

Goal Setting: A Chaos Theory of Careers Approach

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Goal setting and attainment has been popularly presented as the sine qua non of personal, career and organizational change (e.g. Covey, 1989). To a large extent this view has been uncritically accepted and embraced. However, chaos theory, and the Chaos Theory of Careers (CTC) in particular (e.g. Bright and Pryor, 2005; Pryor and Bright, 2003ab; Pryor and Bright, 2011) provides a new perspective on goal setting that can help us understand more fully what we are doing when we set goals, and what we are gaining and losing by so doing.

In this chapter we will briefly set out the Chaos Theory of Careers and in particular focus on the concept of Attractors to show how goal setting as it is commonly understood can be seen as a complexity reduction method that has limited effectiveness. While it plays a valuable role in facilitating short-term behavior change, it is less valuable when longer-term change is considered. Alternative conceptualizations of goal setting that de-emphasize elements such as focus, specificity and measurability may be more appropriate, but in becoming all inclusive in their purview they risk losing explanatory power. If all behavior is goal-directed, then there is nothing that is not goal-directed, and therefore the term "goal" explains nothing over and beyond the term "behavior".

Chaos Theory of Careers

The Chaos Theory of Careers was developed towards the end of the 1990s and arose out of the authors' dissatisfaction with extant career development theory. In particular classical career theory fails to provide an adequate account of:

1	• Change in people and careers;	1
2		2
3	• Chance events;	3
4		4
5	• Complexity of influences; and	5
6		6
7	• Constructedness (making sense) of people's experience of career.	7
8		8
9	The Chaos Theory of Careers views individuals as complex dynamical ¹ systems	9
10	that exist and function in a web of other complex dynamical systems which	10
11	themselves vary in terms of complexity and changeability. All such systems	11
12	are dynamical in the sense that they are continuously moving. These systems	12
13	are complex because they are comprised of many different components (or	13
14	influences) and because they are open systems—i.e. susceptible to external as	14
15	well as internal influences (Pryor and Bright, 2007).	15
16		16
17	From these broad definitions we can identify and describe some key	17
18	characteristics that are displayed by complex dynamical systems, including:	18
19	Complexity; Change and non-linearity; Chance; Construction, and Attractors.	19
20		20
21		21
22	Complexity	22
23		23
24	We live in an interconnected world, where people have the potential to	24
25	interact in unpredictable ways. We are influenced by complex arrays of factors,	25
26	including our families, labor markets, organizational climate and culture, the	26
27	economy, friends, media, cultural tradition, teachers, gender roles, issues of	27
28	sexual orientation, politics, climate, and health (Bright, Pryor, Wilkenfeld, and	28
29	Earl, 2005; Patton and McMahon, 2006).	29
30		30
31	Although such contextual factors are increasingly recognized in career	31
32	and organizational development, the dynamic and interacting nature of	32
33	these factors is often underemphasized. From a chaos perspective all of these	33
34	influences are subject to continuous and unpredictable changes.	34
35		35
36		36
37		37
38	¹ Dynamical refers to specific systems that change over time or dimension. A dynamical system	38
39	is a mathematical formalization for any fixed "rule" which describes the time dependence of a	39
40	point's position in its ambient space. Examples include the mathematical models that describe	40
41	the swinging of a clock pendulum, the flow of water in a pipe, and the number of fish each	41
	spring in a lake.	

1 Change and Non-linearity

2
3 Complex dynamical systems are sensitive to change because of their complex 3
4 interconnections. Some of these changes are relatively minor, even trivial, 4
5 when considered in isolation, but over time they have the capacity to cause a 5
6 person to drift off course or to become stuck in a rut (i.e. slow shift; Bright and 6
7 Pryor, 2008).

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9
10 **Table 9.1 Examples of slow and fast shift**

11 Slow shift	11 Fast shift
12 Skills and knowledge becoming gradually outdated	12 Serious motor vehicle accident
13 Acquisition of skills or resources over time enabling a change of direction	13 Surprise meeting leading to a job offer
14 Gradually expanding service offering to clients by responding to their requests	14 Surprise arrival of a new technology e.g. iPad, opening up new possibilities for doing different work—e.g. App developer

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19
20 At other times, we as individuals experience dramatic change that has 20
21 the potential to rearrange much in our lives (i.e. fast shift). Although people 21
22 and environments change continuously, traditional career and organizational 22
23 change theories such as Holland (1959), Hultman (1998), Lewin (1951), Schein 23
24 (1996) and Senge (1990) underestimate or ignore change.

25
26 Holland (1959) simply ignores change, asserting that people and occupations 26
27 as well as the environment more generally do not change sufficiently to affect 27
28 the fit between a person and an occupation. Hultman (1998), like many writing 28
29 on organizational change, characterizes change as a discrete, one-off event 29
30 as in “the change program”—and therefore underestimates the potential 30
31 for continual and unpredictable change. Similarly, Lewin’s (1951) unfreeze- 31
32 change-refreeze notion is predicated on the idea that change happens in a 32
33 linear and relatively orderly way. Furthermore, change is bedded down and 33
34 frozen, implying periods of stasis between change events. This is a gross mis- 34
35 representation of the true continuous non-linear nature of change. Schein 35
36 (1996) has more of a dynamic approach to change, but still underestimates 36
37 the potential for continual change, as the process consultation model relies on 37
38 establishing goals of “what kind of help is needed” and also considers change 38
39 primarily as an event in “the change process” (p. 36). Senge’s (1990) comes 39
40 closest to embracing complexity and leveraging the power of a dynamical 40
41

1 systems approach, however, Senge claims that applying systems theory to 1
2 change will help us derive “laws” and “archetypes” and “microworlds” that 2
3 will help us predict organizational behavior. While Senge’s work provides the 3
4 basis for thinking about organizational change in terms of dynamical systems 4
5 theory, the chaos approach has the benefit of introducing very important 5
6 change concepts like attractors, fractals, emergent patterns, non-linear change 6
7 and phase-shifts. 7

8 8
9 Due to this fissure between theory and practice, coaches routinely have 9
10 to confront shifts in their clients and their client’s environments with little or 10
11 insufficient guidance from traditional theories. This is one of the reasons why 11
12 vocational rehabilitation has so seldom been coherently incorporated into past 12
13 career development theories (Szymanski and Hershenson, 1998). 13

14 14
15 A characteristic of chaotic systems is that they display sensitivity to initial 15
16 conditions, aka non-linearity (popularly known as “the butterfly effect”). 16
17 Non-linearity has profound implications for attempts to model behavior, or to 17
18 make long-term deterministic predictions because tiny differences in the initial 18
19 conditions may result in enormous differences in outcome, and vice versa. 19
20 In fields like organizational behavior and careers, measurements of behavior 20
21 are relatively crude approximations more or less ruling out the possibility of 21
22 being able to predict long-term behavior. Furthermore, it is not clear what the 22
23 initial conditions might be for people and their environments. For instance, 23
24 even the most reliable and robust personality measures correlate weakly with 24
25 work performance and typically account for less than 10 percent of the variance 25
26 in performance (e.g. Barrick, Mount, and Judge, 2001; Hurtz and Donovan, 26
27 2000; Minbashian, Bright and Bird, 2009). In other words, they leave us 27
28 90 percent unsure. Concepts in personality such as Extraversion are too broad 28
29 to be measured precisely, and even the best scales will have standard errors 29
30 of measurement in excess of three percent, some by a considerable margin. 30
31 However in a dynamical system, as Lorenz (1993) has pointed out, changes of 31
32 0.000001 percent in initial conditions may be sufficient to dramatically alter the 32
33 system’s behavior. 33

34 34
35 Non-linear relationships are the norm, not the exception (Strogatz, 2003). 35
36 Non-linearity illustrates that small changes in complex dynamical systems 36
37 have the potential to result in disproportionate changes in other parts of the 37
38 system. Small things can have profound effects on a career. For instance, 38
39 meeting someone on a golf course with a common interest may give you a 39
40 contact, which results in a job offer, which changes your career. The implication 40
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1 here is that we have to be very cautious of any approach that makes predictions 1
 2 about the future based upon the assumption that things will not change, or that 2
 3 they will change only gradually or in otherwise predictable ways. As we will 3
 4 see, non-linearity implies that goal setting is likely to be most effective over 4
 5 relatively short time periods. 5

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8 **Chance** 8 9 9

10 The consequence of complex connected change and non-linearity is the inability 10
 11 to predict precisely and control comprehensively what happens within the 11
 12 system or in other systems with which the system interacts. As we have 12
 13 pointed out, although chance events have been relatively neglected in career 13
 14 development theories, there is good evidence to suggest that they are the norm, 14
 15 not the exception (e.g. Bright, Pryor, and Harpham, 2005; Krumboltz, 1998). 15

16 16
 17 Chaos theory provides a conceptually integrated account of the existence of 17
 18 chance events; indeed, the theory suggests that in the absence of knowing the 18
 19 starting conditions of the system (which is the case for people), every event is a 19
 20 chance event in that we cannot have completely predicted it. The question then 20
 21 becomes one of seeing events in varying terms of uncertainty and recognizing 21
 22 that certainty (and hence complete predictability) is unobtainable. In this way 22
 23 randomness and random events can be understood as system fluctuations that 23
 24 cannot be fully, or perhaps even partially, explained from our vantage point 24
 25 within the system. Thus the Chaos Theory of Careers encourages people to 25
 26 embrace uncertainty. 26

27 27

28 28

29 **Construction** 29

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31 To embrace uncertainty entails not fatalistic acceptance of the impact of 31
 32 other influences on individuals' lives and careers, but being responsible and 32
 33 active in influencing those things in one's life and environment that can be 33
 34 changed, and being constantly aware of the possibility of unforeseen changes 34
 35 and consequences. As a result, individuals' career development can be seen as 35
 36 a continual condition of meaning making in relation to themselves and their 36
 37 world (Pryor and Bright, 2011; Savickas, 1997). 37

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1 Attractors 1

2

3 A system is defined as a group of components which form an integrated 3
 4 whole. As an integrated whole, each system has boundaries. Indeed, it is the 4
 5 boundaries of a system that effectively define its nature and function (Pryor 5
 6 and Bright, 2007). In chaos theory, attractors describe these limits. Attractors 6
 7 are like the invisible glue or force of gravity that holds a system together, 7
 8 thereby both limiting it and defining its identity in the process. There are four 8
 9 characteristic system attractors: *point*, *pendulum*, *torus*, and *strange*. The first 9
 10 three are characteristic of closed systems, and the last is characteristic of an 10
 11 open system. 11

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14 **Table 9.2 System attractors** 14

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Type of attractor	Type of system	Description
Point	Closed	System constrained to move predictably to a defined point or outcome
Pendulum (or Periodic)	Closed	System constrained to move predictably between two defined points
Torus	Closed	System constrained to move predictably between pre-determined number of points
Strange	Open	System exhibits self-similarity in movement over time, while continually changing in direction sometimes trivially, and sometimes in unpredictably dramatic ways

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25

- 26 • **Point attractors** operate when a system is limited to move only 26
 27 toward a clearly defined point. When water runs out of a basin 27
 28 through a drain, the water is attracted to the drain. Focusing on one 28
 29 career goal is an example of a person captured by a point attractor. 29
- 30 30
- 31 • **Pendulum attractors** operate when a system is limited to move only 31
 32 between two defined points. People who simplify career decisions 32
 33 into either/or choices or swing between one choice and the other 33
 34 without considering other possibilities are captured within the 34
 35 pendulum attractor. 35
- 36 36
- 37 • **Torus attractors** operate when a system moves through a series 37
 38 of defined points that repeat over time. People who always follow 38
 39 the same rules and procedures or who fall into habitual patterns of 39
 40 working are captured by a torus attractor. 40
- 41 41

1 • **Strange attractors** are characteristic of chaotic systems. A strange 1
 2 attractor limits the system to exhibit the self-similar pattern, which 2
 3 is like old repeating patterns; however, because they are not totally 3
 4 closed, other factors can influence the system and its operation, 4
 5 sometimes dramatically. The system is in constant flux between the 5
 6 stability of closed systems and the susceptibility to varying degrees 6
 7 of change. This is described as being on “the edge of chaos” (EOC) 7
 8 (Pryor and Bright, 2004). The strange attractor operates when the 8
 9 system shows emergent stability over time, self-similarity, but also 9
 10 the possibility for radical non-linear change. 10

11
 12 Some reflection will disclose that all of us actually live perpetually on the edge 12
 13 of chaos (i.e. in the strange attractor), but we often impose the three other 13
 14 attractors because they promise greater predictability and stability. Initially 14
 15 we may choose to impose the point, pendulum or torus attractor due to the 15
 16 predictability they offer in the short-term. This may result in us giving less 16
 17 attention to novelty and change, and missing opportunities to practice dealing 17
 18 with change. Over time, these attempts at reducing complexity to simple 18
 19 goals, alternatives, or rules are very likely to break down, because of human 19
 20 limitations of knowledge and control. Furthermore, given our attachment 20
 21 to these closed systems, we can find ourselves unprepared and unskilled to 21
 22 confront changes to our goals, roles and routines. 22

23
 24 From a chaos perspective, goal setting can be seen as an attempt to 24
 25 simplify and tame open systems of complexity into simpler closed systems—in 25
 26 particular the point attractor. Using the attractors, goal setting acts by maximally 26
 27 reducing complexity to a consideration of how to get from the current point to 27
 28 the desired point. This simplicity may help explain the tremendous popularity 28
 29 of goal setting as a motivational coaching technique while at the same time it 29
 30 highlights what is being sacrificed (complexity). 30

31
 32 Fractals are the trajectory or trace of a strange attractor’s functioning and 32
 33 exhibit symmetry over time and scale; self-similar patterns emerge over time 33
 34 and can be seen at every level as we investigate deeper and deeper into the 34
 35 patterns. A coastline may appear as a large bay, but closer inspection reveals 35
 36 smaller inlets that resemble the larger bay; and closer-still may reveal small rock 36
 37 pools. The coastline consists of similar patterns of ever decreasing little bays. 37
 38 That is self-symmetry over scale. Individuals display fractal behavior in many 38
 39 different ways. For instance a person’s smile or laugh is often self-similar over 39
 40 time and situations, but is not exactly identical. Traits such as Extraversion, 40
 41 41

1 Conscientiousness, Agreeableness, Neuroticism and Openness to experience 1
 2 can be understood in fractal terms. A person's history of involvement in 2
 3 disputes with colleagues, or management style may be similarly fractal in 3
 4 nature. All of these components, and many more, collectively operate within 4
 5 each person's strange attractor, creating individuality, pattern and surprise. 5

6
 7 Fractal patterns are dynamically stable—continually changing but generally 7
 8 in a self-similar pattern subject to occasional dramatic and unpredictable 8
 9 changes. A person's facial appearance over time demonstrates this fractal 9
 10 quality or self-similarity and change. 10

11
 12 Furthermore, these fractal patterns are not simple, easily captured, or easily 12
 13 described by conventional methods such as psychometric testing, or even 13
 14 narrative. The Chaos Theory of Careers posits that people's behavior over time 14
 15 displays fractal patterns along the lines suggested in the previous paragraph. 15
 16 In CTC coaching, coaches try to help individuals gain a better understanding 16
 17 of their own unique fractals—their dynamic, complex, and ever-changing but 17
 18 self-similar patterns. 18

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21 **Goal Setting Theory** 21

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 23 The basic propositions of goal setting as adumbrated by Locke and Latham 23
 24 (1990) are that: a) goals motivate us to exert effort commensurate with the 24
 25 demands of the goal or task; b) goals motivate us to be persistent over time; 25
 26 and c) goals direct our attention to relevant behaviors or outcomes and away 26
 27 from those which are not. 27

28
 29 Goal setting is the most popular behavior change strategy employed by 29
 30 individuals and organizations. Ward (1995) argues that the use of goal setting is 30
 31 "widespread" (p. 9) and "much advocated in the literature" (p. 9). In complexity 31
 32 terms, goal setting involves reducing all of the complexity in a situation simply 32
 33 to the actor and the goal—from here to there. The strength of goal setting is 33
 34 that it demands a focus upon a clearly defined target, and very often it further 34
 35 demands movement toward that target within a specific time frame. 35

36
 37 The essential weakness of all goal setting endeavors is the attempt to impose 37
 38 closed systems thinking on an open systems reality. In chaos attractor terms, 38
 39 the disciplined focus on specific behaviors and outcomes to the exclusion of 39
 40 other possibilities (distractions) is point attractor thinking. To seek to achieve 40
 41 41

1 competing goals through so-called “balance” strategies (e.g. work/life) is 1
 2 pendulum attractor thinking characterized typically by the assumption of roles 2
 3 such as the “professional”, “parent”, “spouse”, “community participant” and 3
 4 so on. To try to organize time and resources as efficiently as possible in order to 4
 5 achieve particular goals is to think in terms of the torus attractor—everything 5
 6 in its place and a place for everything. 6

7 7
 8 The limitations of such efforts at achieving control is that they cannot 8
 9 succeed in any long-term way with an open system reality, which is complex, 9
 10 non-linear, interconnected and ultimately unpredictable (Taleb, 2007). A focus 10
 11 that is too specific involves the risk of missing new opportunities. Dividing 11
 12 life into roles neglects the overlap, possible resonance effects, and conflicting 12
 13 priorities of such role demands. Trying to organize all of life is thwarted by 13
 14 the sheer number of possible outcomes from changing sets of circumstances, 14
 15 especially the consequences that could not be foreseen. 15

16 16
 17 Put simply, humans can never know enough or control enough, to 17
 18 guarantee the outcomes of their thinking and behavior in all but the most trivial 18
 19 of circumstances. This does not mean that we have no knowledge or control. 19
 20 It does not mean that all goal setting founded on focus, persistence, determination, 20
 21 rule setting, role taking, bureaucratizing and routine instituting, is useless, but 21
 22 merely that it will never be sufficient. These are ways to introduce, establish 22
 23 and sometimes re-establish more stability into individual and organizational 23
 24 experience, but we still live and function in strange attractors on the edge of 24
 25 chaos, where the interplay of stability and change requires us to also confront 25
 26 and embrace uncertainty. What can the research data reveal about the role of 26
 27 goal setting within such a context? 27

28 28

29 29

30 **Interpreting Empirical Data on Goal Setting Within a Chaos** 30

31 **Perspective** 31

32 32

33 Mark Tubbs (Tubbs, 1986), examined 87 separate studies on goal setting, and 33
 34 found a clear pattern of results: under laboratory conditions goals worked; in 34
 35 real-life settings, they were far less effective. This is because real-life settings 35
 36 are more complex than a psychology laboratory. He concluded that “Given 36
 37 that laboratory studies usually used short trials, rather contrived tasks (most 37
 38 of which would seem to possess less of a performance ceiling than most actual 38
 39 work tasks), and a generally higher degree of control over alternate behaviors, 39
 40 this finding makes intuitive sense” (p. 478). As Stacey, Griffin, and Shaw (2003) 40

41 41

1 point out, "If a system's specific long-term behavior is unpredictable, then 1
2 setting specific goals for it is a questionable activity" (p. 91). 2

3 3

4 It is usually believed that goal setting will only be effective if you truly want 4
5 to achieve your goals. This might help to partially explain why goals can be less 5
6 effective in real-life settings: commitments wane over time (e.g. Tubbs, 1986). 6
7 However, it may be that feedback is more important than commitment, and that 7
8 feedback mechanisms are subject to interference and complexity over time in 8
9 the less rarefied atmosphere found beyond psychology laboratories. Donovan 9
10 and Radosevich (1998) conducted an examination of goal commitment and 10
11 performance across 12 studies over 20 years, involving 2,000 participants, and 11
12 found that goal commitment had very little effect on the levels of performance 12
13 of the individuals studied. This can be explained within the CTC in terms of 13
14 feedback. 14

15 15

16 Both goal setting theory and the CTC share an emphasis on feedback. 16
17 Feedback is a central feature of complex systems (Briggs and Peat, 1989). It acts 17
18 to accelerate or moderate processes, and can also be complex itself. Timing is 18
19 a critical component of feedback and can determine whether the effect of the 19
20 feedback is to accelerate or moderate system performance. 20

21 21

22 A practical difference between the CTC and goal setting theory with 22
23 respect to feedback is that whereas the focus in goal setting is the goal, a CTC 23
24 approach is to be committed to feedback rather than to goals per se. Thus one 24
25 might focus not on trying to win an Olympic medal, but rather on improving 25
26 performance on a particular skill. This entails being committed to establishing 26
27 feedback mechanisms and attending to them. 27

28 28

29 As Pryor and Bright (2011) point out: 29

30 30

31 *Feedback mechanisms need to be both positive and negative, and 31*
32 *continuous and intermittent. For instance, when seeking to increase 32*
33 *sales of a product, the continuous feedback mechanisms might be the 33*
34 *number of calls the sales representative makes every hour to prospective 34*
35 *customers; positive feedback measures might include the number 35*
36 *of new leads that they discover every day, and the negative feedback 36*
37 *measures might include the number of rejections they receive each day. 37*
38 *Intermittent measures might include comparing their monthly results 38*
39 *to a colleague's sales figures. (p. 186)* 39

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1 The more feedback processes that are in place and monitored and the more 1
 2 varied they are, the better the picture of system performance one can build up. 2
 3 3
 4 Within the CTC, goal setting as typically characterized by the SMART 4
 5 formulation (Specific, Measurable, Achievable, Realistic and Time-based) is a 5
 6 point attractor. The challenge is to overcome or overturn conventional change 6
 7 management wisdom regarding the importance of the clarity of goals, and 7
 8 their precise measurability. Furthermore there exists empirical evidence to 8
 9 support a move toward fuzzier, less measurable, less immediately achievable, 9
 10 less apparently realistic and less time-based and more revisable goals (e.g. 10
 11 Abrahamson and Freedman, 2006; Shapiro, 2006; Tubbs, 1986; Donovan and 11
 12 Radosevich, 1998). For instance, Abrahamson and Freedman report that 12
 13 companies who engage in extensive strategic planning and goal setting are no 13
 14 more financially successful than companies that do not. Shapiro reports on the 14
 15 high failure rates of diets and New Year's resolutions—both activities that rely 15
 16 on goal setting. 16

17 17
 18 18
 19 **Major Issues in Goal Setting** 19
 20 20

21 Ordóñez, Schweitzer, Galinsky, and Bazerman (2009) argue that goal setting 21
 22 often comes with a series of side-effects that are rarely considered and that 22
 23 can have a significant negative impact on individuals and organizations. 23
 24 Summarizing goal setting literature from the early 1970s to date, they highlight 24
 25 a range of serious problems with the overuse and uncritical use of goal setting 25
 26 and offer potential remedies. Chapter 2 provides a summary of their arguments. 26
 27 We provide a CTC perspective on each below. 27

28 28
 29 1. **Are the goals too specific?**—Ordóñez et al. (2009) note that narrow 29
 30 goals can blind people to important aspects of a problem and 30
 31 suggest that, ideally, goals should be comprehensive and include 31
 32 all of the critical components for success (e.g. quantity and quality). 32
 33 33

34 From a CTC perspective, even this remedy runs the risk of underestimating 34
 35 the changeability and complexity in a problem and our limits on knowing all 35
 36 the pertinent facts in advance. Goal setting is a narrowing down to the point 36
 37 attractor—this is simultaneously a strength and limitation of the technique. 37
 38 In recognition of this fact some authors (e.g. Pryor, Hesketh, and Gleitzman, 38
 39 1989) have recommended the use of “fuzzy goals”. Fuzzy goals recognize that 39
 40 for some people, being precisely able to formulate and articulate their most 40
 41 41

- 1 significant goals may be very difficult. In fact, they may not be able to express 1
 2 them clearly in words at all. Fuzzy goals identify arenas of significance for the 2
 3 person (such as “spiritual enlightenment”) rather than a precise description 3
 4 of what it might actually mean. For some people life might be the constant 4
 5 exploration of what such a fuzzy goal might ultimately mean. 5
 6 6
- 7 2. **Are the goals too challenging?** What will happen if goals are not 7
 8 met? How will individual employees and outcomes be evaluated? 8
 9 Will failure harm motivation and self-efficacy? Ordóñez et al. (2009) 9
 10 suggest we provide skills and training to enable employees to reach 10
 11 goals, and avoid harsh punishment for failure to reach a goal. 11
 12 12
- 13 The CTC approach regards failure as almost inevitable due to complexity, and 13
 14 that it can be beneficial since it provides a framework for receiving feedback 14
 15 from the environment and discovering hidden contingencies. In complex 15
 16 situations, the relationships between things are not always evident. For instance 16
 17 we might discover the dress code of the golf club by inadvertently wearing 17
 18 colorful socks and being reprimanded by a petty official who takes his work 18
 19 very seriously indeed! Failure also creates an opportunity to practice recovery, 19
 20 and develop resilience and redemption behaviors (Pryor and Bright, 2011). An 20
 21 over-emphasis on goal setting runs the risk of encouraging people to try to 21
 22 eliminate failure, and to see failure in only negative terms, thus eliminating the 22
 23 opportunity to experience its potential benefits. 23
 24 24
- 25 3. **Who sets the goals?** People will become more committed to goals 25
 26 they help to set (Ordóñez et al., 2009). At the same time, people 26
 27 may be tempted to set easy-to-reach goals. Ordóñez et al. (2009) 27
 28 recommend that we allow transparency in the goal setting process 28
 29 and involve more than one person or unit. 29
 30 30
- 31 While developing personal efficacy in a situation is a desirable thing to do, it is 31
 32 also useful to assist clients to recognize the limits of their agency and control in 32
 33 some situations. It is a reality that events can and do overwhelm us despite the 33
 34 best laid plans or goals. Encouraging clients to embrace this reality provides 34
 35 an opportunity to work on developing resiliency, persistence, and creative 35
 36 problem-solving capacities as ongoing skills that will help them confront 36
 37 change with agility, opportunity, awareness, and optimism. 37
 38 38
- 39 4. **Is the time horizon appropriate?** Ordóñez et al. (2009) recommend 39
 40 that we be sure that short-term efforts to reach a goal do not harm 40
 41 41

- 1 investment in long-term outcomes. The implication is that these 1
 2 short-term goals may not be desirable. 2
 3 3
- 4 However, from a CTC orientation this raises questions about long-term 4
 5 planning and predictability. How can we be sure that a short-term goal has 5
 6 moved us away from long-term outcomes until after the fact? If we consider 6
 7 the trajectories of strange attractors as represented in fractals, very often the 7
 8 trajectory at any one point will seem to contradict the overall “shape” that is 8
 9 emerging. The point attractor—a goal—constrains us to take the most direct 9
 10 linear route to the destination. However better destinations or outcomes might 10
 11 be discovered with broader exploration. Insisting too early that every activity 11
 12 be directed toward a particular destination may not be in the client’s interests 12
 13 if in the process sufficient change results in the destination no longer being 13
 14 relevant or desirable. 14
 15 15
- 16 5. **How might goals influence risk taking?** Ordóñez et al. (2009) 16
 17 voice the concern that unmet goals may induce risk taking, and 17
 18 recommend articulating acceptable levels of risk. Thus, the authors 18
 19 appear to view risk as negative and goals as having the potential to 19
 20 encourage such risk. 20
 21 21
- 22 We would argue that risk taking is just as likely to be a desirable and positive 22
 23 aspect of goal setting. Also, the authors do not seem to anticipate the potential for 23
 24 goals to reduce risk taking, in the situation where conservative (unchallenging, 24
 25 unoriginal, stereotyped, familiar) goals are set, and any deviation from these 25
 26 goals would be associated with risk. From a CTC perspective, goal setting is 26
 27 more likely to induce conservatism and uncreative thinking, because the act of 27
 28 goal setting is usually an attempt to impose a closed-system point attractor on 28
 29 behavior in an open system. 29
 30 30
- 31 6. **How might goals motivate unethical behavior?** Ordóñez et al. 31
 32 (2009) note that goals narrow focus, and that employees with 32
 33 goals are thus less likely to recognize ethical issues, and are more 33
 34 likely to rationalize their unethical behavior. To mitigate this they 34
 35 recommend multiple safeguards to ensure ethical behavior while 35
 36 attaining goals (e.g. leaders as exemplars of ethical behavior, making 36
 37 the costs of cheating far greater than the benefit, strong oversight). 37
 38 In essence the authors are arguing for a complexity solution, where 38
 39 the goals are understood within a more complex framework. 39
 40 40
 41 41

- 1 Within the CTC, the framework of the attractors provides a language for 1
 2 understanding goals as a simplification of a more complex reality in which 2
 3 meaning making occurs. Therefore, the goal is always subordinate to and in 3
 4 the service of that greater complex reality. This allows us to meaningfully 4
 5 consider bigger notions such as purpose, values and ethics which are located 5
 6 or represented via our strange attractor, and goals as simplifications of our 6
 7 purpose, values and ethics. Pryor and Bright (2007) characterize the nature 7
 8 of strange attractors as *inter alia*, the boundaries of their functioning and the 8
 9 end states to which such systems tend. For individuals these constitute the 9
 10 supervening goals of meaning and morality. Specific goals reflect particular ways 10
 11 in which individuals seek to move toward exploring and realizing the meaning 11
 12 and morality of their lives and careers within those lives. Consequently the 12
 13 attractors provide a coherent linkage between goals and bigger considerations. 13
 14 14
- 15 7. **Can goals be idiosyncratically tailored for individual abilities** 15
 16 **and circumstances while preserving fairness?** Ordóñez et al. 16
 17 (2009) highlight that individual differences may make standardized 17
 18 goals inappropriate; yet unequal goals may be unfair. They suggest 18
 19 trying to set goals that use common standards and account for 19
 20 individual variation. It strikes us that this concern is not solely 20
 21 related to goal setting but applies to any organizational intervention 21
 22 or management approach. 22
 23 23
- 24 8. **How will goals influence organizational culture?** Individual 24
 25 goals may harm cooperation and corrode organizational culture. 25
 26 Ordóñez et al. (2009) suggest that if cooperation is essential, team- 26
 27 based rather than individual goals should be considered, and 27
 28 careful thought should be given to the values goals convey. 28
 29 29
- 30 Again, their argument is for a complexity oriented approach that is 30
 31 simultaneously specific and general in that they recognize the importance 31
 32 of bigger more complex group structures that may be impacted by narrowly 32
 33 focused individual goal setting. This is entirely consistent with a CTC approach. 33
 34 34
- 35 9. **Are individuals intrinsically motivated?** Goal setting can harm 35
 36 intrinsic motivation. Ordóñez et al. (2009) recommend that we 36
 37 assess intrinsic motivation and avoid setting goals when intrinsic 37
 38 motivation is high. 38
 39 39
 40 40
 41 41

1 From a CTC perspective, intrinsic motivation is likely to be an emergent feature 1
 2 of the complex interplay of many different factors (for instance past events, 2
 3 internalized views of self and past behavior, current interests, anxiety, self- 3
 4 efficacy, personality, personal narrative, current circumstances, health status, 4
 5 mood, peer pressure, societal values etc). Consequently, intrinsic motivation is 5
 6 a complex dynamical system—meaning it continually varies, is not completely 6
 7 predictable and is subject to non-linear effects. The imposition of an external 7
 8 goal on such a system essentially reduces an open complex system to a closed 8
 9 and simple system. In the short-term, we might “get lucky” and impose an 9
 10 extrinsic goal that aligns with the current trajectory of the intrinsic system—this 10
 11 will appear to the person as though they are following a natural and preferred 11
 12 course of action. However, the extrinsic goal may either not align or over time 12
 13 come out of alignment. Then the extrinsic goal may act as a brake, negative 13
 14 feedback or interference with the far more complex intrinsic motivational 14
 15 system, resulting in overall lower levels of motivation. 15

16
 17 10. **What type of goal (performance or learning) is most appropriate** 17
 18 **given the ultimate objectives of the organization?** By focusing 18
 19 on performance goals, employees may fail to search for better 19
 20 strategies and fail to learn. Ordóñez et al. (2009) note that in 20
 21 complex, changing environments, learning goals may be more 21
 22 effective than performance goals. They point out: “An individual 22
 23 who is narrowly focused on a performance goal will be less likely 23
 24 to try alternative methods that could help her learn how to perform 24
 25 a task. As an example of this phenomenon, Locke and Latham 25
 26 (2002) described an air traffic controller simulation in which the 26
 27 performance goal interfered with learning in this complex domain 27
 28 (Kanfer and Ackerman, 1989)” (p. 11). 28

29
 30 This is the most explicit linkage to the CTC approach to goal setting. By 30
 31 highlighting the complex and changing nature of many modern work 31
 32 environments, Ordóñez and colleagues make a case for a more complex 32
 33 approach to goal setting. 33

36 **Setting Goals in an Open Systems World** 36

37
 38 Goals appear to be most effective in relatively unchanging environments, in the 38
 39 short-term and where the problem the goal is addressing is clear and relatively 39
 40 straightforward. The trouble is that these circumstances do not occur in real life 40

41 41

1 as often as many people assume when they chose to set goals or blindly engage 1
2 in goal setting. 2

3 3
4 Another problem is the type of goals that people try to set. We can 4
5 distinguish between performance and learning goals. *Performance goals* are the 5
6 ones we usually associate with goal setting, for instance, "I will increase my 6
7 results on the test by 30 percent by the end of the quarter." Common versions 7
8 of these are SMART goals, referred to above. 8

9 9
10 *Learning goals* generally refer to increased knowledge, skills, and abilities 10
11 in a defined area. "Gaining a better understanding of decision making", 11
12 "mastering the use of the comfy chair", "remembering your wife's recipe for 12
13 lemon ice cream" are all examples of learning goals. 13

14 14
15 Changing circumstances mean that SMART performance goals can 15
16 become less tenable, or even impossible as timeframes expand. Furthermore, 16
17 the desirability of attaining such goals can become questionable as the scene 17
18 changes over time. If your company's goal was to sell twice as much of the 18
19 drug "Bug-shatterer-Pro" over the next 12 months, this goal might become 19
20 inappropriate if during that time clinical trials demonstrated the drug to be a 20
21 danger to the health of those taking it. 21

22 22
23 Learning goals are less susceptible to change in this way, and thus are 23
24 more likely to be a useful strategy in a changing environment, or even over the 24
25 longer-term. However outside of specific learning environments like schools, 25
26 colleges and universities, the use of learning goals is less common. 26

27 27
28 Both forms of goal setting—Performance and Learning—still often suffer 28
29 from inducing a form of selective blindness—to focus on one or two things at 29
30 the expense of all else. There is little doubt that in the short-term, with relatively 30
31 unchanging circumstances and with relatively straightforward problems, goals 31
32 can under some circumstances be useful—the evidence points to this (Tubbs, 32
33 1986). However as Figure 9.1 shows, as problems get more complex and 33
34 situations become more changeable, goal setting as a strategy becomes much 34
35 more questionable. 35

36 36
37 Now consider the use of goals in the medium- to longer-term (i.e. any time 37
38 horizon beyond a few months). The situation here is quite different. Even in 38
39 relatively unchanging environments, the amount of time involved inevitably 39
40 introduces some change, making goals less effective, and sometimes it 40
41 41

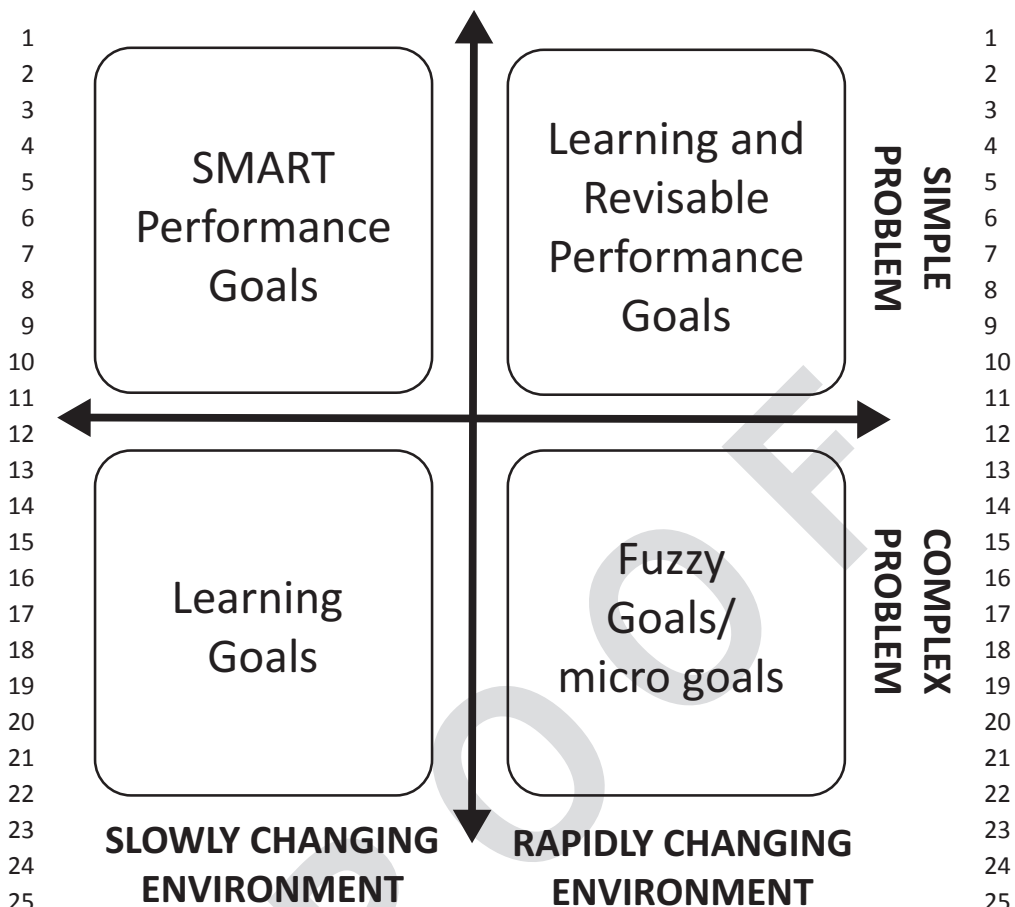
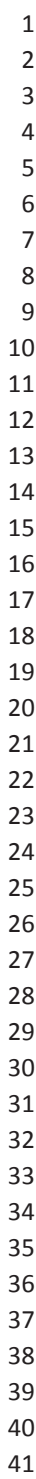


Figure 9.1 Goal setting strategy for short-term situations

can also make the problem more complex. Here we need “Fuzzy Goals” — goals that are more Situational, Multifaceted, Adaptable, Risk-Taking and Transformational—David Winter’s alternative to the restrictive traditional SMART goal (Winter, 2010).

As circumstances become more complex and changeable, goal setting as a strategy becomes even more questionable and it would be more advisable to commence thinking in broader, more creative and flexible terms that permit more openness, and more of a wait-see-adapt-respond-try-fail-learn kind of methodology, something akin to the Beyond Personal Mastery® model of creativity (e.g. Pryor and Bright, 2011).



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1 A Case Study Application

Kevin sought coaching assistance at the demise of his information technology company. He was the company director with a group of consultants and administrative staff. Kevin had left university four years earlier with excellent passes in various aspects of computing and information technology. From late high school he had dreamed of setting up his own company. After graduating Kevin devoted virtually all his time and resources into making his company successful. He specialized in tailored internet security systems. He took out a lease on an impressive suite of offices, hired several administrative staff and assembled a group of consultants mainly from his university student colleagues. He invested in several expensive information technology development systems since he wanted to provide "state-of-the-art" security solutions. Business was slow initially and then he secured several larger project contracts. However, in the last 18 months the competition had become fiercer, several consultants moved to other firms, Kevin under-quoted on two significant contracts and sustained major financial losses and one of his previously installed systems was breached by a hacker, damaging the company's credibility. Closing the company now was Kevin's only option and he was devastated. He had failed. His dream had somehow become just a mirage.

From a chaos theory perspective, Kevin's situation needed to be addressed in three ways:

1. **Do not be surprised by failure:** Kevin's emotional distress needed to be addressed. Chaos theory points to the complexity and unpredictability of outcomes. The human limitations of knowledge and control mean that even the very best organized efforts may result in failure. Business statistics clearly show that most firms fail (Pryor and Bright, 2012). In a chaos-filled reality risk and failure are virtually inevitable. While this does not make failure pleasant, it should also not be a cause for despair. Kevin may have made some business mistakes and the environment in which he did business may have become more cut-throat competitive. As a result he may have incurred financial losses. What could Kevin learn from his experience that would help him in his future endeavors?
2. **Point attractor thinking:** Chaos theory identifies Kevin's perspective as point attractor thinking, typical of narrow and focused goal setting. Kevin had only one goal and only one way of achieving that goal. His dedication to the goal was admirable but

1 in a world of complex dynamical systems, point attractor thinking 1
 2 is always going to be vulnerable to inflexibility of focus, tunnel 2
 3 vision about context and unforeseen changes. Kevin needed to start 3
 4 thinking more in terms of open systems perspectives as the way to 4
 5 formulate, monitor, explore and modify his goals. 5
 6 6
 7 3. **Open systems (strange attractor) thinking:** The fractal of an 7
 8 individual's strange attractor is bounded by the purpose, meaning 8
 9 and values that the person consciously or unconsciously desires. 9
 10 Kevin was challenged to think about his goals in these terms as 10
 11 distinct from the very specific goal of running his own IT company. 11
 12 What purpose or meaning did this goal signify? Answering this 12
 13 question allowed Kevin to explore alternative ways of expressing, 13
 14 exploring, monitoring and realizing that goal. 14
 15 15
 16 It emerged that Kevin wanted to use his high level skills in IT, had an intrinsic 16
 17 interest in the whole information technology field (not just internet security), 17
 18 and sought the independence to be able to express his creativity through 18
 19 systems design and implementation. 19
 20 20
 21 Even though Kevin came to accept the likelihood of failure due to limits 21
 22 of predictability he was still personally sensitive to the issue. Therefore, since 22
 23 chaos theory strategies accept uncertainty and risk, the goal setting strategy 23
 24 for Kevin needed to aim at generating several options and attempting to keep 24
 25 these options open as further options emerged over time, as existing options 25
 26 came to be integrated, or as one option proved more preferable to all the others. 26
 27 Utilizing multiple options as the goal setting strategy had the advantage for 27
 28 risk-sensitive Kevin of reducing the likely incidence and impact of failure while 28
 29 exploring alternative ways to the attainment of his general supervening goals. 29
 30 30
 31 Among the options generated for Kevin to explore, combine and implement 31
 32 were: 32
 33 33
 34 a) seeking further training in business management; 34
 35 35
 36 b) seeking further training in financial systems; 36
 37 37
 38 c) re-establishing a small business working from home to cut down 38
 39 infrastructure costs; 39
 40 40
 41 41

1	d)	establishing a partnership company with a broader IT service	1
2		delivery base than internet security;	2
3			3
4	e)	joining an IT service franchise group as an independent service	4
5		provider;	5
6			6
7	f)	working for a larger organization in an IT research team;	7
8			8
9	g)	undertaking computer consultancy work for another IT company for	9
10		example in testing the integrity of firms internet security systems;	10
11			11
12	h)	working in his "spare time" on the development of new IT systems	12
13		to market subsequently.	13
14			14
15		Kevin subsequently chose a combination of these options to implement and	15
16		was encouraged to develop further his "luck readiness" (Pryor and Bright,	16
17		2005) as way to identify further opportunities as well as to test out the viability	17
18		of the work and study options he had chosen on an ongoing basis.	18
19			19
20		Such a case study illustrates chaos theory perspectives in the following	20
21		ways:	21
22			22
23	•	Complexity implies limitations and limitations imply the possibility	23
24		of failure. Failure is common and needs to be accepted, learnt from	24
25		and incorporated as a possible outcome in all goal setting.	25
26			26
27	•	Closed systems thinking may be an effective goal setting strategy	27
28		in the short-term but in the longer-term it will be overtaken by non-	28
29		linear change.	29
30			30
31	•	Career fractality needs to be explored to uncover the person's	31
32		current supervening goals.	32
33			33
34	•	Uncertainty and risk need to be acknowledged and addressed in	34
35		goal setting by flexibility in goal formulation, ongoing opportunity	35
36		exploration and monitoring of progress and if necessary, goal	36
37		adaptation or reformulation.	37
38			38
39			39
40			40
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1	Conclusion	1
2		2
3	The valuable contribution that goal setting can make to the achievement	3
4	of desired outcomes in individuals' lives and careers, and organizations'	4
5	profitability and sustainability, is readily acknowledged. However, it has been	5
6	argued that goal setting has been over-prescribed as a strategy for dealing	6
7	with the realities of the twenty-first century. Goal setting is most effective in	7
8	achieving outcomes in relatively stable contexts, where control is high and	8
9	timeframes are comparatively short.	9
10		10
11	In practice, there are few such contexts. Rather, the world in which	11
12	individuals and organizations operate is characterized by complexity	12
13	of influences, non-linearity of change, systemic interconnectedness and	13
14	randomness. Therefore there are dangers or at least limitations, as outlined	14
15	above, in trying to impose closed systems thinking attractors in the form of goal	15
16	setting strategies on such an open system world. In this chapter we have tried	16
17	to demonstrate how the Chaos Theory of Careers can provide a conceptual	17
18	framework for understanding both the strengths and limitations of goal setting	18
19	strategies. Elsewhere we have provided alternative conceptualizations of how	19
20	to function most effectively while embedded in the web of complex dynamical	20
21	systems through "luck readiness" (Pryor and Bright, 2005) and "beyond	21
22	personal mastery" (Pryor and Bright, 2011). While this chapter has focused on	22
23	the constraints of human knowledge and control as it applies to goals, and	23
24	despite the inherent uneasiness of living with uncertainty, we believe that the	24
25	edge of chaos is also a place of opportunity, proactive change, personal growth,	25
26	career development and organizational success. It is the place where each of us	26
27	can find and/or create meaning and purpose, as well as assist others to live lives	27
28	that matter and are worthwhile.	28
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