AN EXPLORATORY EXAMINATION OF POSITIVE AND NEGATIVE
EMOTIONAL ATTRACTORS’ IMPACT ON COACHING INTENTIONAL CHANGE

by

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For the degree of Doctor of Philosophy

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THE CHOICE

The intellect of man is forced to choose
perfection of the life, or of the work,
And if it take the second must refuse
A heavenly mansion, raging in the dark.

When all that story's finished, what's the news?
In luck or out the toil has left its mark:
That old perplexity an empty purse,
Or the day's vanity, the night's remorse.

William Butler Yeats, 1933
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<td>AD ACL</td>
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<td>Analysis of Variance</td>
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<td>Business</td>
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<td>Clinical Psychology</td>
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<td>Coaches Trained in a Mixture of Fields</td>
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<td>Education</td>
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<td>Emotional Competence Inventory, University Version</td>
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<td>General Clinical Research Center</td>
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<td>Hypothalamic-Pituitary-Adrenal Axis</td>
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<td>Journal of Management Development</td>
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An Exploratory Examination of Positive and Negative Emotional Attractors’ Impact on Coaching Intentional Change

Abstract

By

ANITA ROGERS HOWARD

Few research studies have tested hypotheses from an integrated, multilevel theoretical model on coaching intentional change. Drawing on Intentional Change Theory (ICT) and supporting cognitive emotion and social complexity perspectives on positive and negative affect, this dissertation presents the first empirical investigation on the differential impact of inducing positive emotion vs. negative emotion in real time executive coaching sessions. Nineteen coaching recipients were randomly assigned to two coaching conditions. In the PEA condition the coachee’s own hopes, strengths, desired future (the Positive Emotional Attractor) was the anchoring framework of a one-time, hour-long coaching session. In the NEA condition the coachee’s own perceived improvement needs, weaknesses, present reality (the Negative Emotional Attractor) was the anchoring framework. Two central ICT propositions were tested. Hypothesis1 predicted that PEA participants would show higher levels of positive emotion during appraisal of 360-degree feedback results and discussion of change goals than NEA participants. Hypothesis2 predicted that PEA participants would show lower levels of stress immediately after the coaching session than NEA participants.
Regression analyses found that the PEA group showed significantly lower levels of negative emotions ($p = .05$) and anger ($p = .02$) and focused more on personal interests and passions ($p = .01$) as compared to the NEA group. These findings lend preliminary support to the proposition that framing a coaching session around a coachee’s PEA elicits positive emotions that broaden a person’s momentary thought-action repertoire, whereas framing a session in the NEA elicits negative emotions that narrow this array. Further, demonstrated time series changes in expressed sadness or depression (.01) and future (.04) offer preliminary support to the ICT proposition that recurrent PEA-NEA arousal, and associated interplay of positive and negative emotion, characterize intentional change. The prediction on post-coaching level of stress was not supported.

Keywords: positive and negative emotion, intentional change, emotional appraisal, social complexity, executive coaching, positive psychology
Chapter 1: Introduction and Review of the Executive Coaching Literature

Recent emotion research has expanded our understanding on the distinct and complementary function of positive and negative emotion in human adaptation, coping and health. Building on this work the present study asks, “how do positive emotions and negative emotions each assist the intentional learning, development and change of coaching recipients, and how can coaches leverage the benefits of this cognitive affective processing?” To underscore the context and relevance of this research question, the introduction offers a literature review on executive coaching and the need for empirical research on coaching; summary discussion on the links between coaching research and emotion research; an overview on the contributions of Intentional Change Theory (ICT) to management coaching literature; and the aims and intended contribution of the study.

Research Context: Executive Coaching as a Management Intervention

Today’s organizations use executive coaching as an effective way to build human resources and performance. Peterson & Hicks (1996) define coaching as “the process of equipping people with the tools, knowledge, and opportunities they need to develop themselves and become more effective” (p.14). Although the definitions of executive coaching are numerous, executive coaching is generally understood to involve practical, goal-focused forms of one-on-one learning and behavioral change (Hall, Otazo & Hollenbech, 1999; Peterson, 1996). Recipients of coaching in business and workplace contexts typically are senior to mid-level managers (Judge and Cowell, 1997). A recent Harvard Business Review (HBR) survey of 140 coaches found that most executive
coaching engagements are initiated by human resources, the coachee, or the coachee’s manager (Kauffman & Coutu, 2009). It is often suggested that executive coaching is a popular resource in contemporary leadership and management circles due to tremendous uncertainty, competition and change in today’s organizations and workplaces (Bluckert, 2004; Bowles & Picano, 2006; Colombo & Werther, 2003; Giglio, Diamante & Urban, 1998; Katz & Miller, 1996; Saporito, 1996). Coaching interventions have great appeal in these high challenge environments because they can be customized to the individual needs of leaders and managers, aligned with specific organizational agendas, and fitted to an organization’s unique routines and schedules (Weller & Weller, 2004). As an individual-level intervention many organizations use coaching as a cost-effective approach to executive career development; performance improvement; project-based skill development; leadership development; and as a support to an executive’s own agenda (Hall, Otazo & Hollenbeck, 1999; Quick & Macik-Frey, 2004; Witherspoon & White, 1996). As a team or system-level intervention organizations spread the benefits of coaching by offering coaching resources to broader segments of the organization; encouraging informal practice of coaching behaviors by leaders and managers; and establishing coaching cultures that foster developmental relationships, motivation and performance, and organizational alignment (Goleman, Boyatzis & McKee, 2002a; Hart, 2005; Kets de Vries, 2005; Kralj, 2001; Orenstein, 2002; Rider, 2002; Schnell, 2005).

Liljenstrand & Nebeker (2008) report that there are many different provider camps on the supply side of executive coaching. Based on their web-based survey of 2,231 coaches with educational backgrounds in Industrial/Organizational psychology (I/O), Clinical psychology (CPSY), Business (BUS), Education (EDU), and coaches
trained in a mixture of fields (OTH), these researchers found that coaches from different educational backgrounds use distinctly different coaching approaches, offer their services to different target markets, and are hired by clients with different coaching agendas and expectations:

The results point toward the existence of at least two, and possibly more, markets with different engagements, clients, settings, approaches, and perceived levels of competitiveness. Based on these findings coaches educated within the field of OTH, BUS, or EDU fields appear mainly to be hired by the individuals receiving coaching services and seem to be more involved in the personal coaching market. Coaches with a background in psychology tend to be hired by organizations, use titles such as Executive Coach and Consultant, and also find the field of coaching more competitive. This group also tends to rely more on their academic training when coaching, attend coaching specific seminars or workshops less frequently, and appears to be less interested in coaching-specific certifications or licensure (Liljenstrand & Nebeker, 2008, pp.73, 74).

The diversity in coaching approaches and practices is well documented by coaching researchers. In their review of empirical work on executive coaching Feldman & Lankau (2005) identify five prevailing coaching approaches:

- *Psychodynamic* approach (focuses on the client’s unconscious thoughts and internal psychological states);
- *Behaviorist* approach (focuses on the client’s observable behaviors);
- *Person-centered* approach (focuses on the client’s self-understanding without direct intervention by the coach);
• *Cognitive therapy* approach (focuses on the client’s conscious thinking); and
• *Systems-oriented* approach (focuses on individual, group, and organizational influences on the client’s behavior) (p. 839).

The landscape of coaching approaches and practices is further diversified by such mixed-method forms of coaching as the *Cognitive-Behavioral* approach (Ducharme, 2004; Witherspoon & White, 1996) and various integrated models of developmental coaching exemplified by Laske’s (1999) *Integrated Model of Transformative, Developmental Coaching* (derived from constructive-developmental psychology, family therapy supervision, and theories of organizational cognition); Cocivera & Cronshaw’s (2004) *Action Frame Theory* approach (derived from social action theory, functional job analysis and an integrated coaching model contributed by Kilburg, 2000); and Passmore’s (2007) *Integrative Model for Executive Coaching* (derived from six traditions including the humanistic, emotional intelligence, psychodynamic, behavioral, cognitive-behavioral, unconscious cognition, and cultural perspectives). Although Passmore recently suggested that no coaching models have emerged from developmental leadership models in the emotional intelligence stream (Passmore, 2007, p. 68), the present study is an empirical examination of the Intentional Change Theory Coaching Model (ICTCM) — an integrative coaching model developed by Boyatzis (2006) with colleagues at the Weatherhead School of Management, Case Western Reserve University and derived in part from research and theory in the developmental leadership and emotional intelligence traditions (Boyatzis, *et al*., 2005; Boyatzis, Smith, & Blaize, 2006; Smith, Van Oosten, & Boyatzis, in press). Intentional Change Theory and the ICTCM are presented in detail later herein. Next, a brief look at the fast-paced growth of management coaching will
help to contextualize, and perhaps to explain, the broad diversity in executive coaching forms and practices.

**The Growth of Management Coaching**

During the 1980s the coaching field, then a roughly forty-year old practice, entered an explosive growth phase that continues today (Hudson, 1999; Tobias in Hart, Blattner & Leipsic, 2001; Smith, Van Oosten, & Boyatzis, in press; Wasylyshyn, 2003). More important, in the 1990s the executive coaching sector of the industry emerged as the fastest growing area of consulting (Hall, Otazo, & Hollenbeck, 1999). The numbers are revealing. A 1996 literature review on executive coaching found “literally hundreds of articles” on coaching activities and techniques in three broad domains: sports and athletics, behavioral change in problem populations, and professional performance in management and the work place (Kilburg, 1996, pp. 134-137). By 1999 researchers reported that the number of executive coaches in the United States had reached the tens of thousands (Hall, et al., 1999). In February 2004, roughly five years later, a Google search conducted by this author yielded 2,320,000 results for the search term, *executive coaching* — results that contained a staggering amount of information on coaching in management, the consulting field, and other professional settings.

Though still in its relative infancy, management coaching is a lucrative industry today. Sherman and Freas (in Smith, Van Oosten, & Boyatzis, in press) estimate that roughly $1 billion is spent each year on executive coaching services in the United States. Although scholarly research on the monetary value of coaching is scant, a ROI study conducted by the Booz Allen Center for Performance Excellence (McLean, Virginia,
USA) suggests that organizational coaching interventions can and do produce positive return on investment, in the Booz Allen study an ROI of $3,268,325 or 689 percent (Parker-Wilkins, 2006). Another ROI study conducted by Metrix Global, a professional services firm, found that an executive coaching program in one client’s Fortune 500 firm produced “a 529 percent return on investment and significant intangible benefits to the business” (Wilson, 2004, p. 98). Contemporary organizations accordingly view executive coaching as a value-added management tool and employ it worldwide (Clegg et al., 2005; Jenkins, 2006). For example, Eaton & Brown (2002) report that in the mid-1990s senior leaders and the HR department at Vodafone, a global mobile telephone company, successfully used a system-wide coaching intervention to move the company culture from one of ‘command and control’ to one of ‘coaching and collaboration.’ A 360-degree coaching program enabled Menzies, one of Scotland’s largest companies with a turnover of £1.45 billion, to build skills and performance in the areas of leadership, change management, and people development for 60 managers at different levels of the organization (Mackay, 2007). These cases document several ways in which management coaching is implemented in contemporary business settings.

The robust growth of executive coaching may be due in part to the buy-in of organizational leaders and managers who view receipt of coaching as a way to simultaneously enhance success and reduce risk of failure in demanding and stressful executive positions (Jones, Rafferty & Griffin, 2006; Kilburg, 2000). A number of empirical studies offer evidence to support this idea. A study on coaching high achievers (HAs) found that self-focus on personal performance and development led 14 HAs in business and sports to seek coaching that provided detailed developmental feedback;
positive motivational reinforcement (confidence-boosting); cutting-edge information (relevant theories, literature, methods, etc.); and delivery of rapid results (Jones & Spooner, 2006). Another study on coaching leaders in middle and executive management positions (participants were 59 Station and Company Commanders involved in US Army recruitment) showed that recipients of a competency-based leadership coaching intervention selected improvement and development goals concerned with leadership effectiveness, quality of life, and meeting/exceeding quota-objectives (Bowles et al., 2007). Similarly, in an outcome study on executive coaching Wasylyshyn (2003) reported that in the coaching engagements of 87 surveyed participants:

- 56% of the coaching agendas were focused on personal behavior change (listening, tact/diplomacy, collaboration, persuasion/influence, harsh self-criticism, timidity/self-confidence, shift from tactical-to-strategic, customer focus, stress reduction, managing perception of ambition);
- 43% were focused on enhancing leadership effectiveness (projecting confidence, inspiring/motivating others, assimilation into new role, increase in scope);
- 40% percent were focused on fostering stronger relationships (through enhancing emotional competence factors such as self-awareness, attunement to others, building relationships);
- 17% were focused on personal development (legacy, career management, life stage transition); and
- 7% were focused on work-family integration (p.100).

These studies further reveal that executive coaching interventions often address multiple issues and layered interests. For example, a coaching intervention may focus on a number
of objectives dictated by the coaching recipient’s own personal development agenda along with organizational agendas advanced by the coached person’s boss, senior executives, clients, and/or other extrinsic influences.

A frequently cited survey by Judge & Cowell (1997) found that three categories of executives participate in coaching: (1) derailed executives who show promise but need to overcome one or two deficiencies that prevent their advancement, (2) promising executives who want to optimize their performance and goal attainment, and (3) entrepreneurs and/or people in professional practices such as medicine and architecture who want to develop strategies for managing their organizational agendas (e.g., leadership, strategic planning, etc.). The prevailing coaching literature suggests that, in general, executives and professionals engage coaching services because they seek support in achieving professional and personal goals (Feldman & Lankau, 2005; Witherspoon & White, 1996) … whether motivated by an interest in addressing performance problems and improvement needs, or by an interest in refining/enhancing skills and performance (Baek-Kyoo, 2005).

Professionals also seek coaching because they believe it works. A number of research findings offer support for this belief. Kilburg (1996, p. 135) cites four empirical studies published between 1989 and 1992 that showed positive impacts of coaching on the performance of sales representatives whose bosses became better coaches; on improved chart completion by hospital staffers who themselves received coaching; on increased employee retention in workers coached by supervisors trained in coaching; and on promotion rates of managers who received career coaching. In a study on coaching provided to public sector managers as follow-up to a training program, coached
managers’ productivity increased by 88 percent (Olivero, Bane & Kopelman, 1997). Similarly, pre-interview coaching was positively related to performance of 213 candidates who underwent employment interviews for promotion into higher-level positions (Maurer et al., 2001).

More supporting evidence comes from a two-year, university based leadership program in which progressive 360-degree feedback data on 15 middle level managers from a public sector agency showed that engagement in peer coaching, experiential learning, goal setting, and reflective journaling elevated the managers’ leadership competency (Ladyshewsky, 2007). Moreover, a three-year action research project on 281 executive and high potential managers in a mid-sized global telecommunications firm headquartered in the western USA demonstrated that 360-feedback based executive coaching increased leadership effectiveness an average of 55 percent in the first phase of the project, and 60 percent by the second (Thach, 2002). Results from another survey indicated that high potential employees in a different global company sustained learning and behavior change following receipt of coaching on emotional competence (Wasylyshyn, Gronsky, & Haas, 2006). In yet another study Kombarakaran et al. (2008) surveyed 114 executives and 42 coaches who participated in a 6-month executive coaching program initiated by a large, multinational corporation. Based on their qualitative and quantitative data, these researchers report that executive change occurred in five areas including people management, relationships with managers, goal setting/prioritization, engagement/productivity, and dialogue/communication.

From the standpoint of coachees’ own evaluation of their coaching experience, a number of empirical studies on coaching outcomes suggest that coaching recipients tend
to rate their outcomes as positive, although these data were based on self-report methodology and, with one exception, study sample sizes were small (Feldman & Lankau, 2005; Wasylyshyn, 2003). When it comes to media perceptions of executive coaching, a meta-review and content analysis of 72 articles on executive coaching in mainstream management and trade publications (1991-1998) found that 88 percent of the articles presented coaching as “very favorable” (Garman, Whiston, & Zlatoper, 2000).

While prevailing research on the benefits of coaching is largely encouraging, there is a darker side to the coaching picture. Despite the assumed effectiveness and heightened use of executive coaching as a management resource, today’s coaching approaches by and large rest on competing coaching models and best-practice conventions that are not empirically tested, and on a patchwork of theory cobbled from disparate psychological and social science traditions (Baek-Kyoo, 2005; Feldman & Lankau, 2005; Kilburg, 1996, 2000, 2004). The relative absence of theoretical models and theory-based practice conventions has caused some observers to question whether the executive coaching trend is merely a passing fad (“Coaching: business savior or just a fad,” 2005). One study reports that 94 surveyed hotel managers (62 managers, 32 assistant managers) believed that coaching is a critical tool for developing high-caliber employees and consequently spent significant time during the workday coaching employees; yet they paradoxically did not understand how coaching fit into the dynamics of their workplace and much of what they believed to be coaching was inaccurate (Krazmien and Berger, 1997). When these managers were asked to describe the coaching frameworks they employ in coaching employees, a majority gave responses that suggest they lacked clear understanding on what actually constitutes coaching; they confused
coaching with other management tools such as employee training or discipline and 
reward, and saw coaching as requiring only ad-hoc attention. Misconceptions such as 
these lend support to concerns voiced by a growing number of researchers and 
practitioners regarding the lack of coherence in management coaching models, practice 
conventions, and professional standards (Bluckert, 2004) and the paucity of academic 
research undergirding the field. Consequently, calls for empirical coaching research and 
theory development continue to be heard.

The Gap in Management Coaching Literature

The troublesome gap in management coaching literature has been noted and 
discussed for well over ten years. In 1996 the Journal of Consulting Psychology 
published its first special issue on executive coaching, a top selling issue for the journal 
(Diedrich & Kilburg, 2001). Included in the special issue was Richard Kilburg’s (1996) 
benchmark literature review on coaching wherein he wrote:

The application of coaching as a concept and set of techniques to the art and 
practice of management has been growing rapidly through the 1980s and 1990s. 
However, the scientific basis for these applications is extremely limited at this 
time. This is even more true for the practice of coaching in the context of 
consultation. Only two of the research studies covered by this review can be said 
to be even tangentially related to what is now being extensively marketed and 
practiced in the field (p. 136).

Kilburg produced a second review in 2000, and one year later Kampa-Kokesch and 
Anderson (2001) published yet another exhaustive literature review on executive
coaching. These authors similarly described a robust professional exchange on coaching definitions, standards, techniques, methodologies, credentialing and clientele, but little empirical work on coaching (i.e., only seven empirical studies on coaching efficacy). Thus, while management coaching “draws heavily on theoretical frameworks and practical skills developed by the psychotherapeutic community” (Judge & Cowell, 1997, p. 75), lack of academic research on the cognitive and behavioral aspects of coaching has produced a coaching establishment rich in helping traditions and anecdotal success stories (Brotman, Liberi, & Wasylyshyn, 1998; Frisch, 2001; Hart, Blattner, & Leipsic, 2001; Miller, Ogilvie, & Adams, 2000; Witherspoon & White, 1996) but weak in research evidence and supporting theory (Boyatzis, 2002, 2006; Ellinger & Bostrom, 1999; Lowman, 2001; Ryska et al., 1991). A number of empirical studies have investigated such coaching elements as trust (Peterson, 1996); social support (Feltz et al., 1999; Smith & Smoll, 1990; Young & Perrewe, 2000); and effective coaching practices (Bowles et al., 2007; Longenecker & Neubert, 2005; Luthans & Peterson, 2003; Ryan et al., 1998). It is further reported that “125 peer-reviewed papers (and dissertations) related to coaching [have] been published in the psychological literature since 1937 … [and] the majority of these publications occurred during the 1990s” (Grant, 2003a, 2003b in Bennett, 2006, p. 243). Notwithstanding these efforts, the absence of definitive empirical work on coaching is so acute that Kilburg (2004) described the executive coaching domain as trudging toward Dodoville, “a habitat in which most, if not all, coaching methods will produce positive results from a variety of difficult-to-specify but nonetheless real common causes” (p. 210).
If there is a need to address the documented gap in management coaching literature, what kind of research would be helpful? Concern about the theory gap in coaching has triggered numerous calls for more empirical investigation on the elements that differentiate successful coaching outcomes from mediocre or unsuccessful results (Brotman, Liberi & Wasylyshyn, 1998; Kilburg, 2001; Thach, 2002; Wasylyshyn, 2003; Weller & Weller, 2004). Calls have additionally been made for research on coaching antecedents (coach characteristics, coachee characteristics, organizational/client support); coaching process (coaching approach, coaching relationship, feedback receptivity); proximal coaching outcomes (self-awareness, behavioral change, learning); and distal coaching outcomes (individual success, organizational success)(Baek-Kyoo, 2005). In addition to the research agendas above, Bennett (2006) published a meta review and qualitative content analysis of scholarly works on coaching in which he specifically challenged researchers to generate work that will help to build a scholarly, evidence-based foundation for coaching practice and teaching. Recent theory on emotion and emotional processing has much to contribute toward generation of scholarly research and theory on executive coaching, as the present study is intended to show.

Bridging the Theory Gap: Mining the Links Between Emotion Research and Coaching Research

In an article on advances in today’s coaching practices Bartlett (2006) describes executive coaching as a far-reaching practice designed to enhance the performance of senior executives and employees who, in most present and future workplace settings, face
constant change and innovation, globalization, and complexity. In her treatment on executive coaching interventions Orenstein (2002) further argues that:

If there is a singularly compelling message that can be extracted from the antecedent literature, it is the inextricable link among the individual, the organization, and the consultant. It therefore is imperative that the latter, when engaged in executive coaching, be in a position to understand the multidimensionality of the interrelatedness among all three. Four foundational premises guide the ability to do so effectively, as follows:

1. The unconscious plays a major role in individual and group behavior.
2. Executive coaching is an intervention with a specific individual within a specific organization for the purpose of improving job-related performance; it therefore must consider the individual, the organization, and their interaction.
3. Organizations are composed of groups and groups are composed of individuals; therefore individual behavior in organizations (a) is embedded in organizational, group, intergroup, and interpersonal behavior and (b) influences and is influenced by intrapsychic, interpersonal, group, intergroup, and organizational forces.
4. The consultant’s most crucial tool in the executive coaching process is the use of self (p. 360).

Mining the links between emotion research and coaching research can help coaching researchers develop more empirically grounded theory on ways in which emotional processing drives (a) 21st century workplace performance (and its
enhancement), (b) executive coaching interventions/coaching intentional change and (c) individual-organization-coach interrelatedness. Emotion research has much to say about how emotions shape workplace behaviors of concern in coaching contexts. Scholarly research on affect and emotional processing has expanded management knowledge concerning the influence of emotion on job satisfaction (Kafetsios & Zampetakis, 2008; Shirom, 2003); career development (Kidd, 1998); positive interpersonal interaction (Heaphy & Dutton, 2008); teamwork (Druskat & Wolff, 2001; Kelly & Barsade, 2001; Pirola-Merlo et al., 2002; Tse & Dasborough, 2008; Wolff, Pescosolido, & Druskat, 2002); team coaching (Hackman & Wageman, 2005); leadership and followership (Dasborough, 2006; Johnson, 2008; Humphrey, 2002; Kellett, Humphrey, & Sleeth, 2003, 2006; Kent, 2006; Kisfalvi & Pitcher, 2003); workplace stress (Ashkanasy, Ashton-James, & Jordan, 2003; Humpel, Caputi, & Martin, 2001; Quick et al., 2003); and other behaviors addressed in executive coaching (Barsade & Gibson, 2007; Brief & Weiss, 2002; Callahan, 2000; Higgs, 2003; Knowledge@Wharton, articleid-1760; Weiss, 2002).

Barsade & Gibson (2007) report that, in no special order, Emotional Regulation, Emotional Contagion, and Emotional Intelligence recently emerged as the three dominant trends in organizational research on affect. Research on these trends examines many issues tackled in coaching contexts:

- **Emotional Regulation.** Emotional regulation concerns “how individuals influence which emotions they have, when they have them, and how they experience and express them” (Gross, 1998, p.271). Emotional regulation studies explore such workplace behaviors as (a) attentional deployment (studies on concentration and
distraction); (b) goal pursuit (studies on the manner in which people work toward a goal); (c) emotional regulatory goals (studies on the ways in which people seek to decrease negative emotions and increase positive emotions); and (d) cognitive appraisal, cognitive reframing, and cognitive reappraisal processes (studies on various emotional processes involved in evaluation of situational meaning and response). Another area of the field is emotion work, or emotional labor, defined as work “in which the expression of organizationally desired emotions is part of one’s job” (Zaph, 2002, p. 237). One study on emotion work in a hospital setting found that modifying expressed emotion (Surface Acting) and inner feelings (Deep Acting) helped 130 hospital employees (doctors, nurses and other technical workers) to perform in job-appropriate ways (Zammuner, Lotto & Galli, 2003). In a different study Lowe & Bennett (2003) used an appraisal theory to explore work-related stress. Other research on emotional regulation has rekindled interest in the interplay of positive and negative emotions (Diamond & Aspinwall, 2003); for example, in workplace settings emotional ambivalence, the simultaneous experience of positive and negative emotions, was found to stimulate employee creativity (Fong, 2006).

• Emotional Contagion and Collective Affect. Research on emotional contagion and collective affect concerns “processes that allow the sharing or transferring of emotions from one individual to other group members” (Barsade & Gibson, 2007, p. 42). Emotional contagion can result either from conscious or unconscious induction of emotion (for a conceptual model on this process see Kelley & Barsade, 2001). In addition to studying emotional contagion and collective affect
in laboratory dyads and teams, researchers have examined emotional contagion in field and workplace settings (Barsade & Gibson, 2007). For example, a study on collective mood in 13 teams of community nurses (study 1) and one accounting team (study 2) found that “people’s mood at work can become linked to the mood of their teammates” (Totterdell et al., 1998, p. 1504). With regard to the coaching domain, findings from the emotional contagion stream may be useful in research on transference of emotion between coach and coachee in executive coaching contexts (e.g., the coaching relationship, coach-coachee resonance, etc.).

- **Emotional Intelligence.** Research on Emotional intelligence (EI) has shown that individual, team and organizational-level EI play a significant and multifaceted role in shaping organizational and workplace behavior (Caruso & Salovey, 2004; Goleman, 1995,1996; Goleman, Boyatzis & McKee, 2002; Law, Wong, & Song, 2004; Matthews, Zeidner, & Roberts, 2002; Weinberger, 2002). In empirical studies too numerous to cover thoroughly here, EI has been shown to impact such organizational dynamics as *leadership effectiveness* (George, 2000; Ferres & Connell, 2004; Rosete & Ciarrochi, 2006; Zhou & George, 2003); *individual and team performance* (Day & Carroll, 2004; Druskat & Wolff, 2001; Stubbs, 2005; Pescosolido, 2002); and *career choice and planning* (Emmerling & Cherniss, 2003). In addition, emotional intelligence training has been shown to reduce stress, improve performance, and enhance health outcomes for individuals who participate in these training programs (Slaski & Cartwright, 2003). Multiple studies on the development of emotional and social intelligence (ESI) competencies in leaders, managers, and MBA students have demonstrated that
development and use of ESI competencies fosters the consistent high performance of individuals situated in organizational, workplace and educational settings (Boyatzis, 2008; Boyatzis & Saatcioglu, 20008; Dreyfus, 2008; Hopkins & Bilimoria, 2008; Rhee, 2008; Williams, 2008).

Emotion research also has examined emotional processing in key management processes. Of particular interest herein are two different conceptual models on how affective processing influences (a) employee response to organizational change and (b) engagement in entrepreneurial behavior. Liu & Perrewe (2005) developed a cognitive-emotional change model that describes four, sequential stages in employee’s response to an organizational change process: (1) primary appraisal induced by arousal and anticipatory emotions; (2) secondary appraisal induced by positive and negative emotions; (3) coping behaviors mobilized by first and second stage emotional experiences; and (4) change behaviors enabled by discrete emotions with evaluative components and action tendencies. Barron (2008) drew on findings from affect and cognition research to develop a conceptual model that explains how affect influences key aspects of the entrepreneurial process, including entrepreneurs’ cognitive processes (perception; judgments, decisions, memory, creativity, heuristic thought, and cognitive strategies for coping with stress) and entrepreneurial behaviors (opportunity recognition, acquisition of financial and human resources, development of broad social networks, capacity to respond effectively to highly dynamic environments, and tolerance for stress).

Both treatments describe emotions as playing a figural role in management experience: emotional processing drives response to organizational change in Liu & Perrewe’s (2005) model and entrepreneurial behavior in Barron’s (2008) framework. By example and by
extension these models lends credence to the present view that findings from emotion research can be used to build empirical research on how emotions and emotional processing influence the coaching process.

In another stream of particular relevance herein, recent social complexity perspectives on emotions and emotion-related workplace dynamics have broadened management understanding on affect in organizations. Building on the premise that “natural systems, human societies, and humans themselves are largely unpredictable and nonlinear” (Drodge, 2002, p. 56), a number of career development researchers have used nonlinear dynamics, self-organization, attractors, emergence, phase transitions, relational networks, fractals, and other concepts from complexity science to build theory and practice in career counseling and development (Harrington & Harrigan, 2006). Two examples are persuasive. Drodge (2002) used the complexity lens to (a) explain how globalization, rapid change, and uncertainty have reshaped contemporary careers and required shifts in career counseling approaches to “new career” development [here Drodge expands the term/notion, “new career,” coined in 1997 by Arnold and Jackson (in Drodge, 2002, pp. 51-53)] and (b) delineate ways in which career counselors and clients can employ complexity concepts in core aspects of their work (e.g., managing change and uncertainty, building relational networks, handling diversity). Bloch (2004, 2005) used the complexity perspective to develop a complexity theory on career development and also to explore spiritual aspects (e.g., unity, balance, calling, harmony) that help counselors assist clients in successful career pathing.

Other researchers have used complexity models to study emotion in workplace teams. In one path breaking research Losada (1999) developed a nonlinear dynamics
model, the meta learning (ML) model, to compare interaction patterns exhibited by high-performance business teams (n=15) to those exhibited by medium (n=26) and low (n=19) performance teams; a total of 60 teams were studied. Findings showed that chaotic dynamics/chaotic attractors underlay the expansive emotional spaces created by high-performance teams (evidenced by high engagement in inquiry-advocacy, other-self orientation, creativity) and simple dynamics, either point attractors or limit cycles, underlay the restrictive emotional spaces of low performance teams (evidenced by being locked-up in advocacy, self-orientation, inflexibility). In addition, emotions in the high-performance teams were conceptualized “as driving cognition and action towards nonlinear dynamic attractors that configure the topology of the learning space” (Losada, 1999, p. 189). Losada & Heaphy (2004) presented expanded discussion on these findings in a subsequent article.

Taken together, these and other contributions from emotion research are reshaping the landscape of organizations by empirically demonstrating the profound influence of emotions in the workplace, and by helping organizational leaders and members to better grasp the importance of managing, and at best optimizing, emotional processes in their midst. The perspectives on coaching and coaching research advanced by Laske (1999), Orenstein (2002), and Baek-Kyoo (2005) would strongly suggest that integrated, multilevel theoretical approaches are required to capture and explain the critical ways in which emotional processing influences coaching antecedents (coach characteristics, coachee characteristics, organizational/client support); coaching process (coaching approach, coaching relationship, feedback receptivity); and proximal and distal coaching outcomes (self-awareness, behavioral change, learning, individual success,
organizational success). Intentional Change Theory (ICT) (Boyatzis, 2006) offers this kind of integrative theory.

**Bridging the Theory Gap: Intentional Change Theory (ICT) and the ICT Coaching Model**

Intentional Change Theory (ICT) (Boyatzis, 2000, 2002, 2006; Boyatzis & McKee, 2006) is an integrated multilevel theory on sustained, desired change that can help to bridge the theory gap in coaching. Specifically, ICT is an integrated theory that incorporates elements from the developmental leadership, emotional and social intelligence, cognitive emotion, social complexity, and psycho-neurobiology traditions. Intentional Change Theory also is a multilevel theory that addresses change at the individual, team/group, organizational, societal, and global levels of human organization. But given the wide-ranging research agendas proposed in calls for scholarly research on coaching, specifically what does ICT contribute to the coaching literature?

First and foremost, ICT contributes an integrated, multilevel process model on change— and change is a bedrock process in executive coaching. As discussed earlier herein executive coaching generally involves practical, goal-focused forms of one-on-one learning and behavioral change (Hall, Otazo & Hollenbech, 1991; Peterson, 1996). The typical executive coaching experience and relationship provides a coached person with help from a qualified coach (external or internal) in evaluating and achieving the coachee’s salient developmental goals, performance goals, and/or change goals (Davidson & Gasiorowski, 2006). Based on their recent HBR survey of 140 executive coaches Kauffman and Coutu (2009) reported that the vast majority of all survey respondents provided assistance to coachees by facilitating a transition in or up (96%),
developing the capabilities of a high-potential manager (94%), acting as a sounding board on organizational dynamics (94%), and enhancing the interactions of a team (91%). Because they leverage desired behavioral change in complex social settings, executive coaching interventions have the potential to impact not only the coaching pair (coach/coachee), but also surrounding systems in which the coaching dyad is embedded (e.g., the coach/coachee’s organization or workplace, professional networks, friendships or family circles, etc.). Rock and Donde (2008) describe an organizational scenario wherein one internal coach — in this example a senior executive who dedicates two hours a week to coaching organizational members not directly working for him or her — coaches 2.5 people; in this scenario a total of 38 individuals are impacted by one senior executive’s coaching effort as evidenced by “increased productivity, performance engagement, and retention” (Rock & Donde, 2006, p. 13). The impact of the senior executive’s coaching effort cascades in the following way: (1) the senior executive experiences renewal and reduction of stress (Boyatzis, Smith & Blaize, 2006); (2) the senior executive’s ten direct reports experience a boss who is fully engaged/not burning out; (3) the senior executive’s 2.5 coachees experience positive support for their professional learning and development; and (4) the 2.5 coachees’ peers and direct reports (n=25) each experience a well-supported and developed colleague/supervisor. As an integrated, multi-level process model of change ICT conceptualizes and explains these cascading impacts.

Second, ICT is an empirically supported conceptual model of change that houses an applied coaching approach (the Intentional Change Theory Coaching Model/ICTCM). Both elements rest on antecedent research that shows how people can change their
behavior, moods, and self-image (Boyatzis, 2006, p. 610) and on nearly two decades of longitudinal studies concerning the enhancement of emotional intelligence (EI), social intelligence (SI), and leadership competencies in MBA students and executive education participants at the Weatherhead School of Management, Case Western University (Boyatzis, 2006, pp. 612-613).

Because it offers empirically supported change theory and an applied coaching approach, the ICT framework expands the scholarship on coaching with the following building blocks (these contributions are presented in Figure 1, p. 39):

- **Building Block #1: An integrated, affective processing-based complexity theory of change and change management (Intentional Change Theory/ICT).** Desired change is a foundational element in the executive coaching process and relationship. Drawing on theory and principles from management research, emotion research, complexity science, and psycho-neurobiology, ICT describes a series of five discoveries, or emergence conditions, that move sustainable, intentional change at multiple levels of human organization, or fractals, (the individual, team, group, community, regional, national, and/or global levels). ICT further explains how the interplay of positive and negative emotions performs a figural role in the change process through the pull of two chaotic attractors: the Positive Emotional Attractor (PEA) and Negative Emotional Attractor (NEA), and how key psycho-neurobiological features of this interplay influence the change process.

- **Building Block #2: An integrated model of coaching intentional change (Intentional Change Theory Coaching Model/ICTCM).** Given the
“multidimensionality of individual-organization-coach interrelatedness”
(Orenstein, 2002, p. 360) in today’s executive coaching contexts, optimizing desired, sustainable change frequently requires use of mixed-method coaching forms that employ more than two of the five intervention elements outlined by Feldman & Lankau (2005) — i.e., some combination of (a) psychodynamic elements (related to coachee’s internal thoughts or states); (b) behavioral elements (related to client’s observable behaviors); (c) person-centered elements (related to client’s self-understanding); (d) cognitive elements (related to client’s conscious thinking); and/or (e) system elements (related to individual, group, and organizational influences on client’s behavior). The ICTCM is an integrated model that incorporates four of these intervention elements and four others in addition: elements from the behavioral; person-centered; cognitive emotion; system; leadership development; emotional and social intelligence; social complexity; and psycho-neurobiology traditions.

• **Building Block #3: A platform of university management-education programs that support ongoing ICT research and theory building, including work on (a) intentional change and change management, (b) coaching intentional change, and (c) development of emotional intelligence (EI) and social intelligence (SI) competencies shown to distinguish high performers from average (Boyatzis, 2000; Boyatzis & Sala, 2004; Goleman, Boyatzis, & McKee, 2002). The platform of MBA, EDM, and executive education programs at Case Western Reserve University, Weatherhead School of Management provide ongoing opportunities for faculty researchers and doctoral students to conduct research on intentional
change in management settings. As a result, ICT graduate classrooms, executive
development programs, and research activities are generating empirical findings
of relevance to the coaching domain.

In sum, ICT contributes a rich conceptual framework that serves to expand and enhance
scholarly research on coaching.
Figure 1. Contributions of the ICT Framework to Coaching Theory and Practice

#1: Intentional Change Theory (ICT)
- An integrated, affective processing-based complexity theory on intentional change and change management.
- Rests on multidisciplinary research and theory (including theory/findings from the behavioral, person-centered, cognitive emotion, systems, developmental leadership, emotional and social intelligence, cognitive emotion, social complexity, and psycho-neurobiology traditions).
- Presents 5 Discoveries, or Emergence Conditions, that move sustainable, intentional change at multiple levels of human organization: the individual, team, group, organizational, community, regional, national and global levels.
- Explains how the Interplay of Positive and Negative Emotions performs a figural role in desired, sustainable change (through the pull of the Positive Emotional Attractor/PEA and Negative Emotional Attractor/NEA).
- Ongoing empirical research and evaluation studies (e.g., on intentional change/emotional processing in intentional change; emotional and social intelligence competencies; competency-based leadership and professional development; executive coaching; etc.)

#2. Intentional Change Theory Coaching Model (ICTCM)
- An integrated model of coaching intentional change.
- Employs a mixed-method coaching approach with elements from the behavioral, person-centered, cognitive emotion, systems, leadership development, emotional and social intelligence, complexity, and psycho-neurobiology traditions.
- Addresses coaching at multiple levels (i.e., one-on-one coaching and cultures of coaching at the team and organizational levels).

#3: ICT University Programs and Research Platforms
- ICT-based MBA and EDM Classes/Curricula; Executive Education Programs; Coaching Programs and Coaching Certifications.
- Assessment Instruments (Emotional Competence Inventory/ECIU; Emotional and Social Competence Inventory/ESCIU; assorted leadership and professional development workbooks).
- University context for longitudinal research on intentional change and change management.
The Present Study

Few research studies have reviewed and tested hypotheses from an integrated, multilevel theoretical model on coaching intentional change. The aim of the present research is to conduct a preliminary empirical investigation on Intentional Change Theory (ICT), in particular to review and test two central ICT propositions regarding the differential influence of positive vs. negative emotion (Boyatzis 2002, 2006; Boyatzis & McKee, 2006; Dyck, Caron, & Aron, 2006; Howard, 2006) on the coached person’s cognitive affective processing during work on intentional change. A corresponding aim of this study is to contribute an initial step in learning how to empirically investigate and explain the distinct and recurrent influence of positive and negative emotion on intentional change. The overarching aim of the study is to contribute empirical findings of relevance to the community of researchers and professionals concerned with the role of positive and negative emotion in intentional change, the influence of positive and negative emotional processing on coaching intentional change, and/or emotional processing in organizations and the workplace.
Chapter 2: Literature Review and the Research Hypotheses

Research is needed to understand how intrinsic and extrinsic motivational considerations interact. In order to successfully use external incentives for long-term change, it is necessary to learn how to fade out perceived external motivations and replace them with ones that are more internal. Personal pros and cons are more important than external incentives in the long run. Sustained change must be reinforced by incentives that are owned by the individual so that they become integrated into the life of that individual (DiClemente, 1994) (DiClemente, 1999, p. 211).

This study empirically tests two Intentional Change Theory (ICT) propositions on the differential impact of anchoring a change process in the individual’s Positive Emotional Attractor (PEA) vs. Negative Emotional Attractor (NEA) during work on intentional change. A major contribution of ICT is that it offers explanatory theory on how intrinsic motivation (activated by the PEA) and extrinsic motivation (activated by the NEA) both serve sustained intentional change, and how positive and negative emotions influence the change process. Intentional Change Theory also conceptualizes the iterative, cyclical stages of desired, sustained change, and how recurrent arousal of positive and negative emotion characterizes these stage transitions. This chapter reviews the ICT perspective on positive vs. negative emotional processing in intentional change, including discussion of supporting literatures on the dynamic interplay of positive and negative emotion. The study hypotheses are also presented.
The Background and Focus of Intentional Change Theory (ICT)

… Little is known about what goes on inside the “black box” of change. How does change occur? (Rhee, 2007, p.146.)

Over 18 years of ICT research conducted by Richard Boyatzis (2006, 2008a, 2008b) together with faculty colleagues and graduate students at the Weatherhead School of Management (WSOM) has focused on illuminating what actually happens during intentional change. Intentional Change Theory is grounded in classic research on motivation and competency development contributed by David McClelland (1965, 1987, 1998), McClelland and Boyatzis (1982), and Richard Boyatzis (1982; 1998; 1999), and on antecedent models on self-directed learning and change developed by Kolb, et al. (1968) and Kolb and Boyatzis (1970a, b). Early ICT research confronted two effects that may compromise the ability of participants in professional development programs and change initiatives to sustain over time the behavioral changes worked on in these settings: the “honeymoon effect” and the “sleeper effect” (Boyatzis, 2006):

The “honeymoon effect” of typical training programs might start with improvement immediately following the program, but within months it drops precipitously (Campbell et al., 1970). … The honeymoon effect is often the cause for practitioners and scholars overlooking the “sleeper effect”. The sleeper effect is that a sustainable change in a person’s behavior, thoughts patterns or emotional reactions to events does not appear until six to 12 months following completion of the change effort (McClelland, 1970). Since it appears disconnected to the timing
of the intervention, it is a discontinuous effect and easily overlooked or wrongly attributed to other factors (p. 611).

The Weatherhead ICT effort began in 1990 when WSOM researchers launched a longitudinal study on the competency development and career experience of WSOM MBA and executive education students. That same year WSOM redesigned its MBA and executive education programs based on ICT (Boyatzis, 2006; Leonard, 2008). The longitudinal ICT study enabled researchers to investigate the unfolding learning and change experiences of WSOM graduate cohorts, and to develop and refine ICT approaches to overcoming honeymoon and sleeper effects. The study tracked improvement in emotional intelligence (EI), social intelligence (SI), and cognitive competencies exhibited by WSOM graduates over time as a result of participation in their respective management programs. To determine the degree of competency development achieved during their graduate experience and the degree of sustained change exhibited in their following years of career engagement, students were assessed during their months enrolled at WSOM and in subsequent career contexts two or more years after graduation.

The WSOM longitudinal competency development findings not only established that improvements in students’ emotional, social, and cognitive competencies were gained through participation in ICT-based management programs at WSOM and were sustained “out as far as seven years” (Boyatzis, 2008b, p. 92); they also provided empirical evidence regarding mechanisms that produced these changes, and discrete behaviors that promote sustainable learning and development. In this way over a decade of competency work generated roughly between 1990 and 2002 produced findings that led WSOM researchers, in the iterative conduct of research and theory building, to focus
more directly on intentionality as the construct for change — i.e., to refine the earlier model of self-directed learning (see Boyatzis, 2006, p. 610) that launched the restructuring of WSOM MBA and executive education programs in 1990. By 2002 the stage also was set for WSOM researchers to focus more directly on the chaotic dynamics and positive and negative emotional processing evident in their longitudinal data. The following discussion reviews resulting ICT theory on how these dynamics operate in ways that promote sustained intentional change.

Conceptualizing the Change Process: the Five Discoveries in Intentional Change

Findings from the WSOM longitudinal competency-development studies established that the change experienced by students in studied MBA cohorts was not always smooth, continuous change. Rather, the data suggested that students’ patterns of development were often discontinuous in nature:

The results indicated that certain types of competencies were developed much earlier in the program (e.g., technology and quantitative), while other competencies were developed during the summer break (e.g., help and relationships) or toward the end of the program (e.g., informational analysis, theory, and goals and action). Students’ career aspiration also had an impact on the rhythm and flow of competency development — while career changers steadily improved throughout the program, career explorers had spurts of improvement throughout the program, indicating their uncertain pattern of development. Overall, students’ opportunity mode and desire for continuous
learning significantly impacted their competency development (Rhee, 2008, p. 146).

The nonlinear patterns of competency development seen in their longitudinal data drew WSOM researchers toward the complexity sciences\(^1\) as an explanatory lens. The turn to complexity science was not unprecedented. In a late-90s review of the (then) 20-year history of social science and organizational literatures on complexity science, Matthews, White, and Long (1999) reported that complexity approaches were “introduced into the organizational sciences mainly as nonlinear methodological tools for use in the empirical analysis of data” (p. 441). These authors speculated that the true value of complexity approaches may lie in their provision of new ways to think about organizational processes and how study of these processes should be approached (Matthews, White, & Long, 1999). Management scholars have since used concepts from complexity science (e.g., nonlinear dynamics, self-organization, chaotic attractors, emergence, phase transitions, fractals, relational networks, point attractors/limit cycles, etc.) to explain nonlinear dynamics underlying \(21^{st}\) century career development (Bloch, 2004; Drodge, 2002; Harrington & Harrigan, 2006); emotional spaces created by high vs. low

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\(^1\) Matthews, White, and Long (1999) describe the complexity sciences as broadly including nonlinear dynamic systems theory, nonequilibrium thermodynamics, dissipative structures, the theory of self-organization, catastrophe theory, the theory of self-organized criticality, antichaos, and chaos theory. A unifying theme among these perspectives is “a focus on systemic change, an attempt to understand the temporal behavior of both spatially simple and complex systems” (p. 443). Social complexity theories focus on the interplay between gradual and sudden changes in organizational and system trajectories, and view systems as having both temporal and spatial dimensions. Complexity perspectives further emphasize “the importance of temporality, which often has been ignored in organization research. It is this interaction between spatial and temporal characteristics that have significant effects for the system’s trajectory (Wilkinson, 1990)” (Matthews, White, & Long, 1999, p. 443).
performance teams (Losada, 1999); organizational leadership (Marion & Uhl-Bien, 2001; Schneider & Somers, 2006); organizational learning (van Eijnatten, 2004; van Eijnatten & Putnik, 2004a, b); and other organizational phenomena governed by complexity laws (Andriana & McKelvey, 2005; Goldspink & Kay, 2003; Farazmand, 2003; Macintosh & Maclean, 1999; Ortegon-Monroy, 2003; Smith & Higgins, 2003; Wheatley, 1994). Boyatzis (2006) similarly employed social complexity concepts to explain the nonlinear dynamics evident in the WSOM findings, and to delineate core features of sustained intentional change.

Consistent with social complexity views on human behavior across the individual, organizational and societal levels (Casti, 1994), ICT (Boyatzis, 2006) proposes that five features characterize sustained intentional change at all levels of human organization (individual, dyad, team, organization, community, regional, national, and global):

1) Discontinuity and nonlinearity: The process of desired intentional change is, for the most part, non-linear and discontinuous.

2) Tipping points, wake-up calls, and discoveries: Intentional change is stimulated by tipping points, wake-up calls, and discoveries. When people experience a conscious or unconscious “motivational readiness to change”\(^2\) (DiClemente, 1999, p. 210), conscious awareness of the need to change is triggered by tipping points, wake-up calls, and/or catastrophic events such as the unexpected loss of a job or death of a loved one. Boyatzis (2006) observes

\(^2\) In supporting research on intentional behavior change in modification of addictive behaviors (e.g., smoking, alcoholism, cocaine usage) DiClemente (1999) described motivational readiness to change as: “the first (baseline) step in intentional change; as related to critical attitudinal and decisional considerations, coping mechanisms, and processes required for successful modification of substance abuse behavior; and as a significant predictor of long term behavioral outcomes” (p. 211).
that changes in human behavior, thoughts, feelings or perceptions “appear as emergent or catastrophic changes over time and effort, which is an essential component of complex systems (Casti, 1994). The experience is one of an epiphany or discovery (Boyatzis, 1983)” (Boyatzis, 2006, p. 609).

3) **Self-organizing and the pull of two emotional attractors**: The self-organizing properties of human systems (including individual, dyadic, and collective systems) move people to adapt and/or seek equilibrium when an imbalance in present or emergent conditions (discontinuities) triggers the felt need to make changes or adjustments. Once people reach conscious awareness of their motivational readiness for change, engagement in intentional change is assisted by two emotional attractors that galvanize response to wake-up calls and/or discoveries: the Positive Emotional Attractor (PEA) and the Negative Emotional Attractor (NEA). The PEA and NEA both influence the form and flow of adaptive change, but they each operate in different ways: the PEA arouses positive emotions that catalyze proactive response, i.e., the experience

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3 Social complexity perspectives define an attractor as a structure in phase space. Phase space is a visual map that numerically and graphically plots a set of data points that represent the sequence of nonlinear movement through time of one or more variables in a dynamical system; a phase space plot is developed through mathematical modeling of precise mechanisms of change in the system (Gottman et. al, 2002; Losada & Heaphy, 2004). Attractors mathematically represent “the asymptotic tendency of the trajectories in phase space. In nonmathematical terms, attractors are like a gravitational field pulling behaviors toward it. The attractors vary in the degree to which they are rigid or flexible. The most rigid is the fixed-point attractor, followed by the limit cycle or periodic attractor, the torus or quasi-periodic attractor, and finally, the most flexible is the chaotic attractor” (Losada & Heaphy, 2004, p. 750). Intentional Change Theory (Boyatzis, 2006) conceptualizes two emotional attractors in intentional change: the Positive Emotional Attractor (arousal of positive emotion) pulls an actor’s behavior toward his or her ideal self, and the Negative Emotional Attractor (arousal of negative emotion) pulls the actor’s behavior toward his or her real self.
of hope, strengths, possibility, and other constructive cognitive-physiological behaviors. In a different yet complementary function, the NEA arouses negative emotions that catalyze defensive response, i.e., attention to current stressors, shortfalls, threats, and the need for self-protective behaviors. Although recurrent focus on the PEA and NEA is a central feature of intentional change, the process is suggested to be more effective and sustainable when the PEA serves as the primary focus of the change process and the NEA serves as the secondary focus (Boyatzis, 2006, p. 616; Howard, 2006, p. 665).

4) An iterative cycle of discontinuities, i.e., nonlinear movement through Five Discoveries that support sustained intentional change: Sustained, desired change is characterized by an iterative cycle of discoveries. These include (a) Discovery #1, exploration of the ideal self and personal vision (or for dyads and collectives, the shared ideal self and collective vision); (b) Discovery #2, exploration of the real self/elves and assessment of the overlap between strengths and weaknesses; (c) Discovery #3, development of a learning agenda or plan for reducing the gap between strengths and weaknesses; (d) Discovery #4, experimentation and practice with new behavior, thoughts, feelings or perceptions; and (e) Discovery #5, development of trusting or resonant relationships that lend support during each stage in the change process.

5) The multileveled aspect of desired intentional change whereby a change process can interact both within and among various levels of human organization (i.e., can cascade through the individual, team, group,
organizational and nation or global levels via the influence of leadership and reference groups): Because human systems are complex systems, they are characterized by (a) scale (refers to multiple levels, fractals or a hierarchy of systems that share the same elements or meanings, but at varying degrees of magnification and/or focus) and (b) multileveledness (interaction among the levels that produces new forms of emergent behavior and adaptive change) (Boyatzis, 2006, p. 618).

In sum, ICT (Boyatzis, 2006) casts desired intentional change as a cyclical, iterative process moved by five discoveries: at all levels of human organization the process is activated by tipping points, wake-up calls and/or discoveries that trigger (a) conscious awareness of the readiness to change, (b) thoughts and actions (responses) shaped by arousal of the ideal self/selves (intrinsic PEA factors) and real self/selves (extrinsic NEA factors) that assist formation of a change agenda, (c) development of a plan for moving the change agenda, (d) engagement in experimentation, practice, and mastery required for achieving identified change goals(desired outcomes, and (e) reliance on support from others during each step of the process. This process of change, and its five discoveries, is presented in Figure 2, p. 50.
Supporting Literatures on Emotional Processing in Intentional Change

Intentional change is desired, deliberate, altering. It results from the conscious effort to establish new behaviors or conditions that are different from what they presently are or appear to be (Ford & Ford, 1994). Cognitive emotion, cognitive appraisal, and emotional regulation literatures have established that emotional processing enables people to access their social and physical environment, recognize the need for change, and take intentional action. Emotions drive intentional change because they are response tendencies (Fredrickson, 2001; Frijda, 1988; James, 1894) that prepare us for action (Ben-Ze’ev, 2000; Izard, 2002; Lazarus, 1991a) when an event or experience requires us
to change (Mendoza & Ruys, 2001). In particular, emotions function as a complex set of psychophysiological arousal, appraisal, and response mechanisms that operate at multiple levels of experience: the situational level of experience, or assessment of a particular stimulus situation or event; the intrapersonal level of experience, or assessment of the situation’s positive and/or negative impact on oneself; and the social system level of experience, or assessment of the situation’s positive and/or negative impact on others in general (Solomon & Stone, 2002).

Cognitive appraisal research also has shown that emotions organize construal of situational behavior and events as being: (a) of interest; (b) goal relevant; (c) potential resources for coping; and/or (d) personally resonant (Silva, 2005; Lazarus, 1991b, c). Findings from psychoneurobiology similarly have established that “in addition to the experiential aspects of emotions, emotions embody appraisal systems that are pervasive to all levels of the brain to facilitate function, adaptation, and survival” (Schulkin, Thompson, & Rosen, 2003, p.15). As Cacioppo & Berntson (1999) describe, “the affect system works hand in glove with the cognitive system to appraise the significance of stimuli and to execute appropriate actions. It directs attention, guides decision making, stimulates learning, and triggers behavior” (p. 133). The neurobiology of emotion is an increasingly hot research topic in the brain sciences, and evidence is rapidly building on the neural structures and functions involved in emotion and emotional appraisal (Ashby, Isen, & Turken, 1999; Lewis, 2005).

Empirical work on regulatory focus has shown that emotional processing organizes intrinsic motivation and extrinsic motivation. Intrinsic interest is triggered when the person is drawn to change that aligns with his or her own personal values,
goals, and standards; extrinsic interest is triggered when the person is drawn to change that aligns with values, goals, and standards that the environment holds for him or her (Moretti & Higgins, 1999; Mulland & Markland, 1997). The regulatory focus literature treats both types of motivation as important features of change. Intrinsic motivation organizes goals and behaviors that reflect our ideal self (inner values, hopes, desires), while extrinsic motivation organizes goals and behaviors that reflect our real self (environmental requirements; social expectations, pressures, controls). Regulatory focus theory further describes behaviors moved by the ideal self as promotion focused (actions motivated by the desire to promote and develop the ideal self), and behaviors moved by the real self as prevention focused (actions motivated by the need to protect and promote the ought and/or real self) (Brockner & Higgins, 2001).

Empirical investigations have established that people can be influenced to adopt either a promotion focus or a prevention focus by framing their perception of the situation and/or by priming their ideal self or real self (Brockner & Higgins, 2001; Forster, et al., 2001). Overall, the cognitive emotion literature suggests that emotions serve intentional change by exciting our interest in a stimulus situation or event; focusing our attention on the situation’s positive and/or negative impact on self and/or others; alerting us to the need for change (motivational readiness); and moving us to act in adaptive ways (appraisal, identification, and pursuit of self-sustaining goals and behavioral responses) (Doring, 2003; Goldie, 2002).

Although there are competing frameworks on the role of positive and negative affect in cognitive appraisal, emotional regulation and behavioral change, emotion researchers have begun to focus on the complex, multidimensional, and complementary
dynamics underlying positive and negative emotional processing (Aspinwall, 1998; Solomon & Stone, 2002). Mendoza & Ruys (2001) report that emotions may be distinguished from one another at the behavioral level, yet there is “considerable overlap in neurobiological processes among the various emotions” (p. 56). Consistent with this understanding, studies on affect system bipolarity and the interplay of positive and negative emotions have established that positive and negative emotions work together in fostering change (Aspinwall & Taylor, 1997; As Cacioppo & Berntson, 1999; Cacioppo, Berntson, & Gardner, 1999; Green, Salovey, & Truax, 1999; Larsen et al., in Aspinwall & Staudinger (Eds), 2003; Schulkin, Thompson, & Rosen, 2003; Taylor, 1991). Diamond and Aspinwall (2003) recount the importance of research on the interplay of positive and negative emotion:

Because positive and negative emotions are governed by different neural pathways (Lane et al., 1997) and because they influence physical and mental functioning through different neuropsychological mechanisms (Isen, 2002; Taylor, Dickerson, & Klein, 2002), it makes sense to model their regulatory development separately. At the same time, research reported in this Special Issue and elsewhere increasingly suggests that from infancy to adulthood, a critical aspect of successful emotion regulation — and self-regulation in general — involves the dynamic and coordinated interplay of positive and negative emotional states (Larsen, Hemenover, Norris, & Cacioppo, 2003; Ryff & Singer, 2003). We think this interplay is one of the most intriguing and provocative areas for future study, particularly from a life span perspective (p. 139).
The interplay of positive and negative emotion is also a compelling area of study from the intentional change perspective. Because they alert us to the need for change and organize our cognitive and physical response, positive affect (PA) and negative affect (NA) both frame our motive outlook on the intentional change process as a whole, and structure our moment-to-moment engagement in behavioral change (Goldstein & Strube, 1994). Scholars need to learn more about how positive emotions and negative emotions accomplish this together, yet also how PA and NA each promote change in distinct and different ways.

The Role of Positive Emotion (PA) vs. Negative Emotion (NA) in Intentional Change

Intentional Change Theory (Boyatzis, 2006) offers a new understanding on the role of positive and negative emotion in sustained, desired change. As discussed earlier herein, ICT proposes that positive emotions (aroused by the Positive Emotional Attractor/PEA) trigger constructive cognitive and physiological responses that enhance motivation, effort, optimism, flexibility, creative thinking, resilience, and other adaptive behaviors. Negative emotions (aroused by the Negative Emotional Attractor/NEA) trigger another process by calling attention to current social and environmental challenges and stressors that may compromise one’s effectiveness. While both positive and negative emotions play an important role in intentional change, it is critically important to leverage the beneficial effects of positive affect (aroused by the PEA) throughout the change process. These ICT propositions are supported by and extend recent cognitive emotion research on affect system bipolarity and emotional regulation, as discussed further below.
The Role of Positive Emotion in Intentional Change. ICT defines the Positive Emotional Attractor (PEA) as the personal values, hopes, dreams, possibilities, strengths, optimism, and self-directed learning goals that make up the ideal self (Boyatzis & Akrivou, 2006), i.e., our conception of what we most aspire to be and become (Brockner & Higgins, 2001; Waugh, 2001; Higgins, et. al., 1994). The organizing power of the PEA stems from positive emotions (and emotional appraisals) associated with and aroused by affirming thoughts, feelings, memories, meaning, and self-worth that constitute the ideal self — and by PEA arousal of the parasympathetic nervous system (PSNS) and neural circuits predominantly in the left prefrontal cortex (Boyatzis, 2006). When intentional change is initiated by connecting to the ideal self (focusing on the PEA), the change process becomes grounded in intrinsic motivation, personal passion, resonant meaning, belief in possibility and the psychophysiological benefits of PSNS arousal and neurogenesis.

Multidisciplinary research on affect and emotional processing supports the ICT view on the role of positive emotion in intentional change (promotion of sustained, desired change through induction of positive emotions that organize adaptive cognitive-behavioral response). A foundational stream of studies on positive affect conducted by Alice Isen and her colleagues have demonstrated that induction of positive affect facilitates creative problem solving (Isen et. al., 1985; Isen, Daubman, & Nowicki, 1987; Estrada, Isen, & Young, 1994), integration of information (Estrada, Isen, & Young, 1997), accessibility of information in memory (Isen, et. al., 1978), and performance on cognitive tasks (Ashby, Isen, & Turken, 1999). The many benefits of positive emotion also have been reported in the positive psychology literature (Aspinwall & Staudinger,
2003; Cameron et. al., 2003; Lopez & Snyder, 2003). In particular, scholarship on positive psychology has examined powerful ways in which positive affect and human strengths foster human cognition, intelligence, judgment, creativity, wisdom, physical health, emotional wellbeing, organizational culture, individual personality, and social relations (Aspinwall & Staudinger, 2003, pp. 3-7). An influential body of work contributed by Barbara Fredrickson (1998; 2000a, b; 2001; 2003) and her colleagues offers extensive evidence on the ways in which positive emotions broaden and build thought-action repertoires and attentional focus (Fredrickson, 1998; 2001; 2003), speed recovery from negative emotional experiences and crises (Fredrickson, 2003), optimize emotional well-being, physical health, and resilience (Fredrickson, 2000a; Fredrickson & Joiner, 2002; Fredrickson, et. al., 2003; Tugade, Fredrickson, & Barrett, 2004; Fredrickson, & Tugade, 2004; Tugade & Fredrickson, 2006) and undo the damaging effects of negative emotion (Fredrickson & Levenson, 1998; Fredrickson, et. al., 2000). More recently a comprehensive literature review on cross-sectional, longitudinal, and experimental studies on happiness (Boehm & Lyubomirsky, 2008) provided evidence that “happiness is not only correlated with workplace success but that happiness often precedes measures of success and that induction of positive affect leads to improved workplace outcomes” (p. 101).

As discussed earlier herein, emotional regulation studies have also shown that emotions shape motive outlook on behavioral change by triggering two different kinds of motive frames. Intrinsic interest is triggered when an individual is drawn to change that aligns with his or her ideal self — i.e., the actor’s own personal values, standards, and goals. Conversely, extrinsic interest is triggered when an individual is drawn to change
that aligns with his or her real self — i.e., the values, standards, and goals that the environment holds for him or her (Higgins, Crowe, & Hymes, 1994; Mullan & Markland, 1997; Moretti & Higgins, 1999). In the case of positive emotion, Isen and Reeve (2005) found that positive affect fosters intrinsic motivation (as measured by choice of activity in a free-choice situation and rated by amount of enjoyment of a novel and challenging task) without compromising participants’ involvement in meeting extrinsic requirements. A different motivation study conducted by Erez and Isen (2002) demonstrated that positive emotion influences cognitive processes involved in expectancy motivation. Regulatory focus research further suggests that intrinsically motivated behaviors [fostered by positive emotion] are “free from pressures and external controls, are accompanied by interest and enjoyment, and are completely self-determined (Mullan & Markland, 1997, p. 350).

The regulatory focus literature additionally has shown that framing an effort as promotion focus (ideal-self priming) enhances motivational strength during goal pursuit (Spiegel, Grant-Pillow, & Higgins, 2002), and that promotion focus has a distinct and different impact on goal pursuit as compared to prevention focus (real-self priming) (Forster, Higgins, & Idson, 1998). For example, a promotion focus on hopes and accomplishments (gains) has been shown to orient individuals toward using eagerness means to approach a new task goal, whereas a prevention focus on safety and responsibilities (non-losses) orients individuals toward using vigilance means to approach a new task goal (Higgins, et. al., 2001). Last, classic regulation studies have repeatedly demonstrated that regulatory focus can be momentarily primed (Brockner & Higgins,
2001) — i.e., that both the ideal self (PEA focus) and the real self and/or ought self (NEA focus) can be strategically activated, as ICT both proposes and employs.

**The Role of Negative Emotion in Intentional Change.** Intentional Change Theory defines the Negative Emotional Attractor (NEA) as the present reality, requirements, problems, shortfalls, fears, pessimism and improvement goals that constitute the real self (Taylor, 2006), i.e., our conception of what we actually are in everyday life (Ogilvie, 1987; Higgins, Crowe, & Hymes, 1994; Brockner & Higgins, 2001; Waugh, 2001). The organizing power of the NEA stems from negative emotions (and emotional appraisals) associated with and aroused by dissonant thoughts, feelings, memories, meaning and concerns about self-efficacy that comprise the real self — and by NEA arousal of the sympathetic nervous system (SNS) and neural circuits predominantly in the right prefrontal cortex (Boyatzis, 2006).

The benefits of negative emotions issue from their central role in organizing adaptive response to behaviors and events that compromise our effectiveness, threaten our safety, drain our resources, increase our stress, or require us to improve and/or protect ourselves (French, 2001; Sanford & Rowatt, 2004). Negative emotions assist rapid recognition of problems or threats, appraisal of negative feedback, evaluation of weaknesses, surfacing of fears and anxieties, and the mobilization of psychophysiological energy for coping with situational concerns. A study conducted by Cheng (2005) also found that negative emotions make positive emotions more salient in well-being appraisal by illuminating the favorable contrast between positive experience vs. negative events (Cheng, 2005). Prevailing research has shown that negative emotions assist intentional
change by making us aware of salient environmental requirements and stressors, and by organizing adaptive response to situational demands.

Intentional Change Theory suggests that during intentional change negative emotions aroused by the NEA help the individual remain cognizant about salient environmental requirements and personal improvements that must be made. Negative emotions also support analysis of what needs to be done first, (priority setting), what stands in the way (obstacles, barriers), what resources are lacking, and what is not presently working. This information is central to the development of pragmatic change goals, and helps the individual to outline realistic approaches to behavior change.

The drawback of negative emotional arousal is that it keeps the person more narrowly focused on the challenges of present reality and introduces psychophysiological reactions that trigger self-protective cognitive and physiological response, but at the cost of “directing blood to large muscle groups, closing down non-essential neural circuits, suspending the immune system, and producing cortisol” (cortisol’s upside is that it catalyzes defensive response, but the downside is that cortisol inhibits neurogenesis and “overexcites older neurons, rendering them useless”) (Boyatzis, 2006, p. 25). Diamond and Aspinwall (2005) similarly describe the physiological impacts of negative emotional arousal:

There is now voluminous evidence from research on health psychology that both acute and chronic experiences of negative emotion have immediate and long-term detrimental effects on neuroendocrine, automatic, and immune functioning (reviewed in Kiecolt Glaser, McGuire, Robles, & Glaser, 2002; Repetti et al., 2002; Ryff & Singer, 2001; Taylor et al., 2002) that are triggered by the
sequential processing of environmental threat by the neocortex, the amygdala, and the hippocampus and subsequent systemwide neuroendocrine activation (reviewed by Seeman, 2001) (p. 140).

Because episodes of negative emotional arousal tax the mind and body in this way, and because intentional change is characterized by recurrent arousal of negative emotions, ICT emphasizes the importance of leveraging the restorative effects of positive emotions throughout the unfolding change process. Once again, Diamond and Aspinwall (2005) offer support for this ICT perspective:

Positive emotions and experiences can potentially alter or prevent the detrimental effects of such activation [i.e., activation of negative emotional appraisals] by facilitating positive reappraisals of environmental demands and coping resources that “short-circuit” attributions of threats and thereby alter the cascade of negative neuroendocrine activation before it begins. This may explain why both short-term positive affect inductions and sustained patterns of positive affectivity are associated with better physiological functioning on a variety of levels, ranging from autonomic activity to immune functioning (Fredrickson et al., 2000; Fredrickson & Levenson, 1998; Futterman, Kemeny, Shapiro, & Fahey, 1994) (p. 140).

Gottman et. al. (2002) also lend support to the ICT view on leveraging the benefits of positive affect. Based on their longitudinal research on marriage and the impact of positive and negative affect on marital interaction, these researchers concluded that “negativity as an absorbing state implies that all these processes [i.e., social processes that enable people to “repair” and restore themselves following sequential episodes of
negative emotional arousal] have less of a chance of working because what people attend to and respond to is the negativity” (Gottman, et. al., 2002, p.19). Put another way, failure to leverage the restorative effects of positive emotion (and positive emotional reappraisal) can slow and/or compromise recovery from negative emotional episodes.

The Dynamic Interplay of Positive Emotion and Negative Emotion in Intentional Change

Intentional Change Theory (Boyatzis, 2006) positions recurrent arousal of both positive emotion (activated by the PEA) and negative emotion (activated by the NEA) as a central feature of intentional change. As mentioned earlier herein, ICT proposes that intentional change is more lasting and effective when the PEA serves as the primary focus of the change effort and when the NEA is the secondary focus (Boyatzis, 2006, p. 616; Howard, 2006, p. 665). It is further suggested that change efforts framed by PEA arousal (primary activation of positive appraisals associated with the ideal self) foster more robust learning and development than change efforts framed by NEA arousal (primary activation of negative appraisals associated with the real self). Framing change through NEA arousal anchors the change effort in defensive emotional processes focused primarily on minimization or prevention of losses, self-protection, and use of vigilance means (Higgins, et. al., 2001). Conversely, framing change through PEA arousal anchors the change process in constructive cognitive and physiological processes that enhance motivation, effort, creative thinking, optimism, flexibility, resilience, and recovery from stressful thoughts, feelings, or experiences.

Intentional Change Theory suggests that anchoring the change process in the PEA does not compromise an actor’s engagement in capacity-building coping responses
moved by the NEA. When NEA arousal occurs within a change event that has been framed by early PEA arousal, the individual is more resilient and flexible in overcoming the challenges and stressors identified through negative emotional processing (as demonstrated by Isen and Reeve, 2005). Anchoring a change process in the PEA promotes the kind of change recommended by DiClemente (1999), i.e., change that responds to environmental demands, yet is “reinforced by incentives that are owned by the individual so that they become integrated into the life of that individual” (p. 211). The ICT approach to change and change management thus improves upon and extends conventional change approaches that focus largely on gap management or, alternatively, on strengths enhancement. The ICT approach extends these more unidimensional approaches to change and change management because it leverages the advantages of positive and negative emotion, both as a theoretical model (Intentional Change Theory/ICT) and as a coaching approach (the Intentional Change Theory Coaching Model/ICTCM).

Intentional Change Theory places great emphasis on the timing and sequence of affect induction. The ICT model is a nonlinear process model; it suggests that desired sustainable change is enhanced by deliberate early induction of positive affect (PEA arousal) followed by recurrent engagement in both negative emotional processing and positive emotional processing (the interplay of positive emotion and negative emotion). Early PEA arousal, followed by the interplay of positive and negative affect, organizes emotional self-regulation that enables people: (a) to initially ground their change effort in intrinsic motivation triggered by PEA arousal; (b) as the change process unfolds, to handle salient challenges and stressors through proactive coping responses (Aspinwall &
Taylor, 1997) triggered by NEA arousal; and (c) to continually re-center and reenergize through adaptive action tendencies moved by PEA arousal. The unfolding PEA-NEA interplay (and associated interplay of positive and negative emotions) is suggested to be dynamic (self-organizing, emergent, unpredictable), iterative (repeated in fits and starts), and nonlinear (multidirectional and fluctuating; ordered by episodic disruption, modification, and trial-and-error rather than straight linear progression).

A main advantage of recurrent PEA-NEA arousal is that it enables people to leverage core strengths and aspirations (promotion-focused activity/the ideal self) during the change process while also dealing with problems and fears (prevention-focused activity/the real self). More important, when the interplay of positive and negative emotions occurs within a change process framed by early PEA arousal, individuals access the broad range of adaptive coping behaviors moved by both kinds of affective processing. For this reason application of the ICT approach (anchoring intentional change primarily in the PEA and secondarily in the NEA) is suggested to be enormously helpful in change conditions characterized by high challenge, rapid change or chronic stress (e.g., fierce competition, extreme financial strain, chronic illness, job loss, organizational restructuring) because this leverages hope, optimism, resilience, strength, and other proactive responses, and also promotes assessment of problems or threat, pragmatic reasoning, and self-protective coping. As the supporting emotional regulation literature convincingly shows,

… individuals who are able to mobilize positive emotions and derive positive meaning from negative experiences report more resilience in the face of adversity (Fredrickson, Tugade, Waugh, & Larkin, 2003; Tugade & Fredrickson, 2002).
These approaches and findings resonate with Cole, Michel, and Teti’s and Siegel’s conceptualizations of emotional dysregulation as involving not only chaos and/or disorganization, but also states of rigidity in which one’s affective response to incoming information loses breadth and flexibility (Cole, Michel, & Teti, 1994; Siegel, 2001). Because positive emotions are known to enhance flexible and creative thinking and broad-minded coping (Fredrickson, 2001; Fredrickson & Joiner, 2002; Isen, 1993, 2000b), some of their most important effects may occur in interaction with negative emotional states, as they prevent acute episodes of negative affect from becoming solidified into defensive and maladaptive regulatory patterns. Coactivation of negative and positive emotions may also enable people to learn from adversity in ways that promote future resiliency by allowing individuals to bring negative events, emotions, and experiences to mind when they have positive resources available to process them in depth (Larsen, et. al., 2003). Furthermore, the ability to simultaneously consider both goal-related possibilities/opportunities and potential barriers to their attainment would seem to be the lynchpin of effective self-regulation (Oettingen, Pak, & Schnetter, 2001) as well as proactive coping (Aspinwall & Taylor, 1997) (Diamond & Aspinwall, 2003, pp. 139-140).

The ICT perspective on recurrent PEA-NEA arousal also is supported by recent work on temporal effects in emotional processing, stage theories of behavior change, and complexity models on the interplay of positive and negative emotion. Cognitive emotion research has shown that temporal effects play a central role in shaping the flow and outcome of behavioral change. Barbara Fredrickson’s (2000b) review of extant empirical
research on the peak-and-end rule describes how one or two moments — i.e., the moment of peak affect intensity and the ending of an affective episode — “play a privileged role in guiding people’s choices about which past experiences they would avoid, and which they would repeat, or recommend to others” (p. 588). Her literature review provides strong support for the proposition that under-researched timing effects play a significant role in determining specific ways in which positive and negative emotions influence evaluation of change requirements and future possibilities (see Fredrickson, 2000b, pp. 595-603).

Gross (2001) similarly found that specific emotion regulation strategies have different impacts based on when they are employed. His research suggests that antecedent-focused strategies (feelings, behaviors, and physiological responses experienced early in the process of assessing and responding to a stimulus event) which leverage the broaden-and-build effects of positive emotion (Fredrickson, 2001) have more calming behavioral and physiological effects as compared to response-focused strategies (feelings, behaviors, and physiological responses experienced after a person’s event response-tendencies are activated) shown to inhibit the range of emotion-expressive behavior (Gross, 2001).

Other regulatory focus studies have demonstrated that framing a task as promotion focused (PEA priming) vs. prevention focused (NEA priming) also triggers timing effects: in one set of studies framing a task as prevention focused fostered preferences to initiate action earlier than did framing the task as promotion focused (Freitas, et. al., 2002). Based on this result, Freitas and his colleagues reasoned that initially framing a new activity as promotion focused (primary priming of the ideal self)
fosters willingness to adopt it, but once the activity has begun, reframing it as prevention focused (secondary priming of the real self) fosters interest in meeting or completing the activity’s requirements.

Stage theories of behavior change focus on the dynamic variables in change, temporal dimensions of change, and developmental processes that evolve over time (Velicer & Prochaska, 2008). Two recent stage theories of change lend support to specific features of the ICT model. Cited earlier herein, the cognitive-emotional process model of change offered by Liu & Perrewé (2005) describes change as involving the interplay of positive and negative emotions that drive emotional appraisal:

In the first stage, primary appraisal induces emotions that are high in arousal, mixed in hedonic tones, and are anticipatory. In the second stage, the mixed emotional experiences give way to either positive or negative emotions as a result of secondary appraisal. The emotional experience then affects employees’ coping behaviors in the third stage. In the fourth stage, discrete emotions that are evaluative and have distinct action tendencies are induced (p. 263).

Liu and Perrewé (2005) further explain,

“… during primary appraisal individuals determine whether or not there is any personal stake in the encounter (Lazarus, 1991b). If the individuals decide that the situations are relevant to them, they progress into secondary appraisal, where the locus of causality, coping, potential, and future expectancies are evaluated (Lazarus, 1991b) (Liu & Perrewé, 2005, p. 265).

While this empirical model conceptualizes a linear process of change and concerns individual level response to planned organizational change, it nevertheless supports the
ICT view that change is moved by the dynamic interplay of positive and negative emotion, and that the timing and sequence of affect induction play an influential role in the change process such that early arousal of positive emotion (PEA framing) increases openness to intentional change, even in uncertain or challenging conditions:

... emotions induced at the beginning of the change have a strong influence on the secondary appraisal, and consequently the coping process. This suggests that management of emotions at the very beginning is of critical importance (Liu & Perrewe, 2005, p. 275).

Similarly, a longitudinal empirical study of radical organizational change in 36 Canadian Olympic NSOs over a 12 year period, including analysis of individual level data from 180 structured participant interviews, found that timing and sequence were critical factors in the success of change initiatives (Amis, Slack, & Hinings, 2004). The study showed that effective change processes were fostered by “high impact decision making elements early in a transition process” (Amis, et al., 2004, p. 35), and that successful change processes were nonlinear (characterized by delays, reversals, and oscillations) from the planning stage through to completion. Moreover, these early decision making structures fostered positive relational behaviors including development of shared understanding, productive working relationships, and trust — behaviors that were determining factors in the substantive, enduring success of studied change initiatives.

In a related vein, complexity treatments on the interplay of positive and negative emotion lend empirical support to the ICT suggestion that induction of positive emotion and negative emotion pulls cognition and action toward emotional attractors that
influence the form and path of intentional change. Losada (1999) constructed a nonlinear mathematical model built on nonlinear differential equations\(^4\) to study the chaotic dynamics underlying the performance of 60 low, medium, and high-performing business teams. The Meta Learning Model (ML)\(^5\) analyzed time series speech acts that were collected in observations of team meetings, and coded on three bi-polar dimensions including positivity/negativity, inquiry/advocacy, and self/other orientation. The first of two data analyses modeled the dimensions of inquiry/advocacy and self/other orientation. This analysis found that, in terms of inquiry/advocacy and self/other orientation, one of three different types of attractors\(^6\) occurred in the phase space\(^7\) of each business team, depending on the team’s connectivity (strength and number of cross-correlations among the time series coded speech acts made by team members during team meetings) and performance level (the team’s low, medium, or high performance as determined by

\(^4\) The nonlinear mathematical model employed in this study is built on nonlinear differential equations that enabled the researcher(s) to analyze and model strong interactions revealed in time series data. Losada (1999) drew on the work of Kauffman (a biologist who produced extensive research on complex adaptive systems), Fourier, and Lorenz in building the model (pp. 179; 181-183).

\(^5\) Losada (1999) defined meta learning as the “ability of a team to dissolve attractors that close possibilities for effective action and to evolve attractors that open possibilities for effective action” (p.190). Losada named the nonlinear mathematical model developed and used in the first analysis of the business team data as, the ‘Meta Learning Model/ML.’ The ML also was employed to conduct a second analysis of this data, published four years later (Losada & Heaphy, 2004).

\(^6\) Attractors mathematically represent “the asymptotic tendency of the trajectories in phase space. In nonmathematical terms, attractors are like a gravitational field pulling behaviors toward it. The attractors vary in the degree to which they are rigid or flexible. The most rigid is the fixed-point attractor, followed by the limit cycle or periodic attractor, the torus or quasi-periodic attractor, and finally, the most flexible is the chaotic attractor” (Losada & Heaphy, 2004, p. 750).

\(^7\) In the two data analyses conducted for this research project, the researchers defined phase space as “a mathematical space spanned by the number of dimensions in the system. In this case, the three bipolar variables represent three dimensions in the system we are modeling” (Losada & Heaphy, 2004, p.749). The three bi-polar dimensions modeled were inquiry/advocacy, self/other orientation, and positivity/negativity.
measures of profitability, customer satisfaction, and 360-degree assessment of team members) (Losada, 1999). Specifically, low-performance teams showed point attractors and extremely restrictive emotional spaces\(^8\) (interactions characterized by self orientation and being locked in advocacy). Medium-performance teams showed limit cycles and moderately restrictive emotional spaces (more flexible than low performance teams but more restricted than high performance teams). High-performance teams showed low-dimensional chaotic attractors and highly flexible emotional spaces (sophisticated interaction patterns necessary for creativity and novelty).

Losada & Heaphy (2004) conducted a second data analysis in order to examine more closely the role played by positivity (expressed support, appreciation, encouragement) and negativity (expressed disapproval, sarcasm, or cynicism) in shaping the attractor dynamics portrayed in the first data analysis. Results of the second analysis showed that emotional space “plays a crucial and determinant role in differentiating high-performance teams from medium- and low-performance teams” (Losada & Heaphy, 2004, p. 756), and that “the ratio of positivity to negativity plays a determinant role as well in differentiating high- from medium- and low-performance teams” (p. 758). The researchers concluded that,

By coding the verbal communication of teams along these dimensions [positivity/negativity, inquiry/advocacy, other/self] we captured how positivity and negativity interact as powerful feedback systems to generate different

\(^8\) Losada (1999) mathematically defined emotional space as “the ratio of positivity to negativity” (p. 181). In nonmathematical terms Losada conceptualized emotional space as “the effect of positivity in creating expansive emotional spaces that open possibilities for action, while negativity creates restrictive emotional spaces that close possibilities for action” (p. 181).

These results show that it is possible to describe the emotional experience of human systems (individuals, teams, groups, organizations) in terms of the P/N ratio identified through the coding of expressed emotion in verbal communication (and through nonlinear mathematical modeling).

Drawing on the implications of the ML model, high-performance individuals or teams characterized by high P/N ratios could be under the influence of chaotic attractors that are pulling cognition and behavior toward positivity (ICT conceptualizes this kind of attractor as the Positive Emotional Attractor/PEA). Average- or low-performance human systems characterized by middle range or low P/N ratios could be under the influence of limit cycle attractors or fixed point attractors that are pulling cognition and behavior toward negativity (ICT conceptualizes this kind of attractor as the Negative Emotional Attractor/NEA). A related research conducted by Fredrickson & Losada (2005) builds on this idea. In a study on the relationship between positive affect and human flourishing, Fredrickson and Losada examined the ratio of positive to negative emotions experienced daily by 188 participants who were followed for 28 consecutive days. Participants used a secure Website to provide daily self-reports on experienced positive and negative emotions after first completing a survey on mental health flourishing. Results showed that flourishing mental health was associated with positivity ratios at or above 2.9 (but less than 11.6). Based on these results, Fredrickson and Losada (2005) predicted that
flourishing is associated with complexity dynamics, chaotic attractors, and “appropriate negativity” (p. 685).

Gottman (1994) similarly calculated positivity-negativity ratios in analysis of positive and negative speech acts and observable emotion in adult couples during their discussion on a conflict in the relationship. Resulting positivity ratios were 5.1 for speech acts, and 4.7 for observable emotion. Gottman (1994) additionally found that high positivity ratios were associated with stable marriages, and low positivity ratios were associated with ailing marriages.

First, using a balance theory of marriage, Gottman (1994) reported that the ratio of positive to negative codes during conflict discussion was about 5.0 for three types of stable marriages, whereas it was 0.8 for the unstable marriage. Second, couples headed for divorce were high on four behaviors that Gottman (1994) called the “Four Horsemen of the Apocalypse”; they are criticism, defensiveness, contempt, and “stonewalling,” or listener withdrawal (Gottman, et. al., 2002, p. 22).

More recently Gottman and his colleagues have used nonlinear mathematical modeling (differential equations and phase space plots) to build a body of time series research on marriage, and to examine the dynamical impacts of positivity and negativity on marriage systems (Gottman, et. al., 2002). Taken together, Gottman (1994), Gottman, et. al, (2002), Losada and Heaphy (2004), and Fredrickson and Losada (2005) provide mathematical approximations of the optimal balance in positive-negative emotional interplay wherein high positivity rations are associated with effective behavior and performance, and low positivity rations with less optimal outcomes. These findings
support the ICT premise that nonlinear timing effects shape the form and flow of intentional change, and that primary arousal of the PEA and secondary arousal of the NEA foster robust learning and change.

Last, emotion regulation literature has long addressed individual coping with everyday problems and major stressors, but coping that involves appraisal and/or problem solving with “important social others” (Diamond & Aspinwall, 2003, p. 147) is an understudied phenomenon. In their review of the emotion regulation literature Diamond & Aspinwall (2003) report that recent neurobiological research has investigated the cascade of psychobiological effects of infant-caregiver relationships, raising the possibility of applying this model to adult dyadic relationships. These authors further suggest that a worthy focus for present and future research is “attention to the dynamic interpersonal processes through which individual’s cognition and behaviors change across specific coping episodes and across individuals” (Diamond & Aspinwall, 2003, p. 147). The executive coaching context and relationship is an opportune setting for research on dyadic processes such as these, and has the potential to generate findings of relevance to a number of intersecting streams (intentional change and change management, cognitive emotion, social complexity, executive coaching, and positive psychology in particular). Accordingly, the following research hypotheses examine dyadic coregulation in an executive coaching context; specifically, the response of executive coaching recipients to their coach’s framing of an executive coaching session around the coached person’s ideal self (PEA framing/early induction of positive emotion) vs. framing the session around the coached person’s real self (NEA framing/early induction of negative emotion).
Research Hypotheses

Intentional Change Theory (ICT) proposes that executive coaches who anchor a coaching process in the coaching recipient’s ideal self (PEA framing/early induction of PA) trigger positive cognitive affective processing that (a) is associated with low-dimensional chaotic attractors and highly flexible emotional spaces⁹ (Fredrickson & Losada, 2005; Losada & Heaphy, 2004), and (b) optimizes the coached person’s sustainable learning, development, and change. Conversely, executive coaches who anchor a coaching process in the coaching recipient’s real self (NEA framing/early induction of NA) trigger negative cognitive affective processing that (a) is associated with limit cycles, point attractors, and moderately- to highly-restrictive emotional spaces (Losada & Heaphy, 2004), and (b) organizes defensive response, but at the cost of narrowing the coached person’s focus on proactive learning, development and change. Figure 3 (p.74) presents the (proposed) differential impacts of PEA framing vs. NEA framing in coaching contexts.

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⁹Emotional space is mathematically defined as the ration of positivity to negativity (Losada, 1999). Emotional spaces are conceptualized either as pulled toward positivity that opens possibilities for effective action (spaces with high P/N ratios associated with chaotic attractors), or pulled toward negativity that closes possibilities for effective action (spaces with mid-range or low P/N ratios associated with limit cycles or point attractors).
The present study empirically examines this idea by offering a preliminary investigation on induction of positive emotion vs. negative emotion during an executive coaching session. Specifically, the study tested two main hypotheses on the effects of using the coached person’s Positive Emotional Attractor (PEA) vs. Negative Emotional Attractor.
(NEA) as the anchoring framework of a onetime, one-on-one coaching session on appraisal of 360-degree feedback and discussion of possible change goals.

**Hypothesis 1: Level of Positive Emotion During Appraisal of 360-degree Feedback**

**Results and Discussion of Change Goals.** Participants coached using their PEA as the primary focus of the coaching session will show higher levels of positive emotion during appraisal of 360-degree feedback results and discussion of change goals than participants coached using their NEA as the anchoring framework.

**Hypothesis 2: Level of Stress Immediately After the Coaching Session.** Participants coached using their PEA as the primary focus of the coaching session will exhibit lower levels of stress immediately after the coaching session than participants coached using their NEA as the anchoring framework.

**Additional Measures**

A subaim of the present study was collection of serial self-report data on current mood and satisfaction with the coaching experience and relationship. To this end, immediately after the coaching session and at least one month later participants in the PEA condition were predicted to show higher levels of current positive mood and satisfaction with the coaching experience and relationship than participants in the NEA condition.
Chapter 3: Methods

Design Overview

This study examined the emotional experience of nineteen coachees during a one-time, hour-long, one-on-one executive coaching session conducted by a confederate coach. Using a two-by-three design, the study tested the impact of framing a coaching session in the coached person’s Positive Emotional Attractor (PEA condition) vs. Negative Emotional Attractor (NEA condition). In addition, the study tested two secondary hypotheses that examined the influence of PEA vs. NEA framing on participants’ current mood and satisfaction with the coaching session and relationship.

Participants were randomly assigned to one of two coaching conditions: the Positive Emotional Attractor (PEA) condition or Negative Emotional Attractor (NEA) condition. In the PEA condition the coach used the participant’s own hopes, strengths, and desired future (Ideal Self) as the anchoring framework for work done in the coaching session. In the NEA condition the coach used the participant’s perceived improvement needs, weaknesses, and current reality (Real Self) as the anchoring framework. Participants were paired with a confederate coach by selecting the participants’ first available date on a preset master coaching schedule with pre-fixed time blocks that designated the day, hour and confederate coach for each coaching appointment.

All study coaching sessions featured receipt and analysis of coachees’ 360-degree feedback results on the Emotional Competence Inventory (Boyatzis and Sala, 2004), a self-administered survey completed by both self and other raters. The Emotional Competence Inventory (ECI) measures twelve emotional intelligence competencies and
two cognitive abilities linked to superior leadership and performance in the workplace. In addition to help on interpreting their assessment results, all coachees received support from the coach on exploring no more than three possible change goals. Discussion of change goals built on participants’ analysis of the feedback results.

A series of analyses (two-way, repeated measures ANOVA; Mann-Whitney; Tukey) were conducted using two independent variables (coaching condition and time) and the study’s measured dependent variables (PA, NA, stress, current mood, satisfaction with the coaching experience and relationship). The present study was approved by the Case Western Reserve University Institutional Review Board. The following sections of this chapter present the population, procedures, coaching protocols (PEA vs. NEA), measures, data collection, and data analysis employed in this study.

Population

Participants were local area alumni/alumnae of a Midwest U.S. dental school. Nineteen mid and late-career practicing dentists participated in the study. Participation in the study was voluntary. To recruit study participants this researcher mailed a recruitment letter to one hundred thirty-two dental school alumni/alumnae with active dental practices inviting them to participate in this study (Appendix 1). All invited dentists were members of a dental practice research network created by research faculty at the Midwest dental school. The Dental Practice Research Network (DPRN) was part of a national research project on dental practices in the U.S. All participants had recently completed voluntary participation in the DPRN research project.
Prospective participants were told that the purpose of the coaching study was to learn how focused discussion between a coachee and executive coach impacts the coaching recipient’s experience of the coaching session. Along with the recruitment letter prospective participants received a letter of support for the study from a research professor at the Midwest dental school and an information sheet on the benefits of executive coaching and assessment for dental practice leaders (Appendix 1). Dentists recruited for this study were an appropriate population for the study because they were involved in dental practice management, were interested in professional development, and could be supported by an executive assessment.

A total of 34 dentists volunteered to participate in the study. Of these, three participants withdrew from the study due to health emergencies or scheduling difficulties. An additional 12 participants were unable to timely complete all required research protocols and were removed from the study. A total of 19 participants completed all study protocols and were included in the final population. The mean age of this sample was 55 years (SD = 8.7)\(^{10}\); nearly half the participants were born between 1932 and 1949 (47.4%) and a slightly larger number between 1951 and 1967 (52.6%). Two participants were female (10%) and seventeen were male (90%). The ethnic composition of the sample was 100% Caucasian; 31.6% of the participants headed group practices and 68.4% headed solo practices. All study participants (100%) headed viable dental practices and were first time participants in an executive coaching assessment based on 360-degree feedback.

\(^{10}\)Five participants did not indicate their year of birth.
**Procedures**

This study was conducted in three time stages detailed below. The study design and procedures are shown in Figure 4, p. 81.

**TIME 1.** Participants were randomly assigned to two coaching conditions, the PEA condition and NEA condition. Prior to the coaching session all participants were administered a pre-coaching research survey that included a self-report survey on demographic characteristics and three repeated-measure self-report scales on current mood (approximately 20 minutes in duration). All participants additionally competed the university version of the Emotional Competence Inventory (ECI-U), a self-administered 360-degree executive assessment survey (approximately 40 minutes in duration). The pre-coaching survey and ECI-U survey were offered both online and in paper and pencil format.

On completion of the pre-coaching research surveys participants were scheduled for a coaching session based on assignment to the first available date on a preset master coaching-schedule. Participants in both conditions were reminded that the purpose of the coaching session was to provide an opportunity for the coachee to receive assistance from an executive coach in assessing his or her 360-feedback results and discussing no more than three change goals to work on in future. After scheduling the coaching session participants were sent a confirmation email that provided the name and brief bio of their executive coach and directions to the coaching session location (an office at the Midwest dental school).

**TIME 2.** On the scheduled coaching day each participant underwent an hour-long, audio taped coaching session conducted by a confederate coach. Immediately
before the start of each coaching session a self-administered, pre-coaching saliva sample was collected from the participant by this researcher. The salivary cortisol collection was conducted in a private room several doors down from the coaching office. After collection of the pre-coaching cortisol sample, the participant was taken to the coaching room and introduced to the executive coach. The coach then conducted and audio taped an hour long, one-on-one coaching session. Immediately after the coaching session the participant returned to the private room to (1) self-administer a post-coaching saliva sample and (2) complete a post-coaching, paper and pencil survey that included the three repeated-measures on current mood and a repeated measure on satisfaction with the coaching experience and relationship (approximately 20 minutes in duration). The self-administered post-coaching saliva sample and completed survey was collected from the participant by this researcher.

TIME 3. One month after the coaching session each participant was administered the repeated-measures surveys on current mood and satisfaction with the coaching experience and relationship. The TIME 3 survey was administered in both online and paper and pencil format.
Figure 4. Study Procedures

TIME 1

- Randomized Assignment to Participant’s Coaching Condition
- Pre-coaching Survey Administration
  1. Administer the Pre-coaching Survey (completion of a demographic survey and 3 repeated measures on current mood)
  2. Administer the ECI-U (completion of a 360-degree feedback assessment)
- Coaching Session Scheduled with Confederate Coach (based on coachee’s first available date in the study coaching schedule)

TIME 2

- Pre-coaching Self-administration of Participant’s Salivary Cortisol Sample
- PEA Coaching Session with Confederate Coach (for participants randomly assigned to the PEA Condition)
  [OR]
  NEA Coaching Session with Confederate Coach (for participants randomly assigned to the NEA Condition)
- Post-coaching Self-administration of Participant’s Salivary Cortisol Sample
- Post-coaching Survey Administration
  1. Administer the Post-coaching Survey (completion of 3 repeated measures on current mood and a repeated-measure coaching satisfaction scale)

TIME 3

- Follow-up Survey Administration One Month after Coaching Session
  1. Administer the Follow-up Survey (completion of 3 repeated measures on current mood and a repeated-measure coaching satisfaction scale)
Confederate Coaches, Coaching Protocols and 360-Degree Feedback Instrument

Two highly experienced executive coaches served as confederates in this coaching study. At the time of the study one coach was a professor of organizational behavior at a Midwest business school and the other a doctoral candidate in organizational behavior at a different Midwest business school. Both coaches had extensive backgrounds in organizational management and executive coaching. Each coach conducted both PEA and NEA coaching sessions based on his or her participant’s random assignment to one of two study conditions. The coaches were provided a PEA protocol to follow when conducting a PEA session and an NEA protocol to follow when conducting an NEA session. With the exception of one session held at a participant’s dental practice, all coaching sessions were conducted at the Midwest dental school.

In the PEA condition the confederate coaches used the coached person’s own hopes, strengths and desired future (Ideal Self) as the anchoring framework for work done in the coaching session. To move discussion during PEA sessions the executive coaches 1) framed the coaching process around the coachee’s Ideal Self by exploring his or her personal vision and perception of ideal-self (e.g., personal hopes, strengths, dreams, desired future) at the beginning of the session; 2) supported the coachee during his or her assessment of the 360-degree feedback data and identification of strengths and weaknesses (listened to the coachee’s reactions, answered the coachee’s questions about the ECI-U, responded to the coachee’s observations and/or requests for feedback); and 3) helped the coachee to think about possible goals to work on in future. Figure 5 (p. 83) presents the topical sequence and time frame for each stage in the PEA protocol.
Focus of PEA Discussion between the Coach and Coached Person | Duration**
---|---
**PERSONAL VISION** and the **IDEAL SELF**
Coach begins the coaching session by exploring the participant’s personal vision and ideal self. [“What are the things that you’d most like to accomplish in your life …”]
20 minutes

**DATA ORIENTATION**
Coach describes the format of the ECI-U feedback report and how to read through it. The coach gives the ECI-U feedback report to the participant and allows time for him/her to look the data over.
10 minutes

**ASSESSMENT RESULTS: STRENGTHS**
Coach begins discussion on the participant’s 360-results by looking at strengths. [* “[Let’s look at what the data says about your strengths. What do you see …”] The discussion also may include exploration of possible change goals.
15 minutes

**ASSESSMENT RESULTS: WEAKNESSES**
Coach continues the discussion on the coached person’s 360 results by looking at weaknesses. [* “[Now let’s look at what the data says about your weaknesses. What do you see …”] The discussion also may include exploration of possible change goals.
10 minutes

**WRAP-UP**
Coach brings the session to a close by summarizing a few major goals that were identified during the session. At the end of the session the coach directs the participant to his/her post-coaching test administration (study survey #2) and cortisol collection.
5 minutes

*If the participant begins to talk about ‘weaknesses’ during the strengths discussion — or conversely about ‘strengths’ during the weaknesses discussion — the coach should empathically listen to what the participant is sharing and then refocus discussion on strengths (or weaknesses), i.e., the topic for that particular stage in the protocol.

** All coaching sessions are one hour long.

As noted in Figure 5, if the participant began to talk about ‘weaknesses’ during the strengths discussion, or conversely about ‘strengths’ during the weaknesses discussion, the coaches were instructed to empathically listen to what the participant was
sharing and then refocus discussion on strengths (or weaknesses) — i.e., the topic for that particular stage in the PEA protocol. The idea was to keep the conversation primarily centered around the focus prescribed for each particular stage in the PEA protocol.

Alternatively, in the NEA condition the confederate coaches used the coached person’s perceived improvement needs, weaknesses and current reality (Real Self) as the anchoring framework for the coaching session. To move discussion during NEA sessions the executive coaches 1) framed the coaching process around the coachee’s Real Self by exploring the coachee’s present-day interests and perception of real-self (e.g., current interests, day-to-day reality, improvement needs, problems) at the beginning of the session; 2) supported the coachee during his or her assessment of the 360-degree feedback data and identification of improvement needs and/or opportunities for improvement (i.e., listened to the coachee’s reactions, answered the coachee’s questions about the ECI-U, responded to the coachee’s observations and/or requests for feedback); and 3) helped the coachee to think about possible goals to work on in future. Figure 6 (p.85) presents the topical sequence and time frame for each stage in the NEA protocol.
Figure 6. NEA Coaching Protocol

Italicized text in shaded box indicates that this stage in the protocol is conducted the same way in both the PEA and NEA conditions.

**Focus of NEA Discussion** between the Coach and Coached Person  

<table>
<thead>
<tr>
<th>Stage</th>
<th>Duration*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CURRENT REALITY and the REAL SELF</strong></td>
<td>20 minutes.</td>
</tr>
<tr>
<td>Coach begins the coaching session by exploring the participant’s personal vision and real self.  [“How’s work …”]</td>
<td></td>
</tr>
<tr>
<td><strong>DATA ORIENTATION</strong></td>
<td>10 minutes.</td>
</tr>
<tr>
<td>Coach describes the format of the ECI-U feedback report and how to read through it. The coach gives the ECI-U feedback report to the participant and allows time for him/her to look the data over.</td>
<td></td>
</tr>
<tr>
<td><strong>ASSESSMENT RESULTS: IMPROVEMENT NEEDS and/or OPPORTUNITIES FOR IMPROVEMENT</strong></td>
<td>25 minutes.</td>
</tr>
<tr>
<td>Coach begins discussion on the participant’s 360-results by asking the participant to talk about his/her reactions to the data.  [“Lets look at where you are and what you can do to improve. What do you see in the data …”] The discussion also may include exploration of possible change goals.</td>
<td></td>
</tr>
<tr>
<td><strong>WRAP-UP</strong></td>
<td>5 minutes</td>
</tr>
<tr>
<td>Coach brings the session to a close by summarizing a few major goals that were identified during the session.  At the end of the session the coach directs the participant to his/her post-coaching test administration (study survey #2 and cortisol collection).</td>
<td></td>
</tr>
</tbody>
</table>

*All coaching sessions are one hour long.

*The 360-degree Feedback Instrument.* To generate 360-degree feedback data for use in the coaching session, the Emotional Competence Inventory/ECI-U was administered to each participant no less than one week prior to the coaching session. The ECI-U is a self-administered, 360-feedback survey completed by both self and other raters; it measures twelve emotional intelligence competencies and two cognitive abilities that lead to effective or superior performance in the workplace (Boyatzis and Sala, 2004). The ECI-U was developed by Boyatzis and Goleman (2001) for use in university research and executive education settings and is a modification of the Emotional
Competence Inventory Version 2 (ECI-2, Boyatzis and Goleman, 1996, 1999) used in business settings. The ECI-2 and ECI-U were developed using data and validation studies from a preliminary sample of 6,000 managers and professionals in industrial and professional service companies (Boyatzis and Sala, 2004). To date the ECI-U has been administered worldwide to undergraduate, MBA, and graduate students; to business and medical professionals in masters and executive education programs; and to participants in university research studies.

The 22 emotional intelligence competencies and two cognitive competencies measured by the ECI-U are organized into four EI clusters and one cognitive cluster: the Self Awareness Cluster, Self Management Cluster, Social Awareness Cluster, Relationship Management Cluster and Cognitive Cluster. The ECI-U has since been updated. The ESCI-U replaced the ECI-U, and measures twelve social and emotional intelligence competencies and two cognitive competencies.

Figure 7. ECI-U EI and Cognitive Competencies by Clusters

<table>
<thead>
<tr>
<th>Self Awareness Cluster</th>
<th>Self Management Cluster</th>
<th>Social Awareness Cluster</th>
<th>Relationship Management Cluster</th>
<th>Cognitive Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Emotional Self-awareness</td>
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<td></td>
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<tr>
<td>• Accurate Self-assessment</td>
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<td></td>
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<tr>
<td>• Self-confidence</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>• Emotional Self-control</td>
<td>• Achievement Orientation</td>
<td>• Initiative</td>
<td>• Trustworthiness</td>
<td></td>
</tr>
<tr>
<td>• Conscientiousness</td>
<td>• Adaptability</td>
<td>• Optimism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Empathy</td>
<td>• Service Orientation</td>
<td>• Organizational Awareness</td>
<td>• Cultural Awareness</td>
<td></td>
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<tr>
<td>• Inspirational Leadership</td>
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<td></td>
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<tr>
<td>• Communication</td>
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<tr>
<td>• Conflict Management</td>
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<tr>
<td>• Change Catalyst</td>
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<tr>
<td>• Influence</td>
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<tr>
<td>• Developing Others</td>
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<tr>
<td>• Building Bonds</td>
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<tr>
<td>• Teamwork and Collaboration</td>
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<tr>
<td>• Systems Thinking</td>
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<tr>
<td>• Pattern Recognition</td>
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</tbody>
</table>

11 The ECI-U has since been updated. The ESCI-U replaced the ECI-U, and measures twelve social and emotional intelligence competencies and two cognitive competencies.
The ECI-U contains 72 items that require the respondent to assess the frequency with which the person being evaluated demonstrates the behavior being described in each survey item. Respondents are asked to complete all 72 items in the inventory. Figure 8 presents five examples of items from the ECI-U along with the response scale provided for all items.

Figure 8. Examples of Questions from the ECI-U

<table>
<thead>
<tr>
<th>How often does John Doe exhibit the following behavior …</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Makes activities or projects engaging</td>
</tr>
<tr>
<td>_Don’t Know _Never _Rarely _Sometimes _Often _Consistently</td>
</tr>
<tr>
<td>2. Follows through on commitments</td>
</tr>
<tr>
<td>_Don’t Know _Never _Rarely _Sometimes _Often _Consistently</td>
</tr>
<tr>
<td>3. Presents self in an assured and unhesitating manner</td>
</tr>
<tr>
<td>_Don’t Know _Never _Rarely _Sometimes _Often _Consistently</td>
</tr>
<tr>
<td>4. Accurately reads people’s moods or non-verbal cues</td>
</tr>
<tr>
<td>_Don’t Know _Never _Rarely _Sometimes _Often _Consistently</td>
</tr>
<tr>
<td>5. Anticipates obstacles to a goal</td>
</tr>
<tr>
<td>_Don’t Know _Never _Rarely _Sometimes _Often _Consistently</td>
</tr>
</tbody>
</table>

In addition to the 72 items in the inventory there are two written comment questions: (1) From your perspective, please list the person’s distinctive strengths, and (2) From your
perspective, please list specific areas where this person could or should improve? What would be the payoff if this person made these changes?

The ECI-U was offered both online and in paper and pencil format. A binder containing the coachee’s 360-degree assessment results was given to each participant by his or her coach in the first segment of the coaching session during the overview on the format of the ECI-U report. The binders were retained by participants as a permanent record of their ECI-U results. The ECI-U feedback data was not used for research purposes; these data were collected solely for use by the coachee and coach as an assessment resource during the coaching session.

**Variables, Measures and Instruments**

The independent variables in this study were the coaching condition (PEA condition vs. NEA condition) and time. Time was evaluated both within the 60-minute coaching session (i.e., the beginning, middle, and ending segments of the coaching hour) and across the overall study period (i.e., TIME 1, 2, and 3 of the study). The two major dependent variables were (1) level of positive emotion (vs. negative emotion) during appraisal of 360-degree feedback results and discussion of change goals, and (2) level of stress immediately after the coaching session. Current mood and satisfaction with the coaching experience and relationship were treated as secondary dependent variables. An SES measure also was administered. The dependent and independent variables are described further below. All study variables, measures, and instruments are presented in Figure 9, p. 91.
Independent Variable 1: Coaching Condition. Study participants were randomly assigned to two coaching conditions: the PEA coaching condition and the NEA coaching condition. In the PEA condition the coach framed the coaching session around the participant’s ideal self. In the NEA condition the coach framed the coaching session around the participant’s real self.

Independent Variable 2: Time. The time series levels within the 60-minute coaching session included: (1) the beginning of the coaching session/Segment A; (2) the middle of the coaching session/SEGMENT B; and (3) the ending of the coaching session/SEGMENT C. The time series levels across the overall study period included: TIME 1 of the study administration (at least one week prior to the coaching session); TIME 2 of the study administration (immediately following the coaching session); and TIME 3 of the study administration (one month after the coaching session).

Dependent Variable 1: Coached Person’s Level of Positive Emotion During Appraisal of 360-degree Feedback Results and Discussion of Change Goals. Level of positive emotion was operationalized as the percentage of positive emotion words (vs. negative emotion words) spoken by the coached person during evaluation of 360-degree feedback results and discussion of change goals, i.e., the coachee’s verbal output during the coaching session. The percentage of positive emotion words (vs. negative emotion words) was assessed using a computer text analysis program (the LIWC2001, Pennebaker, Francis & Booth, 2001).

Dependent Variable 2: Coached Person’s Level of Stress Immediately After the Coaching Session. Level of Stress was operationalized as mean change (post-pre) in level of free cortisol secretion in non-invasive, self-administered samples of the coached
person’s saliva. Two saliva samples were collected: a precoaching saliva sample was collected immediately before the coaching session and a postcoaching saliva sample immediately after the session. Mean change in cortisol levels was assessed by a clinical research laboratory (General Clinical Research Center Core Laboratory, University Hospitals of Cleveland).

Secondary Measures on Coached Person’s Current Mood. Three self-report scales on current mood were administered to assess current arousal state, goal directed thinking, and optimism (TIME 1, TIME 2 and TIME 3 of the study). Current arousal state was measured by The Activation-deactivation Adjective Checklist (AD ACL) Long Form (Thayer, 1967, 1985, 1986, 1989, 1996). Current goal directed thinking was measured by the Adult State Hope Scale, an instrument designed specifically for this purpose (Snyder, Sympson, Ybasco, Borders, Babyak & Higgins, 1996). Current optimism was measured by the Positive and Negative Affect Schedule (PANAS) (Watson, Clark & Tellegen, 1988, 2003).

Secondary Measure on Coached Person’s Satisfaction with the Coaching Experience and Relationship. A self-report scale on satisfaction with the coaching experience and relationship was developed and pilot-tested by this researcher. The coaching satisfaction scale was administered in TIME 2 and TIME 3 of the study.

SES Measure. A demographic survey was developed by this researcher to capture the demographic profile of the study population. The demographic survey was administered in TIME 1.
### Figure 9. Variables, Measures and Instruments

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>LEVEL or MEASURE</th>
<th>INSTRUMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variable 1: Coaching Condition — Random Assignment</strong></td>
<td>Two Levels:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PEA Condition (ideal self was the focus of the coaching session)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NEA Condition (real self was the focus of the coaching session)</td>
<td></td>
</tr>
<tr>
<td><strong>Independent Variable 2: Time — Time Series Analysis</strong></td>
<td>Three Levels:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Beginning, middle, and ending segments of the coaching hour (segments A, B, and C of the coaching session)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• TIME 1 (at least one week before coaching session); TIME 2 (immediately after coaching session); TIME 3 (one month later)</td>
<td></td>
</tr>
<tr>
<td><strong>Dependent Variable 1: Coachee’s Level of Positive Emotion during appraisal of 360-degree feedback results and discussion of change goals.</strong></td>
<td>Percentage of positive vs. negative emotion words spoken by coachee during appraisal of feedback and discussion of possible change goals (during the coaching session/TIME 2).</td>
<td>Assessed using LIWC2001 software (Pennebaker, Francis &amp; Booth, 2001).</td>
</tr>
<tr>
<td><strong>Dependent Variable 2: Coachee’s Level of Stress immediately after the coaching session.</strong></td>
<td>Mean change (post-pre) in level of free salivary cortisol found in the coachee’s pre-post saliva samples (TIME 2).</td>
<td>Clinical Laboratory Assessment.</td>
</tr>
<tr>
<td><strong>Dependent Variables on Current Mood (secondary measures): Coachee’s Current Arousal State, Goal Directed Thinking, Optimism.</strong></td>
<td>Coachee’s self-report on transitory arousal state, goal-directed thinking and optimism. A repeated measure administered at least one week before the coaching session/TIME 1; immediately after the coaching session/TIME 2; and one month later/TIME 3.</td>
<td>Assessed using the AD ACL, the Adult Hope Scale and the PANAS.</td>
</tr>
<tr>
<td><strong>Dependent Variable on Satisfaction with the Coaching Experience and Relationship (secondary measure)</strong></td>
<td>Coachee’s self-report on satisfaction with the coaching experience and relationship. A repeated measure administered in TIME 2 and 3.</td>
<td>Assessed using a Coaching Satisfaction Scale developed by the researcher.</td>
</tr>
<tr>
<td><strong>SES Variable</strong></td>
<td>Coachee’s self-report on demographic information (TIME 1).</td>
<td>Assessed using a self-report scale developed by the researcher.</td>
</tr>
</tbody>
</table>
Data Collection

Each participant was asked to (1) read and sign a study consent form (Appendix 1) (2) complete the university version of the Emotional Intelligence Inventory (ECI-U), (3) complete all study research surveys and a salivary cortisol collection, and (4) participate in a one-time, audio taped, executive coaching session. All participants signed a consent form and completed all research procedures.

Coached Person’s’ Level of Positive Emotion During Appraisal of 360-degree Feedback and Discussion of Change Goals (DV1). The presence of emotion words in written and spoken speech is an indicator of cognitive emotional processing (Berry, Pennebaker, Mueller & Hiller, 1997; Pennebaker, Francis, & Booth, 2003). To capture positive emotion experienced by the coachee during the coaching session, the sessions were audio taped by the executive coaches using a digital recorder or back-up tape recorder provided by this researcher. All coaching session recordings were transcribed by this researcher to generate written text of the coached person’s speech acts during the coaching session.

Coached Person’s Level of Stress Immediately After the Coaching Session (DV2). Free salivary cortisol is a biomarker of stress (Dickerson & Kemeny, 2004; Hjortskov et al., 2004; Kurina, Schneider, & Waite, 2004; Lau & Morse, 2003). To assess level of stress, a pre-coaching saliva sample was self-administered by each participant immediately before the coaching session, and a post-coaching saliva sample was self-administered immediately after the session. Saliva samples were self-administered using a standard noninvasive process for collection of free cortisol in whole saliva (Dabbs, 1991; Goode, Wotman, Anderson, Ahn, & Cong, 2004) — i.e., by using a dental swab
placed under the tongue for a timed, two-minute period (and/or until the swab has been saturated with saliva). The pre and post-coaching saliva samples were collected by this researcher and directly taken to the General Clinical Research Center Core Laboratory, University Hospitals of Cleveland, for analysis of cortisol levels.

*Self-report Measures on Current Mood and Satisfaction with the Coaching Experience and Relationship (Secondary Measures).* To assess each participant’s current mood at least one week before the coaching session, immediately after the session and one month later, the three self-report surveys on current mood were administered in TIME 1, 2 and 3 of the study. To assess satisfaction with the coaching experience and relationship, the self-report scale on coaching satisfaction was administered in TIME 2 and 3 of the study. All self-report surveys were offered both online and in paper and pencil format.

*SES Measure.* To develop a demographic profile of the study population, the SES measure was administered both online and in paper and pencil format (TIME 1).

**Data Analysis**

*Coached Person’s Level of Positive Emotion During Appraisal of 360-Degree Feedback and Discussion of Change Goals (DV1).* Positive emotion was analyzed by measuring the percentage of positive vs. negative emotion words in transcripts of participants’ speech during the coaching sessions. The transcripts were content analyzed using Linguistic Inquiry and Word Count (LIWC) software (Pennebaker, Francis & Booth, 2001) that assesses the emotional, cognitive, structural, and process components present in verbal and written speech. Support for this approach is drawn from research on
use of linguistic analysis to tap basic emotional and cognitive dimensions in individual’s 
written and spoken output (Berry, Pennebaker, Mueller & Hiller, 1997; Groom & 
Pennebaker, 2002; Sharp & Hargrove, 2004), and from the disclosure paradigm 
(Pennebaker & Francis, 1996; Lutgendorf & Antoni, 1999; Sloan & Marx, 2004) on 
analysis of emotion and affective arousal in written and verbal speech.

LIWC2001 software analyzes written text on a word-by-word basis and calculates 
the percentage of words in the target text that tap each of 82 language dimensions. 
Specifically, LIWC2001 generates data on 17 standard linguistic dimensions (e.g., 
pronouns, negations, assents, articles, prepositions, numbers, etc.); 25 word categories 
that tap psychological constructs (e.g., affect, cognition, positive and negative emotions, 
optimism-and-energy, sadness-or-depression, etc.); 10 dimensions related to relativity 
time, space, motion); and 19 personal concern categories (e.g., work, home, leisure 
activities). LIWC2001 software is based on a body of research produced by James 
Pennebaker and his colleagues (Pennebaker & Francis, 1996; Pennebaker, Mayne, & 
Francis, 1997) who have used word count methodology to study cognitive and emotional 
change (increase) in people’s appraisal of situational and global meaning (Park & 
Blumberg, 2002), linguistic markers of psychological change (positive and negative 
emotions, cognitive-analytic processing) in online journal entries surrounding September 
11, 2001 (Cohen, Mehl, & Pennebaker, 2004), cognitive emotional content in politician’s 
speech (Pennebaker & Lay, 2002), and a wide range of other emotional events. 
Multidisciplinary findings suggest that word count methodology is more effective in 
measuring emotional and cognitive processing than traditional approaches such as 
reaction tests and self-report questionnaires (Pennebaker, & Graybeal, 2001).
The LIWC2001 manual (Pennebaker, Francis, & Booth, 2003) presents a detailed report on LIWC dictionary development and validity. To test the LIWC’s external validity, Pearson correlational analyses were performed on LIWC output and judges ratings. Validation studies were conducted on a database of 4,578 text files, four classes of text from 43 separate studies, and two sets of judge correlations. The first set of judge correlations is based on overall ratings of 210 total essays across conditions; the second set refers to the mean within-condition correlation, described by the authors as a far stronger test of reliability (Pennebaker, Francis, & Booth, 2003). As reported in Table 1 of the LIWC2001 manual, these results found that the LIWC scales and judges ratings are highly correlated.

Based on antecedent research and the study hypotheses, this study primarily focused on one dimension of the LIWC dictionary for analysis of participants’ coaching transcriptions: the Affective or Emotional Processes dimension. This dimension includes (1) positive emotions; (2) positive feelings; (3) optimism and energy; (4) negative emotions; (5) anxiety or fear, (6) anger, and (7) sadness or depression. The Affective or Emotional Processes dimension is presented in Figure 10 (p. 96), along with all categories in this dimension, the abbreviation for each category, three examples of emotion words in each category, and the number of words in the category. In addition, the Time and Leisure Activity dimensions are presented; these are two other dimensions in the LIWC2001 dictionary that were analyzed and are discussed later herein.
Because all coaching transcriptions were analyzed using LIWC2001 software, and in order to establish that transcriptions in the PEA and NEA groups were comparable in length, a two-tailed independent $t$-test was conducted to test for differences between the two coaching conditions (PEA vs. NEA) in mean number of pages in the coaching transcripts. No differences were detected between the length of participants’ transcripts in
the PEA condition and the length of participants’ transcripts in the NEA condition \[ t (16) = .659, p = .52 \].

The objective of the LIWC analysis was to assess the percentage of positive emotion words (vs. negative emotion words) present in the coached person’s speech during appraisal of 360-degree feedback results and discussion of change goals (DV₁), and to collect time series data on participants’ positive vs. negative cognitive emotional processing over the coaching hour (i.e., the timing and sequence of experienced positive and negative affect). The data analysis strategy was to divide the transcript of each coached person’s spoken output during the coaching session into three equal segments that reflected three basic stages in every participants’ coaching session: (1) opening discussion on the coachee’s ideal self (or real self) and an overview of the ECI-U format (first segment of the transcript/Segment A); (2) discussion of the ECI-U results, including the coachee’s initial response to his or her 360-degree feedback data and exploration of change goals (middle segment of the transcript/Segment B), and (3) summary discussion on the assessment results and possible change goals (last segment of the transcript/Segment C). Figure 11 (p.98) presents the three coaching transcript segments, and the focus of discussion in each segment.
Figure 11. Focus of All Participants’ Discussion During the Three Transcript Segments Analyzed by LIWC

<table>
<thead>
<tr>
<th>Segment A: Opening Discussion</th>
<th>Segment B: Assessment Discussion</th>
<th>Segment C: Closing Discussion/Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Coachee discusses his or her personal vision and desired future (PEA condition), or present reality and improvement needs (NEA condition), in response to the coach’s greeting and opening comments.</td>
<td>• Coachee evaluates mostly strengths (and a little time on weaknesses) suggested by the feedback results (PEA condition), or improvement needs/opportunities suggested by the feedback results (NEA condition), in response to the coach’s prompts.</td>
<td>• Coachee continues the search for meaning in the feedback results and the exploration of future goals/action steps.</td>
</tr>
<tr>
<td>• Coachee asks questions and/or shares comments about the process, design, or format of the ECI-U in response to the coach’s overview of the assessment and expert guidance on how to read the ECI-U feedback report.</td>
<td>• Coachee also may talk about possible change goals.</td>
<td>• Coachee raises unaddressed questions; moves toward integration of what he or she has learned.</td>
</tr>
<tr>
<td>• Coachee continues the search for meaning in the feedback results and the exploration of future goals/action steps.</td>
<td>• Coachee invites input or feedback from the executive coach by asking the coach questions, responding to the coach’s comments, offering more thoughts/information.</td>
<td>• Coachee shares closing thoughts or questions in response to the coach’s summary of the coaching conversation.</td>
</tr>
</tbody>
</table>

Results of the LIWC analysis were analyzed using a 2X3 design, with coaching condition (NEA, PEA) and time (TIME 1, 2, and 3) as the independent variables.
Coached Person’s Level of Stress Immediately After the Coaching Session (DV2).

Level of stress was analyzed by measuring cortisol levels (ug/dl) of participants in the PEA condition and NEA condition before and after their respective hour-long coaching sessions. For each subject, the change in salivary cortisol from pre to post coaching was calculated. The change in mean cortisol levels (post-pre) was compared between the PEA and NEA groups using a two-tailed independent t-test. All salivary cortisol assays were performed by the General Clinical Research Center (GCRC) Core Laboratory, University Hospitals of Cleveland.

Support for this approach is drawn from extant research that has used cortisol reactivity as a biomarker and measure of current stress (Cruess et al., 1999; Ennis et al., 2001; Hellhammer, & Stone, 1998; Hjortskov et al., 2004; Kurina et al., 2004; Lau & Morse, 2003; Lindfors & Lundberg, 2002; Monnazzi et al., 2002; Nejtek, 2001; Smyth et al., 2004). For example, akin to the present study Berry and Worthington (2001) used cortisol assessment to examine participants’ levels of positive emotion (high liking for the partner in a relationship event, high happiness with the relationship, and high forgiveness) vs. negative emotion (unhappiness with the partner, unhappiness with the relationship and low forgiveness) in response to a relationship event. Another study of relevance herein employed a cortisol sampling procedure to investigate the effects of a stressful challenge on the processing of emotion words (positive, negative, neutral) (Ellenbogen, et. al., 2002).

Current Mood and Satisfaction with the Coaching Experience and Relationship.

A subaim of this study was collection of serial, self-report data on current mood and satisfaction with the coaching experience and relationship. Three self-report surveys were
administered on current mood. Current arousal state was measured by The Activation-deactivation Adjective Checklist (AD ACL) Long Form (Thayer, 1996). Developed by Thayer in 1967 and modified in 1985, 1986, 1989 and 1996, the AD ACL is a multidimensional test of transitory arousal states. The AD ACL is widely used and has been shown to be a valid test of transitory mood and arousal. The scale consists of adjectives that describe active arousal states as well as deactivation states, and is self-rated on a 4-point system. The AD ACL is scored as follows: 4= definitely feel), 3= feel slightly), 2= cannot decide), and 1= definitely do not feel). The AD ACL Long Form includes 4 subscales (Energy/A1, Tiredness/A2, Tension/A3 and Calmness/A4) as well as additional activation adjectives and filler adjectives (51 in all) that were included to “disguise the purpose of the test” (Thayer, 1989). Because different numbers of activation adjectives are included in the four factors, these factor scores must be averaged instead of just summed if interfactor comparisons are to be made.

Current goal directed thinking was measured by the Adult State Hope Scale (Snyder, Sympson, Ybasco, Borders, Babyak & Higgins, 1996). The instrument specifically was designed to capture momentary cognition on goal direction. Developed in 1996, the Adult State Hope Scale is a 6-item scale [response range of 1= definitely true to 8= definitely false]; it includes agency and pathways subscales as well as a total score that is obtained by summing responses to all six items. The agency and pathways subscale scores are derived by summing their respective three items, with total scores ranging from 6 to 48 (Lopez, Snyder and Teramoto-Pedrotti in Lopez and Snyder, 2003). When the Adult State Hope Scale is administered it is labeled as the Goals Scale for the Present. In four studies the Alphas for the agency subscale varied from .76 to .95, and
from .59 to .93 for the pathways subscale. The Adult Hope Scale scores correlated positively (rs=.48 to .65) with scores on the Positive Affect scale of the PANAS and negatively (rs= -.37 to -.50) with the scores on the Negative Affect scale of the PANAS.

Current optimism was measured by the Positive and Negative Affect Schedule (PANAS) (Watson, Clark & Tellegen, 1988, 2003). The PANAS was developed by Watson, Clark, and Tellegen (1988) and revised in March, 2003. The PANAS is comprised of two 10-item scales of positive and negative affect that are rated on a 5-point Likert scale [1=very slightly, not at all; 2= a little; 3=moderately; 4=quite a bit; 5=extremely]. The subject is asked to respond to twenty mood-related adjectives by indicating the degree to which he/she feels this way for a given time period (at the moment, today, past few days, past week, past few weeks, year, general). With the PANAS “the shorter the [specified] time frame, the more likely one is to capture emotional responses; the longer the [specified] time frame, the more likely one is to capture mood or personality differences in emotionality” (Lucas, Diener and Larsen in Lopez and Snyder, 2003). Internal consistency coefficients range from .84 to .90. Test-retest reliabilities range from .39 to .71, with the higher coefficients reported for the longer durations.

Satisfaction with the coaching experience and relationship was measured using a self-report scale on coaching satisfaction. Developed by this researcher, the Coaching Satisfaction Scale measures a coaching recipient’s reaction to his or her coaching experience and relationship at a given moment in time. The Coaching Satisfaction scale assesses how much participants liked their one-on-one coaching experience and relationship (level of satisfaction). The Coaching Satisfaction Scale is comprised of 12
items that are rated on a 5-point Likert scale with high scores indicating satisfaction and low scores indicating dissatisfaction. The coaching participant is asked to rate his or her coaching experience (subscale 1) and coaching relationship (subscale 2) on the following 4 dimensions: effectiveness [Dimension A]; emotional engagement [Dimension B]; change producing [Dimension C]; and whether it would be recommended to a colleague [dimension D]. The 12 survey items are presented below. Survey items are listed within dimension and by subscale:

Dimension A: Effectiveness

- The coaching session was an effective use of my time. [subscale 1: coaching experience]
- My coach was effective in helping me. [subscale 2: coaching relationship]
- I received useful information during my coaching session. [subscale 1: coaching experience]

Dimension B: Emotional Engagement

- I felt personally engaged during my coaching session. [subscale 1: coaching experience]
- I felt a good relationship with my coach. [subscale 2: coaching relationship]
- My coached connected well with me. [subscale 1: coaching experience]
- The relationship with my coach felt trustworthy. [subscale 2: coaching relationship]
- I enjoyed working with my coach. [subscale 2: coaching relationship]

Dimension C: Change Producing
• The coaching experience helped me to be more effective. [subscale 1-coaching experience]

• The interaction I had in my session will help me to make desired change/changes. [subscale 2-coaching relationship]

Dimension D: Whether It Would Be Recommended to a Colleague

• I would recommend this coaching experience to a colleague. [subscale 1-coaching experience]

• I would recommend my coach to a colleague. (subscale 2-coaching relationship)

The convergent validity of the Client Satisfaction Scale was tested using the Client Satisfaction Questionnaire (CSQ-8, Larsen, et. al., 1979). The CSQ-8 is an eight-item scale widely used to measure client satisfaction with professional services in a variety of social service populations including recipients of counseling and psychological health care (Roberts, Attkisson, & Stegner, 1983). Frequently used in research contexts, the CSQ-8 is a 4-point Likert-type scale wherein high scores indicate client satisfaction and low scores indicate client dissatisfaction. The CSQ-8 has very good internal consistency reliability (coefficient alpha, .93). Two examples of questions on the CSQ-8 are provided below.

• How satisfied are you with the amount of help you received?

• If a friend were in need of similar help, would you recommend our program to him/her?

In the present study, participants in the validation test were instructed to think of a time when they received advice or support from a coach or advisor. Using this recalled
experience participants responded to both surveys in an online or paper and pencil survey administration. Responses (n = 20) were correlated and yielded a significant correlation of 0.871 at the .000 level (2-tailed) indicating that both scales are tapping a similar construct.

Results from all self-report scales were analyzed using a 2X3 design, with coaching condition (NEA, PEA) and time (TIME 1, 2, and 3) as the independent variables.

*SES Survey.* Finally, an SES measure was developed by this researcher to create a demographic profile of the study population. The survey included items on gender, year of birth, race/ethnicity, year of graduation from dental school, earned dental degree, dental practice setting, and income bracket. The SES survey was analyzed using descriptive statistics.
Chapter 4: Results

Overview

*Main Hypotheses.* Results indicate preliminary support for the prediction that participants in the PEA condition would show higher levels of positive emotion during appraisal of 360-degree feedback results and discussion of change goals than would participants in the NEA condition (H\textsubscript{1}). Data analysis did not support the prediction that participants in the PEA group would show lower levels of stress immediately after the coaching session as compared to those in the NEA group (H\textsubscript{2}).

*Secondary Measures.* Results did not reach significance on differences between the two groups on self-report measures of current mood (transitory arousal state, goal directed thinking, current optimism) and satisfaction with the coaching experience and relationship.

Tests for Differences in PEA and NEA Groups Based on Demographic Characteristics, Income, Length of Coaching Transcripts, and ECI-U Feedback Results

Two-tailed independent *t*-tests were conducted to establish that the PEA and NEA groups were comparable with regard to population parameters (demographic characteristics, income, length of coaching transcripts, and ECI-U feedback results/competency ratings). All *t*-tests were measured at the .05 level of significance. No differences were found between the PEA and NEA groups in demographic characteristics, income, length of coaching transcripts, and quality of ESCI-U feedback: gender, *t* (17) = .226, *p* = .82; year of birth, *t* (17) = .096, *p* = .93; mother’s education, *t*
(17) = -.067, p = .95; father’s education, t (17) = -824, p = .42; year of graduation from
dental school, t (15) = .286, p = .78; dental degree, t (17) = .318, p = .76; dental practice
setting, t (17) = .451, p = .69; income, t (17) = .078, p = .94; length of coaching
transcript, t (16) = .659, p = .52, and ECI-U feedback results/competency ratings, t(16) =
.316, p = .756. Tests on ECI-U feedback results are presented in the Appendix (p. 000).

Manipulation Check

A manipulation check was conducted to establish that all PEA coaching sessions
followed the PEA coaching protocol and all NEA sessions followed the NEA coaching
protocol. Four raters read all coaching session transcripts (n = 18)\textsuperscript{12} in their entirety and
rated each session either as in the PEA coaching condition, or in the NEA coaching
condition. The transcripts included all discussion between each coach and coachee. Of
the four raters, three raters were doctoral students in organizational behavior at a Midwest
business school, and one rater was a non-academic management professional in Mid-
Atlantic US. Raters were provided copies of the coaching protocol for each condition
(PEA coaching protocol and NEA coaching protocol) to use as rating guidelines, and a
rating sheet on which to enter a rating for each coaching session transcript. The coaching
session transcripts were identified by number of coaching session and participant’s
identification number (CS#1/202; CS#2/206; CS#3/106; etc.).

The manipulation check indicated that inter-rater agreement was high. All of the
raters showed acceptable and statistically significant reliability: all raters’ $r$ values were

\textsuperscript{12} Although 19 participants were randomly assigned to study coaching conditions and
completed all research procedures, one coaching session was not recorded due to
malfunction of the tape recorder. As a result only 18 coaching transcripts were included
in the data analysis.
above 0.7 and significant at the .001 level (two-tailed). Mean agreement was 86% (.863), median of .892, within a range of .714 to 1.0. Correlations for the manipulation check are shown in Table 1.

Table 1: Inter-rater Correlations for the Manipulation Check (n=4)

<table>
<thead>
<tr>
<th></th>
<th>Rater 1</th>
<th>Rater 2</th>
<th>Rater 3</th>
<th>Rater 4</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rater 1</td>
<td>1</td>
<td>.892(**)</td>
<td>.714(**)</td>
<td>1.000(**)</td>
<td>.892(**)</td>
</tr>
<tr>
<td>Rater 2</td>
<td></td>
<td>1</td>
<td>.800(**)</td>
<td>.892(**)</td>
<td>1.000(**)</td>
</tr>
<tr>
<td>Rater 3</td>
<td></td>
<td></td>
<td>1</td>
<td>.714(**)</td>
<td>.800(**)</td>
</tr>
<tr>
<td>Rater 4</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.892(**)</td>
</tr>
<tr>
<td>Condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
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</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

Hypothesis₁: Level of Positive vs. Negative Emotion During Appraisal of 360-degree Feedback

Hypothesis₁ predicted that participants in the PEA condition would show higher levels of positive emotion during the coaching session than would participants in the NEA condition. Level of positive emotion was operationalized as the percentage of positive emotion words (vs. negative emotion words) spoken by participants during evaluation of 360-degree feedback results and discussion of change goals. A computer text analysis program (the LIWC2001) was used to determine the percentage of positive and negative emotion words present in transcripts of participants’ verbal output during the coaching sessions. LIWC analysis was conducted only on the speech acts of study participants; the confederate coach’s verbal output was removed from each transcript prior to computer text analysis. In order to compare the PEA and NEA groups on level of positive (vs. negative) emotion, and also to analyze participants’ change in P-N emotion from the beginning to end of the coaching hour, LIWC results were analyzed using
regression analyses (two-way ANOVA), with coaching condition (NEA, PEA) and time (transcript segments A, B, and C) as independent variables. All tests were measured at the .05 level of significance.

Tests of $H_1$ assessed differences between the PEA and NEA groups on three measures of positive emotion (positive emotions; positive feelings; optimism and energy) and four measures of negative emotion (negative emotions; anxiety or fear; anger; sadness or depression). Tests of $H_1$ also tracked differences between the PEA and NEA groups in expressed positive vs. negative emotion over three different time intervals, i.e., time series data on changes in positive and negative emotion during the coaching hour: the beginning segment of the coaching session (opening discussion on the ideal self/PEA or real self/NEA; ECI-U overview); the middle segment of the coaching session (discussion on 360-degree feedback results and possible change goals); and the ending segment of the coaching session (closing discussion on feedback results; integration of what was learned; summary of coaching conversation).

Main Effects. A significant main effect was obtained for negative emotions, $F(1, 48) = 4.114, p = .048$, indicating that during the coaching session the NEA group exhibited significantly higher use of words coded for negative emotion ($M = .915$) than did the PEA group ($M = .704$). Post hoc tests (Mann-Whitney, Tukey) were conducted in order to perform more stringent tests on Hypothesis $1$. The result of a Mann-Whitney test on the main effect for negative emotions offered suggestive evidence of a difference between the two groups, $U(52) = 262.500, z = -1.698, p = .090$, a trend in the predicted direction (i.e., PEA < NEA in level of expressed negative emotions). Figure 12 (p. 109) presents a bar chart of the statistically significant main effect for negative emotions.
A significant main effect also was obtained for anger, $F(1, 48) = 5.445, p = .024$, indicating that the NEA group additionally exhibited significantly higher use of words coded for anger ($M = .267$) as compared to the PEA group ($M = .133$). Interestingly, t-tests conducted to further analyze the significant main effect on anger showed that the NEA group was higher than the PEA group in expressed anger during segment B, $t(16) = 2.166, p = .046$, but there were no significant differences between the groups on anger in segments, A [$t(16) = .671, p = .512$] and C [$t(16) = 1.577, p = .134$]. A Mann-Whitney test on the main effect for anger was not significant, $U(52) = 273.500, z = -1.520, n.s.$ Figure 13 (p.110) presents a bar chart of the statistically significant main effect for anger.
As described earlier herein, one of the five main dimensions in the LIWC2001 text analysis program is the Personal Concerns dimension. This dimension includes concerns about occupation, leisure activity, money and financial issues, metaphysical issues (death and dying), and physical functions. Tests of Hypothesis 1 yielded a main effect for leisure activity. Although not an emotional process, the result for leisure activity is reported herein because it is a cognitive concern that reached significance in the LIWC analysis. The main effect for leisure activity, $F(1, 48) = 6.498, p = .014$, indicated that the PEA group showed significantly higher use of words coded for leisure activity ($M = .647$) than did the PEA group ($M = .355$). A Mann-Whitney test on the
main effect for leisure activity was significant, $U (52) = 218.500, z = -2.464, p = .014$.

Figure 14 presents a bar chart of the statistically significant main effect for leisure activity.

Figure 14. Main Effect for Leisure Activity (n = 18)

Non-significant main effects were obtained for all three measures of positive emotion (positive emotions; positive feelings; optimism and energy) and the two other measures of negative emotion (anxiety or fear; sadness or depression). Table 2 (p.112) presents all significant and non-significant main effects obtained for tests of Hypothesis\textsubscript{1}. (Significant main effects are presented in shaded text.)
Table 2. Tests of Hypothesis 1: Main Effects (18 subjects; 2 conditions; 48 between subjects measures)

<table>
<thead>
<tr>
<th>Effect</th>
<th>df</th>
<th>Error Term</th>
<th>F</th>
<th>Significance</th>
<th>M (PEA)</th>
<th>M (NEA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Emotions</td>
<td>1</td>
<td>48</td>
<td>4.114</td>
<td>.048</td>
<td>.704</td>
<td>.915</td>
</tr>
<tr>
<td>Anger</td>
<td>1</td>
<td>48</td>
<td>5.445</td>
<td>.024</td>
<td>.113</td>
<td>.267</td>
</tr>
<tr>
<td>Positive Emotions</td>
<td>1</td>
<td>48</td>
<td>.001</td>
<td>.972</td>
<td>2.896</td>
<td>2.886</td>
</tr>
<tr>
<td>Positive Feelings</td>
<td>1</td>
<td>48</td>
<td>1.032</td>
<td>.315</td>
<td>.521</td>
<td>.636</td>
</tr>
<tr>
<td>Optimism and Energy</td>
<td>1</td>
<td>48</td>
<td>.057</td>
<td>.812</td>
<td>.475</td>
<td>.457</td>
</tr>
<tr>
<td>Anxiety or Fear</td>
<td>1</td>
<td>48</td>
<td>.063</td>
<td>.802</td>
<td>.143</td>
<td>.133</td>
</tr>
<tr>
<td>Sadness or Depression</td>
<td>1</td>
<td>48</td>
<td>.001</td>
<td>.741</td>
<td>.103</td>
<td>.112</td>
</tr>
<tr>
<td>Leisure Activity</td>
<td>1</td>
<td>48</td>
<td>6.499</td>
<td>.014</td>
<td>.647</td>
<td>.355</td>
</tr>
</tbody>
</table>

Taken together, the significant main effects for negative emotions, anger, and leisure activity lend preliminary support to H1. Although no significant main effects were obtained for measures of positive emotion, participants in the PEA condition showed significantly lower levels of negative emotion and anger during appraisal of 360-degree feedback results and discussion of change goals than participants in the NEA condition. Moreover, follow-up t-tests on the significant main effect for anger showed that the elevated level of anger demonstrated by the NEA group (vs. the PEA group) occurred during segment B (not segments A and C), indicating that the NEA group exhibited higher levels of anger only during segment B (initial appraisal of 360-degree feedback results). This result offers evidence that framing the coaching session in the coached person’s PEA (i.e., early arousal of the PEA/ideal self) resulted in the PEA group’s
comparatively lower levels of anger during initial feedback assessment. A Mann-Whitney test on the main effect for anger was not significant, $U (52) = 273.500, z = -1.520, n.s.$

The main effect for leisure activity offers evidence that framing the coaching session around the PEA led participants in the PEA condition to focus more on personal interests or passions they were drawn to and/or enjoyed as compared to NEA participants, whereas framing the session around the NEA resulted in the NEA group’s significantly lower attention to personal interests and passions. Overall, the post hoc tests (Mann-Whitney, Tukey) on the main effects obtained for Hypothesis 1 offer partial support for Hypothesis 1, indicating a need to replicate the study with a larger sample size.

As discussed earlier herein (p. 71), negative emotions facilitate identification of situational requirements, weaknesses, and problems — and mobilize extrinsic motivation and self-protective coping. Conversely, positive emotions facilitate identification of the desired future, strengths, and personal passions — and mobilize intrinsic motivation and broad-minded coping. The PEA group’s significantly higher expression of personal interests/passions and significantly lower demonstration of negative emotions and anger, as compared to the NEA group, are interpreted as preliminary evidence that the NEA group was more narrowly focused on extrinsic requirements and self protective coping than was the PEA group, and indirect evidence that the PEA group may have experienced higher levels of positive emotion than did the NEA group. Interestingly, comparison of means for the PEA group ($M = 2.896$) vs. NEA group ($M = 2.886$) on the non-significant main effect for positive emotions reveals a trend in this direction (mean for PEA > NEA), again arguing for replication of these results on a larger sample size. Figure 15 (p.114) presents a bar chart of the main effect for positive emotions (n.s.).
Interaction Effects. Although no hypotheses were presented on time effects, tests of H₁ generated time series data on changes in expressed emotion during the coaching hour: specifically, changes that took place from the beginning segment of the coaching session (opening discussion on the ideal self/PEA or real self/NEA; ECI-U overview), to the middle segment (discussion on 360-degree feedback results and possible change goals), to the ending segment (closing discussion on feedback results; integration of what was learned; summary of coaching conversation).

Tests of Hypothesis₁ yielded two significant interaction effects, one for sadness or depression and the other for future. The significant interaction effect for sadness or depression, $F (2, 48) = 4.98, p = .011$, documented NEA-PEA differences in segment-to-
segment change in level of words coded for sadness or depression. In segment A of the coaching session (opening discussion on the ideal or real self and overview of the ECI-U format) the NEA group exhibited a baseline level of words coded for sadness or depression ($M = .121$). In segment B (discussion of 360-degree feedback and possible change goals) the NEA group showed an even higher level of words coded for sadness or depression ($M = .169$). However, in segment C (closing discussion on feedback results, integration of what was learned and summary of the coaching conversation) the NEA group showed a drop in level of words coded for sadness or depression ($M = .045$). A different pattern of time series change was seen in the PEA group. In segment A the PEA group’s baseline level of words coded for sadness or depression was $M = .079$. In segment B the PEA group showed an increase in words coded for sadness or depression ($M = .085$), and in segment C the PEA group was even higher in words coded for sadness or depression ($M = .146$). Post hoc Tukey’s HSD tests (at $p < .05$) conducted on both interaction effects were not significant. Figure 16 (p.116) presents a line graph with the significant interaction effect for sadness or depression.
Although time series results on sadness or depression for segments A and B are in the predicted direction (mean for NEA > PEA), the reversal in segment C is counterintuitive (mean for NEA < PEA). One explanation for the NEA group’s sudden decline in level of words coded for sadness or depression during segment C may be that participants in the NEA group focused primarily on current reality and improvement needs throughout the coaching session, engaged in more negative emotional processing than did participants in the PEA group, hence were emotionally lifted when the session moved toward closure. Conversely, participants in the PEA group focused primarily on future possibilities and strengths, engaged in a lesser amount of negative emotional processing than did the NEA
group (and perhaps were more energized by the coaching conversation than participants in the NEA group), hence were sadder to see the session come to an end. Support for this explanation is offered by the significant interaction effect on future reported next.

Another of the five main dimensions in the LIWC2001 text analysis program is Relativity. This dimension includes words that tap cognition related to time (past, present, future), space (up, down, inclusive, exclusive), and motion. The future category is akin to the leisure activity dimension reported above: the future category does not connote an emotional process but nevertheless is reported herein because it tapped cognition that reached significance as an interaction effect.

The significant interaction effect for future, \( F(2, 48) = 3.559, p = .036, \) documents segment-to-segment change in percentage of words coded for future. In segment A (opening discussion on the ideal or real self and overview of the ECI-U format) the PEA group exhibited a baseline use of words coded for future \( (M = 1.492) \). In segment B (discussion of 360-degree feedback and possible change goals) the PEA group showed a relative decrease in use of words coded for future \( (M = 1.059) \). In segment C (closing discussion on feedback results, integration of what was learned, and summary of the coaching conversation) the PEA group showed a relative increase in words coded for future \( (M = 1.212) \). The opposite pattern was seen in the NEA group. In segment A the NEA group’s baseline use of words coded for future was \( M = 1.006 \). In segment B the NEA group exhibited relatively higher use of words coded for future \( (M = 1.444) \), and in segment C the NEA group showed a relative decrease in words coded for future \( (M = 1.119) \). Figure 17 (p. 118) presents a line graph with the significant interaction effect for future.
The significant interaction effect for future is interpreted as suggestive evidence on early arousal of the PEA (participants in the PEA condition) and NEA (participants in the NEA condition) during segment A (opening discussion on the ideal or real self and overview of the ECI-U format) — and emergent interplay of positive and negative emotion in segments B and C. For example, at the beginning of the coaching session PEA participants were induced by their respective coaches to focus on the ideal self (hopes, strengths, desired future), and NEA participants were induced to focus on the real self (improvement needs, weaknesses, current reality). The significant interaction effect for future suggests that early PEA arousal led the PEA group to (1) focus on the future in segment A (indicated by a higher percentage of words coded for future as compared to
the NEA group); (2) switch its focus to present reality in segment B (indicated by a relative decrease in percentage of words coded for future in segment B); and (3) refocus on the future in segment C (indicated by a relative increase in percentage of words coded for future in segment C). Conversely, early NEA arousal led the NEA group to (1) focus on present reality in segment A (indicated by a lower percentage of words coded for future as compared to the PEA group); (2) switch its focus to the future in segment B (indicated by a relative increase in percentage of words coded for future in segment B); and (3) refocus on present reality in segment C (indicated by a relative decrease in percentage of words coded for future in segment C).

As discussed earlier herein ICT (Boyatzis, 2006; Howard, 2006), supported by selected emotion regulation research (Diamond & Aspinwall, 2003; Freitas, et. al., 2002; Liu & Perrewe, 2005) and social complexity perspectives on PA-NA, (Fredrickson & Losada, 2005; Gottman, et. al., 2002; Losada & Heaphy, 2004), proposes that intentional change is characterized by recurrent PEA-NEA arousal, and that (associated) interplay of positive emotion and negative emotion shapes the form and flow of behavioral change. Segment-to-segment reversals documented by the significant interaction effect for future can be viewed as suggestive evidence on recurrent PEA-NEA arousal (PEA condition) and recurrent NEA-PEA-NEA arousal (NEA condition), and related PA-NA interplay during the coaching hour. Table 3 (p.120) presents the interaction effects obtained for tests of Hypothesis1.
Table 3. Tests of Hypothesis: Interaction Effects (18 subjects; 2 conditions; 48 between subjects measures)

<table>
<thead>
<tr>
<th>Effect</th>
<th>df</th>
<th>Error Term</th>
<th>F</th>
<th>Significance</th>
<th>M (PEA)</th>
<th>M (NEA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sadness or Depression</td>
<td>2</td>
<td>48</td>
<td>4.982</td>
<td>.011</td>
<td>.085/A</td>
<td>.146/C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.079/A</td>
<td>.121/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.085/B</td>
<td>.169/B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.146/C</td>
<td>.045/C</td>
</tr>
<tr>
<td>Future</td>
<td>2</td>
<td>48</td>
<td>3.559</td>
<td>.036</td>
<td>1.492/A</td>
<td>1.006/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.059/B</td>
<td>1.444/B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.212/C</td>
<td>1.119/C</td>
</tr>
</tbody>
</table>

Computed at the .05 level of significance.

Hypothesis: Level of Stress Immediately After the Coaching Session

Hypothesis predicted that participants in the PEA condition would show lower levels of stress immediately following the coaching session than participants in the NEA condition. Level of stress was assessed by the measuring the cortisol levels (ug/dl) of participants in the PEA and NEA groups before and after their respective coaching sessions. Cortisol assays were analyzed by a clinical research laboratory and pre- to post-coaching change in salivary cortisol was calculated for each participant (n=18). The change in mean cortisol levels (post-pre) was compared between the PEA and NEA groups using a two-tailed independent t-test. The t-test was computed using alpha = .05. No significant differences were found between the PEA group (M = .002) and NEA group (M = .036), t (16) = -.508, p = .618, in level of stress immediately after the coaching session.
Secondary Hypotheses on Current Mood and Satisfaction with the Coaching Experience and Relationship

In addition to the two main hypotheses, two secondary hypotheses were examined on current mood and satisfaction with the coaching session and relationship. Immediately after the coaching session and one month later, participants in the PEA condition were predicted (1) to show higher levels of positive mood and (2) to show higher levels of satisfaction with the coaching experience and relationship than were participants in the NEA condition. The study employed three measures of current mood (transitory arousal state, goal directed thinking, optimism) and one measure on coaching satisfaction. All tests were computed using alpha = .05.

Analysis of all self-report measures yielded statistically non-significant main effects, including the measure on transitory arousal state (assessed using the Activation-deactivation Adjective Checklist Long Form), the measure on goal directed thinking (assessed using the Adult Hope Scale), the measure on optimism (assessed using the PANAS), and the measure on satisfaction with the coaching experience and relationship (assessed using the Coaching Satisfaction Scale). Table 4 presents the main effects obtained for all secondary self-report measures.
Table 4. Tests of Secondary Measures (18 subjects; 2 conditions; 48 between subjects measures)

<table>
<thead>
<tr>
<th>Self-report Measure</th>
<th>Effect</th>
<th>df</th>
<th>Error Term</th>
<th>F</th>
<th>Significance</th>
<th>M (PEA)</th>
<th>M (NEA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitory Arousal State</td>
<td>Energy</td>
<td>1</td>
<td>46</td>
<td>.645</td>
<td>.426</td>
<td>11.35</td>
<td>10.49</td>
</tr>
<tr>
<td></td>
<td>Calm</td>
<td>1</td>
<td>46</td>
<td>.761</td>
<td>.198</td>
<td>13.53</td>
<td>12.32</td>
</tr>
<tr>
<td></td>
<td>Tension</td>
<td>1</td>
<td>46</td>
<td>.360</td>
<td>.551</td>
<td>14.27</td>
<td>14.97</td>
</tr>
<tr>
<td>Goal-directed Thinking</td>
<td>Composite</td>
<td>1</td>
<td>46</td>
<td>.217</td>
<td>.643</td>
<td>41.47</td>
<td>40.65</td>
</tr>
<tr>
<td>Optimism</td>
<td>Positive Affect</td>
<td>1</td>
<td>46</td>
<td>1.35</td>
<td>.252</td>
<td>37.14</td>
<td>39.44</td>
</tr>
<tr>
<td></td>
<td>Negative Affect</td>
<td>1</td>
<td>46</td>
<td>1.41</td>
<td>.243</td>
<td>10.49</td>
<td>11.31</td>
</tr>
<tr>
<td>Coaching Satisfaction</td>
<td>Composite</td>
<td>1</td>
<td>29</td>
<td>1.12</td>
<td>.298</td>
<td>4.72</td>
<td>4.53</td>
</tr>
</tbody>
</table>
Chapter 5: Discussion

Overview

This study empirically examined the differential impact of inducing the coached person’s Positive Emotional Attractor vs. Negative Emotional Attractor during 18-hour-long executive coaching sessions on appraisal of 360-degree feedback results and exploration of change goals. Data showed that the PEA group experienced a significantly lower level of negative emotions ($p = .048$) and anger ($p = .024$) during the coaching session than did the NEA group. In addition, the PEA group focused significantly more on leisure activity (personal interests and passions such as competitive car racing, athletics, volunteerism, travel)\textsuperscript{13} than did the NEA group ($p = .014$).

Time series analysis of the beginning (segment A), middle (segment B), and ending (segment C) sequences of the coaching sessions offered suggestive evidence that both groups experienced notable changes in positive and negative emotional processing during the coaching hour. A significant interaction effect for level of sadness or depression ($p = .011$) documented segment-to-segment change in expressed sadness. The PEA group showed a baseline level of expressed sadness in segment A ($M = .079$), which increased in segment B ($M = .085$), and increased yet again in segment C ($M = .146$). Conversely, the NEA group’s baseline level of expressed sadness was $M = .121$ in segment A, which increased to $M = .169$ in segment B, then dropped to $M = .045$ in segment C.

\textsuperscript{13} Competitive car racing, athletics, volunteerism, and travel are examples of leisure activities discussed by study participants during the coaching hour (both conditions).
Another significant interaction for future \((p = .036)\) documented time series change in focus on the future. The PEA group exhibited a baseline use of words coded for future \((M = 1.492)\) in segment A, which decreased in segment B \((M = 1.059)\), but increased in segment C \((M = 1.212)\). Conversely, the NEA group’s baseline was \(M = 1.006\) in segment A, which increased to \(M = 1.444\) in segment B, then dropped to \(M = 1.119\) in segment C.

Consistent with social complexity perspectives on the capacity of small occurrences to have large impacts over time (Casti, 1994), the present findings are interpreted as preliminary evidence that framing a coaching session in the coached person’s PEA (vs. the NEA) enhances work on intentional change. Although participants in both groups appeared to benefit from the coaching experience — no significant between group differences were found on level of stress, post-coaching current mood, or post-coaching satisfaction with the coaching experience and relationship — data showed that the PEA group demonstrated significantly lower levels of expressed negative emotions and anger during the coaching hour as compared to the NEA group. Given the comparatively elevated levels of negative emotion and anger exhibited by the NEA group, it is reasonable to suggest that framing the PEA group’s coaching sessions in the coachee’s Positive Emotional Attractor may have fostered a higher level of positivity (Gottman, 1994; Gottman, et. al, 2002), leveraged the broaden-and-build benefits of positive emotion (Fredrickson, 1998, 2000a, b; 2001; 2003; Fredrickson & Losada, 2005), and created a richer emotional space (Losada & Heaphy, 2004) than was experienced by the NEA group. The significant between-group difference on discussion of personal interests or passions (i.e., the measure on leisure activity) lends support to this
idea. Compared to the NEA group, participants in the PEA condition engaged in greater
discussion of activities they viewed as personally gratifying and wished to do more of in
future, while participants in the NEA condition focused largely on present reality and
improvement needs. Last, significant findings on segment-to-segment changes in sadness
or depression and future (time series changes observed in both groups) are interpreted as
suggestive evidence on recurrent mobilization of positive and negative emotion during
intentional change.

Hypotheses

_Hypothesis 1_. Results indicated preliminary support for the prediction that the PEA
group would show higher levels of positive emotion during appraisal of 360-degree
feedback results and discussion of change goals than the NEA group. In tests of
Hypothesis 1 the PEA group showed a significantly lower level of negative emotions (p = .048) and anger (p = .024) than did the NEA group. Also, the PEA group focused
significantly more on leisure activity (p = .014) than did the NEA group. In addition,
significant interaction effects on sadness or depression (p = .011) and future (p = .036)
offered suggestive evidence on recurrent PEA-NEA arousal during the coaching hour.
Post hoc tests showed differences between the PEA and NEA groups on negative
emotions (p = .090) and leisure activity (p = .014). Post-hoc tests were non-significant for
anger; sadness and depression; and future. Overall, the post hoc test results point to the
preliminary nature of present findings and the need for replication of these findings on
larger sample sizes.
Based on ICT and supporting cognitive emotion and complexity treatments on positive and negative emotional processing, tests of $H_1$ were expected to show that framing a coaching session in the coach person’s PEA (his or her own hopes, strengths, desired future/ideal self) would activate positive emotions that, in turn, would stimulate intrinsic motivation, leverage the known benefits of positive emotional processing (positive emotional appraisal; broad-minded coping, promotion focused response), and support repair and recovery from the downside effects of negative emotional processing. Accordingly, participants in the PEA condition were predicted to experience higher levels of positive emotion during the coaching session and lower levels of post-coaching stress as compared to those in the NEA condition.

Conversely, present findings were expected to show that framing a coaching session in the coached person’s NEA (his or her own improvement needs, weaknesses, present reality/real self) would activate negative emotions that foster extrinsic motivation, negative emotional appraisal, and self-protective coping, but are known to elevate stress and/or trigger compromising psychophysiological stress reactions. Thus, NEA participants were predicted to experience lower levels of positive emotion during the coaching session and higher levels of postcoaching stress.

As shown in Figure 18 (p.127), tests of $H_1$ confirmed that framing the coaching session in participants’ PEA resulted in the PEA group’s comparatively lesser experience of negative emotions and anger, and greater discussion of personal interests/passions (as compared to the NEA group). On the other hand, framing the session in participants’ NEA resulted in the NEA group’s relatively higher demonstration of negative emotions.
and anger, and lesser focus on personal interests/passions. The finding that PEA vs. NEA framing led to lower expression of negative emotions in the PEA condition and higher in the NEA condition leaves open the question of whether PEA framing directly activated
positive emotions, as was predicted in Hypothesis₁. Nevertheless, because all significant main effects and post hoc analyses for H₁ were in the predicted direction, present findings are viewed as preliminary evidence that PEA framing does activate positive emotions and their beneficial effects, and that replication of the study on larger sample sizes will yield the predicted results (i.e., higher levels of positive emotion in coaching sessions framed by early PEA induction). As discussed next, encouragement for this view can be drawn from review of PEA vs. NEA means for positive emotions and positive feelings (i.e., PEA means > NEA means on these measures of positive emotion).

Figure 19a (p.129) presents the PEA and NEA means for positive emotions. Comparison of PEA vs. NEA means for positive emotions in segments A, B, and C of the coaching session reveals a time series trend in the direction predicted by H₁. In segment A the NEA group had a relatively higher mean (\(M = 4.388\)) on positive emotions as compared to the PEA group (\(M = 3.448\)). For the NEA group this was an opening discussion on the real self/ECI-U format, but for the PEA group it was an opening discussion on the ideal self/ECI-U format (Figure 11, p. 98). A reversal was seen in segments B and C such that, during 360-degree feedback appraisal and exploration of change goals, the PEA group had higher means for positive emotions (segment B, \(M = 3.598\); segment C, \(M = 2.951\)) than did the NEA group (segment B, \(M = 3.409\); segment C, \(M = 2.762\)). The higher PEA means (vs. NEA means) in segments B and C (i.e., during feedback appraisal and discussion of change goals) are interpreted as consistent with H₁ … even though the PEA mean was lower than the NEA mean in segment A. Study participants’ professional background and training offer a plausible explanation for this reversal.
All participants were dental practice heads trained in diagnostic assessment and accustomed to use of problem-centered approaches to evaluation and planning. It is reasonable to assume that the dental practice heads randomly assigned to the NEA condition likely understood and were familiar with the opening frame used by the coach in NEA sessions, i.e., a frequently seen focus on the real self, current reality, perceived improvement needs. Conversely, dental practice heads randomly assigned to the PEA condition may have been somewhat surprised by the opening frame used by the coach in the PEA condition, i.e., a relatively unexpected focus on the ideal self, desired future, perceived strengths/passions. The NEA group’s higher mean on positive emotions in segment A (vs. the PEA group’s lower mean) may reflect the NEA group’s met expectations about and/or familiarity with the gap management frame used in the NEA
sessions, and the PEA group’s surprise and/or unfamiliarity with its strengths/possibilities management frame. During segments B and C, when attention turned to analysis of 360-degree feedback and consideration of change goals, the reversal in the predicted direction (PEA means on positive emotions > NEA means), was an emergent pattern made more suggestive by the very fact of this reversal.

As presented in Figure 19b (p.131), a similar pattern was seen in the PEA vs. NEA means for positive feelings. In segment A of the coaching session the NEA mean for positive feelings was higher ($M = 3.581$) than the PEA mean ($M = 2.854$), but in segment B the PEA mean ($M = 2.882$) was higher than the NEA mean ($M = 2.315$). In segment C the PEA mean ($M = .510$) and NEA mean ($M = .524$) were nearly the same. Once again a reversal occurred in segment B such that, during initial 360-degree feedback appraisal and exploration of change goals, the PEA mean was higher for positive feelings as compared to the NEA mean, although in segment C the means for both groups were almost the same.

As in the case of positive emotions, the reversal in PEA vs. NEA means on positive feelings during segment B may relate to the NEA group’s possible comfort with the NEA coaching frame, and the PEA group’s possible experience of novelty on exposure to the PEA coaching frame. In any case, the reversal in NEA-PEA means on positive feelings during segment B was in the direction predicted by $H_1$. This reversal, and the reversal described for positive emotions, can be viewed as an emergent pattern (PEA > NEA on means for positive emotions and positive feelings) that lends credence to the idea that $H_1$ will be supported in replications with a larger sample size. Even so, more study is needed to establish that recurrent PEA arousal activates positive emotions as
opposed to merely decreasing the level of negative emotions — and that predominant NEA arousal does not foster sufficient PEA recurrence to optimize recovery from the harmful effects of negative emotional processing.

Figure 19b. PEA and NEA Means for Positive Feelings

Also meriting further investigation are suggestive findings on the proposed beneficial effects of recurrent PEA arousal (specifically, the reported interaction effects on sadness and depression and future). Present findings on time series changes in expressed emotion during the beginning, middle, and ending segments of the coaching sessions offered indirect evidence on the interplay of positive and negative emotions during the coaching hour. Questions remain about precisely how arousal of the PEA and NEA may regulate this interplay, and how activation of PA and NA may reciprocally
influence PEA-NEA activation. Interaction effects reported herein suggest that longitudinal time series research on coaching intentional change can help researchers to unpack the relationship between PEA-NEA arousal and positive and negative emotional interplay — and learn more about what constitutes an optimal balance between positive vs. negative emotional processing during intentional change.

_Hypothesis_2_. Data analysis did not support the prediction that the PEA group would show lower levels of stress immediately after the coaching session than would the NEA group (as evidenced by significantly lower levels of salivary cortisol shown by the PEA group as compared to the NEA group). Tests of Hypothesis_2_ found no significant differences between the PEA and NEA groups on level of stress. Although numerous studies have shown that psychological stressors can activate cortisol release (Smyth, _et al._, 1998), prevailing research on the association between psychological stressors, affect, and salivary cortisol levels has produced inconsistent findings (Dickerson & Kemeny, 2004) on precisely when-and-how cortisol activation occurs.

Over the past half century, hundreds of studies have specifically focused on the effects of psychological stressors on cortisol activation. Despite the magnitude of this research enterprise, only two broad conclusions can be drawn from this literature as a whole. First, like physical stressors (e.g., electric shock, prolonged exercise), psychological stressors are indeed capable of activating the HPA axis; a number of studies have reported that laboratory tasks such as public speaking or mental arithmetic can increase cortisol levels (e.g., Kirschbaum, Pirke, & Hellhammer, 1993). Second, the effects of psychological stressors on this physiological system are highly variable. Many studies have failed to find cortisol
changes (e.g., Manuck, Cohen, Rabin, & Muldoon, 1991), and recent narrative reviews have highlighted the inconsistent effects of psychological stressors on cortisol activity (e.g., Biondi & Picardi, 1999). The tremendous heterogeneity in the literature suggests that all types of negative situations may not uniformly trigger cortisol changes (Mason, 1968). Essential elements, present only in contexts that elicit cortisol responses, have yet to be clearly delineated (Dickerson & Kemeny, 2004, p.355).

Given the ongoing theoretical debate on precisely what specific contexts and essential elements elicit cortisol responses, there is a need for follow-up examination of H$_2$. For example, individual factors such as participants’ basal cortisol rhythms (Adam & Gunnar, 2001; Kurina, Schneider, & Waite, 2004), hypothalamic-pituitary-adrenal axis (HPA) reactivity to psychological stress (Singh, et. al., 1999), and responsivity to and/or mobilization for change (Brown, et. al., 1996) may have influenced the cortisol results reported herein. Also, socio-environmental factors such as quality of social support and social relationships have been shown to influence cortisol activation such that “supportive social relationships are often associated with attenuated patterns of HPA and SNS activation, [while] the converse also seems to be true as nonsupportive social interactions are frequently associated with enhanced reactivity” (Seeman & McEwen, 1996, p. 1). Smyth, et. al. (1998) further report that, “While there is accumulating evidence that cortisol increases in response to negative states (Arnetz and Fjellner, 1986; Lunberg and Frankenhaeuser, 1980; Mason, 1968; Nicolson, 1992), the effect of positive mood states is equivocal” (p. 354-355). Consistent with these findings, it is possible that PEA and NEA participants showed no significant post-pre increase in mean cortisol
levels due to receipt of (valued) social support from the executive coach in the just-concluded coaching session.

The above interpretation regarding the possible influence of social support and current mood on participants’ observed cortisol level is supported by the finding of no significant between group differences on measures of current mood (pre-coaching and post-coaching) and satisfaction with the coaching experience and relationship (immediately after the coaching session and one month later). These results suggest that (1) NEA participants were not more displeased with or upset by the coaching experience (i.e. digestion of 360-degree feedback results, consideration of change goals, help from the coach) than were PEA participants, and (2) NEA participants’ higher levels of negative emotions and anger can be viewed as evidence of emotional processing triggered by primary arousal of the coached person’s NEA/real self/extrinsic motivation, and secondary arousal of his or her PEA/ideal self/intrinsic motivation (as depicted in Figure 18, p. 127).

Similarly, the present finding may suggest that the coaching engagement simply was not a stressful experience, i.e., that the negative emotion experienced during the coaching session by participants in both groups did not reach the level of threat required to trigger a physiological stress reaction (i.e., a cascade of negative neuroendocrine activation). For example, the experience of negative emotion during a particular coaching session may not be detrimental in and of itself. Negative emotions can actually assist the coachee in feedback appraisal, recognition of problems, goal setting, and other cognitive-emotional tasks during intentional change. In this study NEA participants demonstrated a significantly higher level of negative emotions and anger than did the PEA group.
Drawing on extant research on negative emotional appraisal reviewed earlier herein, the elevated level of negative emotions experienced by NEA participants (as compared to PEA participants) can be interpreted as evidence of NEA participants’ more predominant employment of negative emotional appraisals of assistance to them during analysis of 360-degree feedback results and exploration of change goals. However, the elevated anger shown by the NEA group (compared to the PEA group) merits further discussion.

Post hoc analyses showed that the NEA group was higher than the PEA group in expressed anger during segment B, but there were no significant differences between the groups on anger in segments A and C. Because no significant between group differences were found on measures of current mood and satisfaction with the coaching experience and relationship, the results on anger are interpreted as suggesting that the PEA group showed a lower level of anger because early framing of the coaching session in the PEA activated positive emotions that leveraged positive appraisal during segment B (initial analysis of 360-degree feedback).

The motivational features of anger (Carver & Harmon-Jones) also may have played a role. A body of research on the motivational underpinnings of anger as an affect suggests that anger introduces motivational responses related to approach behaviors rather than avoidance behaviors (Carver & Harmon-Jones, 2009). One implication of this research is that anger often promotes an effort to open the path to a desired goal, to approach a desired condition, and/or to restore a desired state (Carver & Harmon-Jones, 2009, p. 184). The elevated anger demonstrated by NEA participants may have helped them to identify and focus on a change or action step they needed to take. If so, the
experience of momentary anger during NEA participants’ one-time, hour-long coaching session may not have been stressful enough to activate post-coaching cortisol increase.

Nevertheless, participation in consecutive coaching sessions framed by the NEA may eventually produce higher levels of stress. During their one-time coaching session the NEA participants focused primarily on the real self (own perceived improvement needs, weaknesses, current reality) and secondarily on the ideal self (own perceived hopes, strengths, and desired future). Anchoring a session in the NEA resulted in higher levels of negative emotions and anger in the NEA group as compared to the PEA group (which focused primarily on the ideal self and secondarily on the real self). For NEA participants who received gap management or problem-centered coaching, serial activation of moderate or high levels of negative emotion over a number of (future) coaching episodes, un-tempered by short term or sustained inductions of positive affect, may build cumulative stress that begins to compromise the coachee’s change process.

Support for this interpretation comes from one study that examined cumulative risk and allostatic load among rural children (Evans, 2003). In this study, elevated cumulative risk was associated with heightened neuroendocrine levels and a higher summary index of allostatic load. In any case, research on the degree of negative emotional processing required to trigger a physiological stress reaction during a coaching engagement (e.g., during one session, across a series of coaching sessions, or over an entire coaching intervention) merits further attention.

Secondary Measures. Results did not reach significance on the self-report measures of current mood (transitory arousal state, goal directed thinking, and current optimism) and satisfaction with the coaching session and relationship. No significant
differences were found between the PEA and NEA groups on these measures. The results on current mood may indicate that participants were not consciously aware of small changes in momentary arousal of positive vs. negative emotion during the coaching session. As mentioned earlier herein, antecedent research has found that reaction tests and self-report measures are less effective in measuring cognitive-emotional processing than approaches that employ linguistic analysis (Pennebaker & Lay, 2002).

The non-significant result on satisfaction with the coaching session and relationship may suggest that both groups were satisfied with the coaching experience despite present findings on lower levels of negative emotion and anger in the PEA group vs. NEA group. One explanation for the non-significant finding on coaching satisfaction is that study participants were mid-career professionals heading competitive dental practices. They also were first-time recipients of an executive coaching assessment. Mid-career dental practice heads tend to be highly autonomous, typically operating in comparatively independent and/or self-contained practice environments (Sudano, et al., 2009). As practicing dentists and heads of group practices (31.6%) and solo practices (68.4%), participants in both conditions may have viewed the coaching session as a rare opportunity to receive executive coaching support and 360-degree feedback on their interpersonal abilities and dental team leadership skills. Participants’ global appreciation of the opportunity to talk with a management coach, and to receive 360-degree performance feedback, may explain the finding of no significant differences ($p = 2.98$)

14 The Direct Observation Study (DOS) of Dental Practice recently found that “general dentists in solo/partnership practices reported the greatest autonomy while their physician primary care counterparts in solo/partnership and group practice demonstrated the least autonomy over patient care, managing the practice, practice environment, and leisure and family time (Sudano, Lalumandier, Zyzanski, & Wotman, 2009).
between the PEA ($M = 4.72$) and NEA ($M = 4.53$) groups on coaching satisfaction. Participants may simply have been glad to receive this kind of professional support, independent of findings on between group differences in levels of felt positive and negative emotion.

In any case, non-significant findings on the self-report measures (current mood; satisfaction with the coaching experience and relationship) highlight the potential importance of the coach’s ability to anchor a coaching session in the coached person’s PEA, and to give secondary attention to the NEA. This ability may be critical because the coached person may or may not be aware of the restorative benefits of positive emotional processing, nor able to optimize the long term benefits of grounding in the PEA.

**Implications for Research**

A core aim of this study was to conduct the first empirical investigation on specific ways in which the coached person’s cognitive affective processing influences the form and flow of his or her work on desired change during real time coaching sessions — and specific ways in which his or her coach can leverage this processing to promote sustained change. As mentioned earlier herein, few coaching studies have tested propositions from a theoretical model on the differential influence of positive vs. negative emotional processing in intentional change. Moreover, few empirical studies have explored what happens in live coaching sessions. This study thus contributes preliminary findings upon which to build future research on the impact of positive vs. negative emotional processing in real-time management coaching contexts, empirical work of potential relevance to emotion and coaching researchers alike.
The present research findings offer preliminary evidence that, for recipients of an hour-long coaching session, early PEA arousal (1) fostered a significantly lower level of negative emotions and significantly greater consideration of personal passions (as compared to early NEA arousal); (2) led to significantly lower levels of anger during initial appraisal of feedback results (as compared to early NEA arousal); and (3) generated different patterns of time series change in emotional processing over the coaching hour (as compared to patterns generated by early NEA arousal). Taken together, these results suggest that PEA arousal vs. NEA arousal impact the coaching process in quite different ways; that the coach’s initial framing of the session predominantly in the PEA (or, alternatively, predominantly in the NEA) fosters emotional processing that is driven by this initial framing; and that both the PEA (and associated positive emotions) and NEA (and associated negative emotions) play an important and recurrent role in shaping the change process. Further study on these preliminary outcomes will enable researchers to shed more light on the differential impact of the PEA vs. NEA on intentional change, and on how coaches can leverage the benefits of both emotional attractors.

**Implications for Practice**

*Management Coaching and Consulting.* Both researchers and practitioners have called for empirical research that can ground coaching practice in tested theory and techniques. Findings from the present study suggest that coaches would benefit from better understanding of the importance of tapping coachees’ intrinsic motivation through arousal of the coached person’s Positive Emotional Attractor (ideal self). Coaches
additionally would benefit from better understanding how to leverage the long-term advantages, and restorative benefits, of positive emotions during coaching engagements. The findings herein also highlight the need of coaches to appreciate the impact of timing effects on coaching intentional change, and how coaches can play a critical role in calibrating the pace and focus of work on intentional change. For example, early arousal of the coachee’s PEA, accompanied by recurrent PEA-NEA induction, may help the coachee to be more creative, optimistic, and resilient during a given change process. Further, coaches’ help in calibrating primary arousal of the PEA and secondary arousal of the NEA may better equip coachees to handle problems, fears, pressures, or threats — and to repair and restore themselves when they experience high levels of stress or states of negativity during work on intentional change.

Management Coaching in Dentistry. Dental practice, like many health care professions, can be demanding and stressful. As Gerschman & Burrows (1998) suggest, The topic of stress in the health professions in general, and its consequences, continues to be much discussed. Lesser emphasis has been placed on dental practice. Stress plagues twentieth-century life, and dentists consistently rank in the top groups with other professionals such as doctors, lawyers, pharmacists, veterinary surgeons and accountants as being affected by this serious malady. Many clinicians and academics regard dentistry as the ‘impossible profession’, finding it difficult to balance the pressures of a dental career, family life and the need for personal space (p. 213).

This remains true today. Researchers continue to document the stressful aspects of dental practice (Gorter, et. al., 1999), teaching of dentistry (Rutter, Herzberg, & Paice, 2002),
and study of dentistry (Thornton, et. al., 2004). In particular, Gerschman and Burrows (1998) cite five requirements associated with dental practice:

1. Work with the precision of a watchmaker or diamond cutter, but in a biological environment complete with oral fluids, facial musculature at the sometimes precarious will of their owner.

2. Persuade, cajole and sell in an attempt to deliver care and service obviously needed yet frequently misunderstood.

3. Allay the fears and anxieties of patients, understand and support, empathize and care.

4. Hire, train and effectively manage notoriously transient personnel, keep financial records, manage inventory, order supplies, deal with laboratories, indeed handle all of the workload of a not-so-small business.

5. Stay abreast of the field, read journals, attend meetings, and make sense of an array of changes in the profession of both a clinical and sociopolitical nature (p. 215).

These demands make clear the potential utility of leadership assessment and executive coaching in the field of dentistry. As a result, interest has grown in provision of leadership development and/or management coaching resources to practicing dentists and students of dentistry. An apt example is offered by a recent doctoral study (Victoroff, 2007) on the impact of emotional intelligence training on dental student clinical performance. This research established that emotional intelligence correlates significantly to clinical performance, and suggests that enhancement of emotional
intelligence competencies can improve clinical performance and dental practice leadership.

Turning to the present study, review of verbatim commentary in study coaching session transcripts indicates support for the claim that leadership assessment and executive coaching is a developmental resource of potential value to dentistry. With regard to the development and use of dental practice leadership abilities, one participant observed:

“… it took me 10-20 years after dental school to realize what I needed to know. When I graduated from dental school, I didn’t know it but I didn’t know anything. And what they taught me were some mechanical skills, which were new, but I really wasn’t thinking ‘dentist’ yet. I had no background, mentor, and no one to guide me. And they just thrust me out … we were tossed into leadership because we had a business. We had no training. Nobody talked about it. It was assumed that since you had a degree in front of your name people would look up and respect you and expect that you would know how to be a leader. There was no training.”

With regard to managing the dental practice team and relationships in other professional contexts, another participant said:

You know, you take so many classes and learn so much, but I just have the feeling that I truly want to make a difference or help something, but I just don’t know how. I don’t have the tools I needed in a management course or more of a leadership course or something to better come up with a system to solve the problem. Because in dental school they really were very, very minimal. Even
though they have classes, some of them are ineffective. Very little on management, or how to run an office, or deal with people. We were selectively screened to be technical and anal-retentive type people and, you know, management is really a challenge.”

The present study suggests that exposure to leadership assessment and management coaching can help dental practice leaders to enhance and leverage their interpersonal and leadership skills. In addition, executive coaching may be a value-added tool for managing constant change, the dental practice team, relationships with patients — and work-life balance. Provision of these resources to dental students also is indicated. The present research findings, and their relevance to dental practice contexts, represent fertile ground for development of leadership enhancement and executive coaching applications in dentistry.

Contributions of the Study

This study contributes new findings from a scholarly treatment on real time coaching sessions. These findings underscore the importance of leveraging the benefits of positive emotion during intentional change, as well as harnessing the advantages of negative emotion (without triggering the downside of negative emotional processing). The study also provides a theoretical model and empirical design for the conduct of time series research on positive and negative emotional processing in real time coaching engagements. It further contributes a research-based coaching satisfaction scale that can be used by scholars and practitioners.
Limitations

There are some limitations to this study. The present findings are based on participants’ response to a one-time, hour-long coaching session. As first-time recipients of an executive assessment, research participants may have been unfamiliar with management coaching and may not have known precisely what to expect. Consequently, the one-time coaching session may not have afforded ample time for participants to fully digest all that happened during the coaching hour (e.g., explanation of the ECI-U format, reading through the 360-degree feedback report, analysis of feedback results, inputs from the coach). Also, executive coaching is a complex interpersonal process that unfolds over time. For example, Kauffman & Coutu (2009) conducted an HBR survey in which 140 coaches were asked how long their coaching engagements typically last. Findings indicated that:

- 2.9% last 36 months,
- 1.4% last 25-36 months,
- 5.0% last 19-24 months,
- 17.9% last 13-18 months,
- 45% of 7-12 months, and
- 27.1% last 2-6 months (p. 10).

The HBR survey results point to the need for examination of the coaching process from start to finish, and from stage to stage. Longitudinal research is required in order to capture rigorous time series data on emotional processing that takes place throughout the intentional change coaching process, e.g., both within and across coachee and coach.

With regard to the present study, additional time series research on the full coaching
process (i.e., coverage of initial sessions on 360-degree assessment and outlining the coaching agenda, followed by ongoing sessions on goal development and work on desired change) will yield richer data.

In addition, the present research population was limited to mid-career medical professionals (practicing dentists/dental practice heads) and did not include individuals from management or other professional sectors. As a result, it is not yet clear whether these findings can be generalized to other populations. Another concern is that the study is based on 18 coaching sessions, a small sample. While it offers new and suggestive empirical evidence on the positive and negative emotional processing of actual coaching recipients in real time coaching sessions, the study needs to be replicated on larger samples. The present study represents an initial step in empirical investigation of PEA vs. NEA influences on coaching intentional change. Nevertheless, the findings and frameworks offered herein serve to lessen the documented gap in management coaching literature, and offer an empirical model that can be built upon.

**Future Research Directions**

A clear next step for this researcher would be to replicate the present study on larger populations using longitudinal designs that employ time series analysis of coaching engagements. Understanding the dynamic interplay of positive emotion and negative emotion in intentional change deserves more research attention, as does dyadic coregulation of cognitive-emotional processing in coaching and helping relationships. There is a need for more research on the differential impacts of positive emotion and negative emotion on intentional change, and the ways in which emotional processing
directs and drives the unfold of change. There is a need to conduct longitudinal studies that follow the coaching process over the full course of a coaching intervention, and for empirical designs that employ time sequenced data collection and complexity approaches to data analysis.

There is also a need to build integrated theory on intentional change and on coaching intentional change, and for theory that bridges the academic and professional worlds. As argued in the introduction of this paper, Intentional Change Theory is a highly promising theory of diffusion. Theories of diffusion are frameworks developed by academics that organizational decision makers view as directly applicable to their own situations and needs because they provide (a) “ideas and practices that can be used to solve current problems, (b) fresh insights and new ways of looking at their jobs, and/or (c) approaches with emotional appeal that uplift people and reinforce the value of what they do (while simultaneously creating successes or at least solving problems” (Guest, 2007, p. 1023). Continued ICT research on coaching intentional change can make this contribution.

Summary

This study contributes a preliminary empirical investigation on Intentional Change Theory (ICT) and its coaching application (the ICTCM). The study tested two key ICT propositions on the differential influence of positive emotion (activated by the Positive Emotional Attractor) vs. negative emotion (activated by the Negative Emotional Attractor) on the coached person’s cognitive affective processing during work on intentional change. Findings showed that anchoring a coaching session in the coached
person’s Negative Emotional Attractor (the real self) induced momentary negative emotions and anger. Conversely, anchoring a coaching session in the coached person’s PEA (the ideal self) fostered significantly lower levels of expressed negative emotion (compared to NEA anchoring), as well as greater focus on personal interests and passions. Findings also offered evidence that intentional change is characterized by recurrent arousal of the PEA and NEA, and the dynamic interplay of positive and negative emotion.

Finally, the study contributes an overview of the ICT framework on intentional change and coaching intentional change. In addition to offering an empirically supported, integrated theory on intentional change and change management of interest to social science and management scholars, the ICT perspective suggests that increased research understanding on the differential impacts and dynamic interplay of positive and negative emotion in the change process will enable coaching researchers to develop processual theory that more substantively undergirds coaching practice and teaching. This understanding can help coaches and coachees in the practice arena become more proficient in building and sustaining positive outcomes in their coaching enterprises.
Appendix 1. Recruitment Mailing

Dear Participant in the CWRU Northern Ohio Dental Practice Research Network,

Dr. Richard Boyatzis and Anita Howard invite your participation in a research study on Executive Coaching. The study will be conducted at the Case Dental School of Medicine during the spring of this academic year (February – May 2005).

We are researchers from the Department of Organizational Behavior in the Weatherhead School of Management. We specialize in executive coaching and assessment for professionals in business, medicine and the non-profit sector. The purpose of our research project is to learn more about how coaching recipients respond to, and feel about, their executive coaching experience.

You are being invited to participate in the study because you a member of the CWRU Dental Practice Research Network. As a practicing dentist you may be involved in dental practice management, professional development and/or career-life planning. You therefore may be interested in contributing to research on professional development in dental medicine and the opportunity to receive a complimentary Executive Coaching package in exchange for participation in this study. This service is widely used in professional arenas.

The executive coaching recipients in our study will be participants in the CWRU Northern Ohio Dental Practice Network who would like to experience an Executive Assessment and are willing to volunteer for participation in this research. Participation in the study carries no foreseeable risks to you.

Benefits to being in the study include receipt of a complimentary executive coaching package that can support you for work on practice management, professional development, time management, work-life balance and any goals that you would like to address. Being in the study also supports a research project that will expand knowledge on how executive coaching can enhance the careers and practice of dentists.

If you join our study we will ask you to complete an online 360-Degree Feedback Assessment that takes approximately 30 minutes to fill out and an hour-long Executive Coaching Session that will be audio-taped. An attached overview describes the benefits of Executive Coaching & Assessment.

We will also ask you to complete three short surveys and one noninvasive collection of a salivary cortisol sample. Each survey administration will take approximately 20 minutes; the salivary sample collection will take roughly two minutes. The first short survey will be completed online at least one week before the coaching session, the second short survey and cortisol sample will be completed onsite immediately after the coaching session and the third short survey will be competed online one month later.
We hope that you will join us in this research endeavor. If you would like to volunteer for participation in the study, please sign the enclosed Consent Form and return it to us in the preaddressed stamped envelope that we have provided.

For more information on our project please contact Anita Howard by email at anitarh@mindspring.com or by phone at 216.291.2030. Dr. Boyatzis may be reached at reb2@weatherhead.cwru.edu or by phone at 216.368.2055.

Thank you for your consideration.

Sincerely,

Anita Howard, Research Co-Investigator
Department of Organizational Behavior
Weatherhead School of Management
Case Western Reserve University
Appendix 2. Benefits of Executive Coaching and Assessment

**BENEFITS OF EXECUTIVE COACHING & ASSESSMENT**

Outstanding professionals possess excellent technical knowledge and skills. They also are masters at maximizing their own performance and that of others. Emotional Intelligence Competencies are a distinguishing factor that equips these highly successful people to excel.

Executive coaching and assessment helps professionals to clarify visions, evaluate priorities, manage time, navigate change, set goals, harness emotional intelligence competencies, tackle challenges or frustrations, and enhance life-long learning and performance.

Our Executive Coaching & Assessment Package includes:

- **A Feedback Assessment (The Emotional Competencies Inventory/ECI):** The ECI is an online 360-degree feedback instrument that enables you to obtain feedback on your personal, interpersonal and leadership skills from peers, team members, clients and other individuals or groups that you select. You also will evaluate yourself. This wide ranging feedback provides you with concrete information that you can use to identify, and better understand, your strengths, weaknesses, passions and goals — and the things you most want to change or do.

- **An Individual Coaching Session:** An hour long, one-on-one coaching session with a seasoned Weatherhead executive coach who will help you to:
  - analyze your 360-degree feedback data
  - leverage your emotional intelligence competencies
  - outline professional and work-life goals that you would like to address
  - develop an action plan for learning new skills and making desired changes

You can use your Executive Coaching & Assessment experience to:

- Review and revitalize your practice management vision
- Evaluate and strengthen your leadership skills
- Enhance your communication with patients and your office team
- Set new practice goals
- Increase your skill at time management and/or long term planning
- Broaden your talent for giving feedback to your office team
- Improve your effectiveness at managing office conflicts or work related stress
- Heighten your awareness of fast-moving changes and new advances in clinical dentistry
- Pursue continuing education and/or opportunities for learning and growth
- Stay on top of office deadlines and project oversight
- Build your ability to maintain work-life balance
- Launch a new venture that excites and rewards you

In essence, Executive Coaching and Assessment supports your process of self-directed change — and your commitment to being the best that you can be.
Appendix 3. Study Consent Form

Executive Coaching and Assessment Research Study
STUDY CONSENT FORM

You are being invited to take part in a research study on executive coaching conducted by Dr. Richard Boyatzis and Anita Howard as part of a dissertation research at the Department of Organizational Behavior, Weatherhead School of Management. The study is being conducted with the cooperation of the CWRU Dental School of Medicine.

You were recommended for participation in this study because of your involvement in the CWRU Northern Ohio Dental Practice Research Network. Executive coaching and assessment can help dentists and other medical professionals to enhance their skill and success in practice management, professional planning, time management and career-life balance.

Please read the information below and ask any questions that you may have before agreeing to be in the study. If you decide to participate, please sign the Statement of Consent found at the bottom of this form.

Background Information
The purpose of this study is to learn more about how executive coaching recipients respond to and feel about their coaching experience and relationship. The study specifically investigates executive coaching that focuses on 360-degree feedback assessment and work on dental practice management/career-life goals.

Completion of a 360-degree Feedback Assessment, an audio taped coaching session, 3 short research surveys and collection of a salivary cortisol sample are all required for participation in this study. If you do not wish to complete each activity and to be audio taped during the coaching session then you should not participate in the study.

Procedures
If you agree to be in this study, we will ask you to undergo a complimentary 360-degree Feedback Assessment and a 1-hour Executive Coaching Session to be conducted by an experienced executive coach from the Weatherhead School of Management. The 360-degree Feedback Assessment is an emotional intelligence survey that enables you to obtain feedback on your interpersonal and leadership skills from your peers, practice team members, patients, yourself and other individuals that you select. The executive coaching session will help you to analyze your 360-degree Feedback data and work on professional and work-life goals that you would like to address.

The 360-degree Feedback Assessment is taken online and the executive coaching session will take place at the CWRU Dental School in University Circle. Your 360-degree Feedback results will be provided at the coaching session; during the coaching session the executive coach will help you to analyze your data and develop your goals.
If you agree to participate in this study, we also will ask you to complete:

- one short survey that will be administered online 1 week before the coaching session (at the latest),
- one short paper and pencil survey that will be administered onsite immediately after the coaching session,
- the non-invasive collection of 1 salivary cortisol sample conducted by the co-investigating researcher, Anita Howard and
- one short survey administered online 1 month after the coaching session.

The Executive Coaching Session will take approximately 1 hour and will be audio taped. Each survey administration will take approximately 20 minutes. The research surveys will be used to document participants’ reactions to the coaching experience and relationship. Collection of the salivary cortisol sample will take approximately 2 minutes. The salivary cortisol samples will be used to document participants’ level of stress immediately following the coaching session. Because a single saliva sample does not provide any diagnostic information on the donor’s physical condition or medical status, the salivary sampling results will not be reported to study participants. All salivary cortisol samples will be processed at a certified lab and will be destroyed on completion of laboratory analysis.

**Risks and Benefits to Being in the Study**

Participation in the study carries no foreseeable risks to you. You will not be compensated or reimbursed for participation.

Benefits to being in the study include 1) receipt of a complimentary executive coaching package, a professional resource that can support you for work on practice management, professional development, time management, work-life balance and developmental goals that you would like to address and 2) an opportunity to support a research project that will expand knowledge on how executive coaching can support the careers and practice of professionals in dental medicine.

**Confidentiality**

All survey responses, physiological samples and audio-tapes will be kept completely confidential. The researchers will not keep your name on any written documents, physiological samples or audio recordings. The researchers instead will use a participant code to identify written documents and audio tapes and a sample code to identify physiological samples. The only link to your name and the codes will be one master list for the participant code. This list will be stored in a password protected computer file separate from the data files. The master list for the sample code will not be linked to your name.

All research records and audio taped recordings will be stored in a locked file. Only the investigating researchers will have access to these materials. The participant master list will be destroyed once data is collected. The researchers will delete or erase the audio recordings within three years of completion of the research. All physiological samples will be processed by certified laboratory technicians and destroyed after completion of
lab analyses. In any report that we publish, we will not include any information that will make it possible to identify a participant.

**Voluntary Nature of the Study**
Your participation is voluntary and may be withdrawn at any time without any negative consequences. If you choose not to participate, this will not affect your current or future relations with the University. There is no penalty or loss of benefits for not participating or for discontinuing your participation.

**Contacts and Questions**
The researchers in this study are Ms. Anita Howard and Dr. Richard Boyatzis. You may ask any questions you have now or later by contacting them at 216-291-2030 (Anita Howard) or 216-368-2055 (Dr. Boyatzis). If you would like to talk to someone other than the researcher(s) about concerns regarding this study, research participant rights, research-related injuries or other human subjects issues, please contact Case Western Reserve University's Institutional Review Board at (216) 368-6925 or write: Case Western Reserve University; Institutional Review Board; 10900 Euclid Ave.; Cleveland, OH 44106-7230.

You will be given a copy of this form for your records. Thank you for participating!

**Statement of Consent:**
I have read the above information. I have received answers to the questions I have asked. I consent to participate in the study. I am at least 18 years of age.

Print Name of Participant: ___________________________________________

Signature of Participant: ___________________________________________

Date__________
Appendix 4. t-tests on PEA vs. NEA Participants’ ECI-U Feedback Results (EI Competency Ratings)

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<th>Emotional Intelligence Competency</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
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<tr>
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Bibliography


Fredrickson, B. L. (2003). The Value of Positive Emotions: The emerging science of positive psychology is coming to understand why it’s good to feel good. American Scientist Online: http://www.americanscientist.org/template/issue/issue/394


