third issue, of how to correlate learning content with capability level, is partly predefined by time span measures, and thus depends on stratum (Fig. 1), which also suggests preferred delivery modality and abstraction level of content (since cognitive profile, or current potential capability, determines cognitive grasp).

Conclusion
There is much to be gained for the Chief Learning Officer to acquaint him- or herself with capability research, and with tools such as CDREM™ (see www.cdremsite.com). The present craze to measure outcome often lets us forget that outcomes have inputs, such as capability, and are generated in a particular environment, or cultural climate, that ultimately is rooted in a company's work capability levels (its true 'human capital'). While capability levels may be hard to get used to where "opportunity for all" is the slogan, it should be sobering to realize that organizational strata reflect natural capability levels, as they have for at least 3000 years. There is indeed opportunity for all, but 'opportunity' means different things, and has to be engineered differently, at different levels of work capability.

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