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What changes with coaching? Investigating within-person changes in reflection, the predicting role of implicit person theory and the effects on perceived utility of coaching

Coaching literature assumes that people undergo personal change through coaching. We contend that different types of change may occur with coaching and investigate whether this is the case in reflection (a key competence in coaching). Results from our sample of 61 coachees indicate that three types of change (alpha, beta, gamma) are observed across participants. Alpha change refers to a substantive change in reflection (i.e., an increase or decrease), beta to a recalibration of one's assessment of reflection and gamma to a re-conceptualization of reflection. We further examine Implicit Person Theory (IPT) as a predictor and perceived coaching utility as a correlate of the three types of change. We observe a higher probability that incremental IPT will associate with alpha change versus other types of change, and that beta and gamma changes correlate positively and negatively, respectively, with perceived utility for work. No significant correlations are observed between types of change and perceived utility for personal development. Our study represents an exploratory contribution to a better understanding of the within-person changes in reflection following coaching intervention, and has implications for both theory and practice, which we discuss along with indications for future directions.

Keywords: coaching, change, reflection, IPT, reactions, perceived utility

Workplace coaching is increasingly used nowadays as a tool for individual and organizational development (Grover & Furnham, 2016). Workplace coaching¹ is a customized intervention that implies learning and development through reflection and goal setting, producing positive outcomes for the coachee's professional life. As this type of coaching occurs in organizational contexts and applies to all hierarchical levels, it differs from other designations currently used, such as leadership or executive coaching (normally directed at people who manage others or have a higher level of responsibility in an organization; Bozer & Jones, 2018). The main actors of the coaching process establish a working alliance (De Haan, Culpin & Curd, 2011) that is instrumental to coachees' goal achievement. Ultimately, the role of the coach is to facilitate coachees' development aiming for several possible outcomes, like higher performance and greater job satisfaction; in short, more adequate functioning and well-being at work (Theeboom, Van Vianen & Beersma, 2017).

Although individual change is at the core of coaching interventions, and notwithstanding calls for a better understanding of the intra-individual process of change (Ely, Boyce, Zaccaro, Hernez-Broome & Whyman, 2010; Theeboom, Beersma & Van Vianen, 2014), the concept of change is remains ambiguous and requires specifications.

Golembiewski and colleagues (1976) introduced a tripartite model of change, distinguishing three types that might be observed as a consequence of a development intervention. In this taxonomy, change can take the form of alpha, beta or gamma change. Alpha change reflects a substantive change in the level of a given construct; beta change reflects the calibration of the scale used to measure a construct, and gamma change implies a reconceptualization of the construct under analysis.

¹ Throughout the paper we use "workplace coaching" or simply "coaching" interchangeably. Moreover, we review and draw from the theoretical and empirical literature on any form of coaching that falls under the definition of workplace coaching.

This approach, originating in the organizational development field, has been applied to Human Resource Development (HRD) research (i.e., on Assessment Centers; Brodersen & Thornton, 2011). However, to our knowledge, no study has empirically applied this taxonomy in the field of coaching. Despite alpha change being the common form of change examined in pre-post coaching intervention studies, we contend that beta and gamma change should also be analyzed as relevant possible outcomes of coaching in themselves and not just because they might interfere with what is commonly considered “pure change” (i.e., alpha change; e.g., Spurk, Abele & Volmer, 2011). In fact, by “considering multiple types of change, it becomes possible to better identify the specific effects of the process on participants, thus facilitating a more accurate conception of how the process operates” (Brodersen & Thornton, 2011, p.26). We propose this would greatly contribute to the study of coaching which, by definition, is a process of change (de Haan et al., 2011; Peterson, 1996).

We intend to apply this change taxonomy to reflection within the coaching program. Reflection is critical to inducing the development coaching is meant to stimulate (Gray, 2006); to be effective, reflection needs to be conscious (Ellis, Carette, Anseel & Lievens, 2014) and needs to happen in interaction with others (Rodgers 2002); thus, it is promoted by the coach questioning the coachees (Cushion, 2018; Theeboom et al., 2017). Considering reflection as one of the key processes in coaching, we intend to better understand how individual coachees’ reflection changes.

Literature on coaching consistently shows that not all coachees respond in the same way (McKenna & Davis, 2009; Jones et al, 2019). Traits can play an important role in an individual’s motivation to engage in developmental interventions (Heslin, Vandewalle & Latham, 2006; Jones, Woods & Hutchinson, 2014; Klockner & Hicks, 2008; Sue-Chan, Wood, & Latham, 2012), and even in moderating coaching effectiveness (Grant, 2012; Jones et al 2019; Schermuly & Graßmann, 2018). Individual implicit person theory (IPT; Dweck &

Leggett, 1988), asserts that individuals differ in how they view their abilities. People can either see these as fixed and immutable (i.e., they hold an entity theory), or as more malleable and open to development (i.e., they hold an incremental theory). Such beliefs are rather stable; hence are regarded as traits. Moreover, they are closely related to motivational patterns and influence the way change is perceived (Smith & Brummel, 2013) and how people respond to interventions, such as coaching (Sue-Chan et al., 2012). Hence, we intend to investigate IPT as predictive of the different forms of change reported by coachees in their reflection process.

When exploring the benefits of workplace coaching in organizational contexts, most studies adopt an organizational perspective, often investigating outcomes such as performance and job-related attitudes (Feldman & Lankau, 2005). This is not surprising, since organizations often financially support coaching programs and need to know whether their requirements (e.g., for more committed, better performing employees) are met. However, the individual perspective of the coachee, the program's main receiver, needs to be considered too; we concur with authors who recommend that coaching success is defined according to multiple outcome measures and from the vantage point of multiple stakeholders (De Haan, 2021). Consistent with Kirkpatrick's model of training evaluation (1967), individual reactions immediately following a development program should be evaluated first. Such reactions can be divided in two categories, namely affective reactions (i.e., typical satisfaction with the program measures) and utility reactions (i.e., the subjectively perceived utility or usefulness of the program) (Alliger, Tannenbaum, Bennett, Traver, & Shotland, 1997). A similar distinction may well apply to coaching interventions, which can engender affective states in coachees (e.g., positive emotions about the program, its features and the coach), and perceptions of the utility of the program. In training literature, a meta-analysis has shown that utility reactions are positively correlated with learning immediately following the training and transfer of learning (Alliger et al., 1997), and more strongly than affective reactions. Because

of this connection with subsequent beneficial effects, we propose to focus also on utility reactions in the study of coaching. Specifically, we aim to investigate whether the type of change in reflection coachees experience through intervention, is associated with their different reactions to the program's perceived utility.

Overall, we believe our study will contribute in innovative ways to coaching literature and practice, as well as to the broader HRD research field. First, by examining different types of change that may occur as a result of coaching, our study offers a deeper understanding of the intra-individual process of change that coachees experience. This is an important lacuna in coaching research dominated by pre- and post-coaching comparisons that simply assume a linear increase with few notable exceptions exploring the change over time; De Haan, Molyneux & Nilsson, 2020). Second, we focus on reflection which, as better elaborated below, is an essential competence to be developed in coaching (Theeboom et al., 2017). It is the cognitive process that enables the self-regulation responsible for changing attitudes and behaviors at work (Bandura, 2001). Third, understanding the impact of individual characteristics on an intervention is paramount, especially an individualized one such as coaching. Knowing the role IPT plays in influencing the different types of change in reflection may help both coach and coachee develop realistic expectations regarding the intervention's likely progress. Our fourth and final contribution, exploring individual reactions to coaching programs, speaks to another way of looking at the "success" of coaching (De Haan, 2021). Different reactions may depend on the type of change coachees experience during their coaching program and are important to uncover due to their further consequences.

Literature review

Coaching, Reflection and Change

With workplace coaching defined as an intervention oriented to help coachees achieve results, the coach acts as facilitator of the coachee's goal-attainment. The coach assumes the role of change agent to support the coachee through a self-regulatory learning cycle (Grant, 2003; Theeboom et al, 2017). Indeed, a successful coaching intervention implies change in the coachee which, in turn, leads to several attitudinal, skill-based and cognitive outcomes (Athanasopoulou & Dopson, 2018; Grover & Furnham, 2016; Jones et al, 2016).

In most studies, to evaluate change in those outcomes, measurements are taken in two moments: before and after the coaching intervention. Some exceptions are found in longitudinal studies, where additional measurements are taken over time, but still after the coaching program has ended (Allan, Leeson, De Fruyt, & Martin, 2018; Jones et al., 2019; McGonagle, Schwab, Yahanda, Duskey, Gertz, ... & Kriegel, 2020). This way of measuring outcomes reflects the coachee's perception at the exact moment of data collection (i.e., before and after the coaching), and assumes that a substantive change has occurred in the "level" of any given construct in coaching participants (and as compared ~~in comparison~~ to non participants). However, as previously anticipated, there are different types of change (Golembiewski et al., 1976) and we argue that in coaching those changes are particularly relevant.

Alpha, beta and gamma changes comprise the most well-known taxonomy of change (Golembiewski et al., 1976) and were first applied to organizational development initiatives. Since then, the model has been used in different contexts, all related to developmental processes (Brodersen, & Thornton, 2011; Jellema, Visscher & Scheerens, 2006; Porras & Silvers, 1991). Alpha change could be defined as the traditional representation of change, meaning the difference between pre- (T1) and post- (T2) measurements in a certain variable. Most studies on coaching interventions investigate alpha change; for example, whether an individual's leadership skills increase after coaching (e.g., Mackie, 2014; Nieminen, Smerek,

Kotrba, & Denison, 2013). Beta change involves the participant recalibrating the scale between two assessments, thus making any alpha change negligible (i.e., changes in mean values). For example, a person who before a coaching intervention reports having high vs. low levels of leadership skills could realize after the intervention that their leadership skills were not that high or low after all. Consequently, they would assess themselves in a way that is inconsistent with the previous use of the scale. Finally, gamma change refers to a complete redefinition of a certain construct, which happens between the two assessments. In this case, again, the difference between a pre and post-intervention measure would not reflect the real variance because the two measurements would capture almost different concepts (Brodersen & Thornton, 2011; Golembiewski et al., 1976; Thompson & Hunt, 1996). Continuing our example, a coachee experiencing this type of change would conceptualize effective leadership skills differently after the coaching program than before it.

Applying Golembiewski and colleagues' (1976) taxonomy of change to coaching has been previously suggested (e.g., Ely et al., 2010; Peterson, 2003), but to our knowledge it has never been conducted. Ely and colleagues (2010), for example, mentioned the different types of changes to highlight the difficulty in evaluating the results of leadership coaching. Similarly, Peterson (1993) compared the traditional difference scores between pre- and post-coaching measures with the "retrospective degree of change ratings", directly asking coachees about their perceived degree of change in a certain variable. However, Peterson (1993) did not calculate alpha, beta and gamma change indexes. Finally, Theeboom and colleagues (2014) explicitly called for research on the tripartite model of change in coaching; saying: "more insight into alpha, beta, and gamma changes and their underlying cognitive structures (Thompson & Hunt, 1996) is needed because this may help researchers and practitioners to better design a coaching intervention and measure its impact" (p. 14).

Therefore, we aim to fill this gap in the literature by examining for the first time the three types of change that result from coaching. Many authors view coaching as an intervention that fosters a coachee's change (Grant, 2003). This change, being self-directed since the coach acts merely as facilitator, is essentially an intra-individual change (Theeboom et al., 2017). In other words, scholars seem to agree that the locus of change resides mostly in the individual's self-regulation, cognitive skills and psychological resources, which in turn make behavioral changes possible in many life domains (Fontes & Dello Russo, 2020; McGonagle et al., 2020; Wenson, 2010). Thus coaching, more than directly targeting a behavioral change, is primarily concerned with equipping coachees with the necessary competencies to self-regulate (Theeboom et al., 2017). Reflection is one of the most relevant competencies to achieve this (Bandura, 2001).

Lai and McDowall (2014) include reflection in the very definition of coaching as a "reflective process that facilitates coachees to experience positive behavioral changes". Also, Theeboom and colleagues (2017) acknowledge it as being principally responsible for maintaining longer-term effects of coaching, while other authors stress its critical role throughout the coaching program (Grant, et al., 2002; Wenson, 2010). We aim, therefore, to study the different types of change that may result from coaching in reflection.

Reflection comprises a process of pondering, reviewing and questioning of past (work) experiences to extract meaning from them (Ong, Asford & Bindle, 2015; Theeboom et. al, 2017). This enables a sense-making process about past events and behaviors, from which individuals can proceed to anticipate and symbolize new possibilities for the future. The content of one's reflection mostly revolves around the self, work relations and one's tasks (Ong et al., 2015). Thanks to the coach, whose input involves specific questions that lead coachees to reflect on their work goals and the methods and approaches selected to pursue them; how their own characteristics and emotions play a role in their results and how their

behaviors affect and are affected by other people in their work context. To be effective, reflection must be a conscious process (Gray, 2006) and, as such, works well as a shared process with the coach (Rodgers, 2002).

Applying the tripartite model of change to reflection, we may say that alpha change represents a change in the level of reflection as a consequence of coaching intervention. The coach's questioning directly activates a reflection process that could increase over the sessions, inducing some coachees to reflect more and hence report an alpha change in reflection when the coaching program ends. A beta change in reflection, however, means a recalibration of the coachee's perception about their reflection levels before and after the coaching program. Some coachees may experience this type of change from being prompted to reflect by the coach during sessions; that is, a coachee may recalibrate their level of reflection from exposure to greater levels of reflection by the coach. The third type, gamma change, implies a redefinition of the concept of reflection. We predict that some coachees would reconceptualize their understanding of what reflection is and means after experiencing guided or collaborative reflection throughout the coaching intervention, thus reporting gamma change.

Based on the above we hypothesize:

H1: Three types of change in reflection, namely (a) alpha (b) beta and (c) gamma changes will be observed across participants in a coaching program.

Implicit Person Theory and Change in Reflection

The different types of change coachees might experience during coaching may be influenced by their personal characteristics, such as personality and motivational factors. Since coaching is an individualized intervention, the role these factors play cannot be neglected (Rank & Gray, 2017). Several studies have investigated how individual traits influence the learning

process, but few focused on coaching interventions. They point to the positive impact of the Big 5 personality traits on coaching effectiveness, and specifically: openness to experience (Klockner & Hicks, 2008; Jones, et al, 2019; Stewart, Palmer, Wilkin & Kerrin, 2008); extraversion (Jones et al., 2014); conscientiousness (Klockner & Hicks, 2008) and emotional stability (Stewart et al., 2008). Besides the Big 5, other traits influence a coachee's motivation and ability to change, such as adult dispositional hope and personal growth initiative (Klockner & Hicks, 2008). Equally, Implicit Person Theory (IPT), which describes two individual perspectives about change, can play a role in the coaching process, although only a few studies tested this assumption (Lin, Lin, & Chang, 2017; Sue Chan et. al., 2012).

According to Dweck and Leggett (1988), IPT identifies two implicit beliefs about oneself: entity and incremental theories. Individuals holding an entity belief see their characteristics as fixed and regard behavioral change as nearly impossible. For them, feedback either confirms a given attribute or becomes disapproval. In development contexts, entity theorists tend to embrace performance goal orientation, meaning they tend to seek opportunities to show their abilities or prevent failures rather than to improve and learn (Smith & Brummel, 2013; Heslin et al, 2006). Conversely, individuals with incremental belief see their attributes as malleable and open to development through effort and persistence, and perceive feedback as an opportunity to grow and improve their skills. In development contexts, incrementalists tend to be learning goal oriented, interested in developing their competence and abilities and not just in proving themselves (Dweck & Legget, 1988; Smith & Brummel, 2013; Sue Chan et. Al, 2012; Taberero et al, 1999).

These two beliefs strongly influence how people respond to interventions designed to improve their performance (Van-Dijk & Kluger, 2004). We contend they should also strongly influence how coachees respond to coaching, which is an individual learning intervention that rests on self-regulatory abilities and motivation to change (London, 2002; Harakas, 2013). We

know that IPT can moderate the effects of coaching on performance (Lin et al., 2017) and that in a coaching intervention, individuals with incremental beliefs present a better regulatory fit than those with entity beliefs (Sue Chan et al., 2012). However, previous studies that only considered traditional alpha change did not indicate any possible relationship between IPT and beta or gamma changes.

Consistent with the main tenets of IPT (Dweck & Leggett, 1988), incrementalist individuals, tending to see change as positive and desirable, believe they can change. Therefore, we expect them to be more open to experiencing alpha change than entitist individuals because an alpha change in reflection entails substantively changing the reflection process they engage in. In other words, incrementalist coachees would venture to reflect more on their work experiences, even risking “failure” or revealing incompetence to the coach and themselves. Entitist coachees, however, would suppress greater reflection to protect their self-concept and perceived competence.

We expect incrementalist coachees to also report greater beta and gamma changes than entitist coachees; nonetheless, we expect a weaker association between incremental theory and beta and gamma changes. While these still constitute changes, hence an alteration compared to a previous (stable, safe and known) state, they represent less substantive change than alpha change. Our reasoning relies on considering a recalibration of the scale (i.e., beta change) and a reconceptualization of the reflection process itself (i.e., gamma change) as more cognitive types of change. Thus, incrementalists, who tend to embrace and enact change, would be more likely to change the “quantity” of reflection they engage in (i.e., alpha change) than to re-assess their own reflection levels or redefine the concept of reflection. Accordingly, we posit our second hypothesis:

H2: Coachees with an incrementalist IPT will present a higher probability of experiencing an alpha change, followed by beta and gamma change.

Change in Reflection and Perceived Utility

Meta-analytic investigations on the effects of coaching have shown that while most studies largely rely on self-report data (Theeboom et al, 2014; Jones et al, 2016), a few involved sources such as peers, managers, the team or 360° evaluations to measure the coaching outcomes (Fontes & Dello Russo, 2020; Jones et al., 2019; Luthans, & Peterson, 2003). In all cases, the effects of coaching were investigated using the organization as main stakeholder; that is, addressing consequences mostly beneficial for the company (e.g., work performance, job satisfaction, skills acquisition). However, coaching being an individual development tool, with the coachee as direct receiver, we consider it extremely relevant to embrace the perspective of the coachee as stakeholder (Ely et al., 2010; Taylor, Russ-Eft & Taylor, 2009)

In his seminal work on training evaluation, Kirkpatrick (1967) defined reactions as the degree to which participants find training favorable, engaging and relevant to their jobs. Analyzing the reactions of those being trained (or coached) is a necessary step towards improving any training construct validity and usefulness (Morgan & Casper, 2000). Reactions received the attention of several scholars investigating training and development and meta-analytic evidence reveals they are positively related to other aspects that define a program's effectiveness (Alliger et al., 1997). Alliger and colleagues (1997) were the first to propose a refinement to Kirkpatrick's (1967) model regarding the reaction construct, which involves distinguishing between purely affective reactions and perceived utility reactions. The authors also empirically supported the value of having two separate factors for reactions that relate differently to learning immediately after the training program as well as to transfer of learning. In particular, it is the perceived utility dimension that has greater predictive power of learning and on-the-job use of the training content.

In coaching literature, Kirkpatrick's model has been consistently applied to analyze coaching effectiveness (Ely et al. 2010, Jones et. al, 2016; MacKie, 2007). Meta-analyses especially have used it as a theoretical framework to systematize primary studies. Nevertheless, few coaching studies have focused analysis on the reactions level, even though researchers typically collect data immediately after coaching, and this time frame is the most appropriate for assessing reactions rather than learning or behaviors (Blackman et al., 2016). In research conducted among executive coachees, a positive relationship was found between satisfaction with coaching and self-reported learning (Albizu, Rekalde, Landeta, Fernández-Ferrín, 2019). Thus, as in the training literature, there appears to be evidence that reactions to coaching may also be predictive of other meaningful outcomes and should be studied in greater depth.

Referring to coaching reactions, Ely and Zaccaro (2011) indicated they can be used to “assess participants’ satisfaction with their coaching experience as well as perceptions of coaching effectiveness” (p. 395), thus recalling to some extent factors of affective and utility perceptions (Alliger et al., 1997). However, measuring reactions as “perceived effectiveness” of a coaching program may be problematic. Individuals may start with different implicit and explicit expectations and evaluate the program’s “effectiveness” using those as reference points (De Haan, Culpin & Curd, 2011). Furthermore, assessing perceived effectiveness (e.g., Ely et al., 2010) alludes to the fact that some consequences may have already occurred; whereas, the original formulation of reactions rests with effects and perceived utility of the program before its application (Alliger et al., 1997). We suggest, therefore, focusing on perceived utility as a cognitive evaluation of the program and to further distinguish within the perceptions of coaching utility.

Due to its nature as an individualized development intervention, coaching is often reported to positively affect task related as well as personal matters (Hall, Otazo, &

Hollenbeck, 1999). This is because coachees are typically invited to set developmental goals relevant to their work that also involve a deep level of personal change (and this is true in every subfield of workplace coaching, including but not limited to executive coaching; Athanasopoulou & Dopson, 2018). Consequently, one could reasonably explore the perceived utility of coaching regarding coachees' perceptions of either its practical usefulness at work or its relevance for personal development (Athanasopoulou & Dopson, 2018). We are further interested in understanding how different coaching program experiences, notably different types of change in reflection, relate to perceptions of coaching utility for work and personal development.

Considering the definitions of alpha, beta and gamma change in reflection, we elaborate on likely different relationships. Alpha change being a more substantive form of change, is likely related to perceptions of coaching utility for work. By engaging in greater (or more frequent) reflection thanks to coaching, coachees may identify its potential for improving task-related issues; conversely, since this is a “quantity” not “quality” change – that is, they have not changed the way they conceive reflection or their own score of self-perception in reflection – they may see it as less useful for personal development. A similar, but reverse reasoning is applied to beta and gamma change. Because beta change implies recalibrating the scale used to “assess” reflection, coachees may perceive this change as more novel than alpha change (Thompson & Hunt, 1996). As such, beta change may signal an insight to the person about themselves in relation to the reflection process that could be useful both for work practice and personal development. Lastly, gamma change, which implies a complete reconceptualization of the reflection process, is likely perceived as novel – like beta change. Unlike beta change, however, it may be perceived as too unsettling. We maintain that experiencing gamma change may cause discomfort (Sherman & Freas, 2004) such that coachees may lose their reference points and feel more vulnerable and afraid of losing their

identity (Reams, 2005). In these cases, the change would be so radical (i.e., starting with reframing the very concept of reflection) that it may be regarded as having little practical utility; hence, we expect a negative impact of gamma change in reflection on the perceptions of coaching utility for both personal development and work. Accordingly, we formulate the following hypothesis:

H3: Different types of change in reflection will predict different types of utility perceptions after a coaching intervention, and specifically:

a) Alpha change in reflection will be positively related to perceived coaching utility for work but not for personal development;

b) Beta change will be positively related to perceived coaching utility for both work and personal development;

c) Gamma change will be negatively related to perceived coaching utility for both work and personal development.

Method

Participants and Procedure

The 61 participants in this study (57% men and 43% women), worked in a Marketing agency and voluntarily enrolled in a coaching program. Their average age was 31.80 (SD= 6.38) and the average tenure in the company was 3.14 years (SD=3.99). The company is a Portuguese mid-size agency employing around 100 people, considered as full time equivalent.

Participants held quite diverse job positions, including web developers to account executives, creative designers, social media and administrative functions. Hierarchically speaking, participants belonged to different levels, from junior positions, to middle management and executives.

The organization provided the coaching program as a developmental opportunity to all employees wishing to participate, the goal being to contribute positively to their wellbeing at work. It comprised four, once monthly hour-long individual sessions, face to face and in-house. The coach was a certified coach with background in psychology and with no previous connection to the company. After a group presentation explaining the coaching program, participants voluntarily enrolled and completed a pre-intervention questionnaire. Participants were also told that topics discussed in the sessions would be work related, since the program involved workplace coaching. Although the volunteer participants were hierarchically diverse, the program followed the same structure and stages for all, with no differentiation between executives, managers or regular employees. The intervention followed the GROW model (Whitmore, 2003), with some additional features inspired by the PCI (Psychological Capital Intervention, Luthans et al., 2010). The structure of each session is illustrated in more details in Fontes & Dello Russo (2021). While each session was geared toward strengthening specific psychological resources, this was achieved by systematically stimulating the coachees to reflect on their experiences at work. In particular, in all sessions the coach asked the coachee to report about their progress toward the goals and to bring up examples or specific attempts made during the previous weeks (reflect on evidence); to reflect on alternative behaviors that could have been possible, and the likely consequences that would descend from those (reflect on strategies); to share their feelings during and after certain events (reflect on one's role and affects). At the end of the fourth session, participants again completed a questionnaire containing some of the same variables collected before the program, plus the satisfaction survey.

Measures

Data was collected in two moments, pre and post intervention. In the first questionnaire (pre intervention) we included the Implicit Person Theory and Reflection at

Work scales (described below). The post intervention questionnaire included some questions about coachees' reactions to the program and again the Reflection at Work Scale. Here, following the procedure suggested by Terborg and colleagues (1980), for each item of the scale we asked coachees to answer by referring to two different moments: 1) "currently", participants had to respond according to how they perceived their level of reflection in that moment (in our study we named this the "Post" measure); and 2) "before the coaching sessions" where coachees were instructed to think retrospectively about their reflection prior to the coaching and rate it accordingly (this data was designated "Then" in our study).

The *reflection at work* scale (Ong, Ashord & Bindl, 2015) comprised 16 items, measuring four dimensions of individual reflection (goals, methods, self, and relationships) loaded on a single factor. For each item, respondents were asked how much they engaged in different types of reflection at work, ranging from 1 (*not at all*) to 5 (*a great deal*). Reliability analysis of the scale was investigated and showed the scale was highly reliable: $\alpha=0.83$ for the pre-intervention measure; $\alpha= 0.98$ for the post-intervention measure; and $\alpha= 0.96$ for the "then" measure also collected post-intervention.

The Implicit Person Theory was measured using a 3-item scale (Levy, Dweck & Stroessner, 1998), and participants expressed their agreement, from 1 (completely disagree) to 7 (completely agree) to statements like "People can do things differently, but who they intrinsically are can't really be changed". Two items were reverted so that the composite variable would measure incremental and entity beliefs along a continuum. Specifically, higher values indicate incremental beliefs and lower values indicate entity beliefs. Cronbach's alpha coefficient of internal reliability was $\alpha=0.81$.

Reactions to the coaching program were collected using two single items measuring the perceived utility of the program for work ("How satisfied are you with the utility of the program for your work?") and for personal development ("How satisfied are you with the

utility of the program for your personal development?”), respectively. Both items were rated on a 1 (very little) to 5 (very much) scale.

Data analysis

We followed the procedure proposed by Terborg and colleagues (1980) and previously applied by Brodersen and Thornton (2011) to assess participants' alpha, beta and gamma changes in reflection. As the authors recommend, the different types of change should be tested in order, so that if gamma change is established for an individual, the other two types of change would be ruled out. If gamma change is not supported, then beta change should be explored, followed by alpha change.

To establish gamma change we considered the following criteria (Terborg, Howard & Maxwell, 1980):

- a) the correlation between Post and Then measures should be statistically significant while the correlations between both the Pre and Then and Pre and Post measures should not.
- b) The Post/Then correlation should be at least 50% greater than Pre/Then and Pre/Post correlations.
- c) The Post/Then correlations should be statistically greater in magnitude than the Pre/Then and Pre/Post correlations (according to a t-test).
- d) The standard deviations of the Post and Then scores should not substantially differ from each other, but each should differ from the standard deviation of the Pre scores. More specifically, the standard deviations of the Post and Then measures should differ from the standard deviations of the Pre measure by at least one quarter.

In general, gamma change was concluded when two of the four above conditions were satisfied. However, all decisions were considered case by case.

For beta change, we analyzed the difference between the mean scores of the Pre and Then measures of reflection. For those individuals where no evidence of beta change was found, alpha change was finally assessed by comparing their mean scores of Post and Then measures of reflection (Terborg et al., 1980). Pairwise t-tests were run for each individual, with n equal to the number of items of the reflection scale, to test for significant differences.

Once we established which (if any) type of change in reflection had occurred for each individual, we ran three logistic binary regressions with IPT as predictor and each of the three types of change as binary dependent variables (Pituch & Stevens, 2016). To investigate whether the type of change was correlated with individuals' reactions to the program (i.e., their perceived utility for work and for self-development) we used Pearson's correlation coefficients.

Results

Type of change

Table 1 shows the detailed individual information for assessing gamma change. As mentioned before, we evaluated the presence of gamma change by analyzing correlation values, their difference and also comparing the standard deviations. We ascertained that with at least two criteria out of four, 14 individuals (23% of the participants) showed gamma change.

Consistent with previous research that also showed a greater ability to assess gamma change based on the correlation criteria (Brodersen & Thorton, 2011), we note that the standard deviation criterion was respected in only two cases.

----- Insert Table 1 around here -----

The test for beta change is reported in Table 2, together with the test for alpha change. It is worth repeating that individuals exhibiting gamma change were not included in the test of beta change, and if beta change was observed, individuals were not screened for alpha change. As can be observed, 24 individuals (39.3%) showed beta change and 19 (29.5%) showed

alpha change. Finally, we note that at the conclusion of the coaching program, 4 individuals (6.5%) presented no change in reflection at all. These results confirm our first hypothesis attesting to the existence of all three different types of change.

----- Insert Table 2 around here -----

Predicting change

Correlations between variables can be found in table 3, together with means and standard deviations. Since no significant correlations were found between age or gender and the variables under study, these were not included as control variables in subsequent analyses. In the logistic binary regressions, the dependent variables were the three types of change and were analyzed separately (see Table 4). In all cases, the independent variable was IPT, with lower scores indicating entity belief and the higher scores incremental belief. To evaluate the goodness of the models, we used the Nagelkerke (1991) R^2 statistic since it is one of the most commonly used indexes of model fit for logistic regressions and, like the traditional R^2 from Ordinary Least Squares (OLS) linear regression, ranges between 0 and 1. Starting by alpha change, the model presents marginally significant values (chi square (df 1) = 2.962 p=0.085). Regarding the case classification, we can see that this model with IPT as predictor correctly classified 68% of cases, presenting a Nagelkerke R^2 value =0.072. Analyzing the odds ratio, IPT positively contributes to the model with marginally significant values (B=0.390, SE=0.232, Wald=2.831, p=.092). Every unit increase in IPT corresponds to an alpha change odds ratio of nearly 48% (Exp (B)= 1.477, 95% CI (0.938, 2.325)). Converting the odds into probability, we could say that for every unit increase in IPT there is an increase of nearly 60% in the probability of presenting an alpha change. Regarding beta change, the model did not show a significantly good fit (chi square (df 1) = 1.378 p=0.240), and IPT was not a significant predictor (B=-0.253, SE=0.219, Wald=1.333, p=.248). Equally, the regression model predicting gamma change displayed a poor fit (chi square (df 1) = 0.276 p=0.599), and IPT

was not a significant predictor ($B=-0.128$, $SE=0.246$, $Wald=0.272$, $p=0.602$). These results lend only partial support to our second hypothesis.

----- Insert Tables 3 and 4 around here -----

Correlates of change

For the third hypothesis, we intended to investigate the correlations between the three types of change and two perceptions of coaching utility (for work and personal development) as indicators of reactions to the coaching program. As Table 3 shows, a significant positive correlation was found between beta change and utility for work ($r = 0.254$, $p = .05$), as hypothesized. Also as hypothesized, gamma change negatively correlated with utility for work ($r = - 0.257$, $p = .047$). Contrary to expectations, no significant correlations were found between alpha change and utility for work. Regarding utility for personal development, and again contrary to expectations, there were no significant correlations with either type of change. Overall, we conclude that only hypotheses 3b and 3c were partially supported.

Discussion

Our study aimed to contribute to the understanding of within-person change processes in coaching and, in particular, change in reflection. Reflection is a competence of paramount relevance for self-regulation (Bandura, 2001), and a key element in coaching practice (Lai & McDowall, 2014). Coaching literature has traditionally assumed that within-person changes occur with coaching (Luthans & Peterson, 2003; Theeboom et al., 2017), yet most research is conducted with pre-/post- designs that do not explore alternative forms or shapes of change (Theeboom et al., 2017), which makes our study particularly warranted. We contend, ~~therefore~~, following Golembiewski and colleagues' (1976) taxonomy, different types of change are most likely present.

Other coaching scholars had previously indicated this (Ely et al., 2010; Theeboom et al., 2017), but to our knowledge no empirical test of alpha, beta and gamma change had

previously been conducted in the coaching domain. Consistent with one previous application in the HRD field (Brodersen & Thornton, 2011), we examined the presence of the three types of change in each single participant. As expected, we found all three types of change in reflection in our sample, with only four participants showing no change at all after the coaching program. It is worth noting that alpha, beta and gamma changes were fairly homogeneously distributed, suggesting that beta and gamma changes are just as frequent likely outcomes of coaching as the most traditional alpha change. We believe this happens because the questioning process initiated by the coach, prompts the coachee to reflect. Yet, for some coachees, this induced an increase in reflection (alpha change), for others a recalibration in their assessment of reflection (beta change), and in others a reconceptualization of the reflection activity itself (gamma change). In fact, there are different types of reflection, not all functional (Trapnell & Campbell, 1999), and several stages in self-reflection, which might be reached with difficulty in a coaching process since self-reflection “is rooted in the implicit memory, organized in an associative way, and based on non-verbal representations” (Greif et al., 2017, p.6). While alpha change is what coaches would expect to achieve with all coachees, some people may have different understanding of the reflection process to start with, and may find it easier (or more difficult) to be led in it (Greif et al., 2010), which would explain the different types of change we observed. In our program, the coach invited the coachees to see alternative paths, behaviors and strategies, and because of this some coachees may have realized that they used to engage in ruminative thinking rather than reflection, by for example mentally re-living certain situations without visualizing different paths for the future. In this case, it is likely that these individuals experienced a gamma change. Likewise, some coachees may have come to see that they were not reflecting as often or as in-depth as they did during coaching, since in all sessions the coach was systematically guiding them through their states, emotions, and experiences. In this case, individuals most likely reported a

beta change. Finally, in other cases, the input offered by the coach yielded what is assumed to be the most immediate outcome, that is: people would continue the process of questioning and pondering their experiences on their own, away from the sessions, hence reporting an actual increase (i.e., alpha change) in reflection at the end of the program.

The second goal of this study was to predict the three types of change with IPT - one of the most pertinent personality traits when it comes to change processes (Dweck & Leggett, 1988; Sue-Chan et al., 2012). Our results show, there is a greater tendency for coachees with an incremental belief to experience alpha change in reflection than for coachees with an entity belief. This was consistent with our expectations, because incrementalists see themselves as developable, perceive feedback as an opportunity to change and present a learning goal orientation (Smith & Brummel, 2013). Contrastingly, entitists perceive themselves as having fixed characteristics and present a performance goal orientation, meaning they seek opportunities to either show their abilities or prevent failures. The characteristics of incrementalists likely lead those individuals to embrace challenges and put themselves to the test (Heslin et al., 2006) by engaging in more reflection - as stimulated by their coaches – even though this may mean failing at first and being unable to show their abilities. Indeed, we observed that coachees with incremental belief showed an observable increase in reflection (alpha change). This is in line with what other authors have also proposed (Böhm, Mühlberger, & Jonas, 2018), namely that coaching would have different implications for individuals with a promotion focus or growth motive (conceptually similar to the incrementalist belief) versus a prevention focus or security motive (conceptually close to entitist belief).

However, against expectations, we observed no difference between incrementalists and entitists regarding beta and gamma change. Our findings revealed that coachees with entity or incremental beliefs could experience beta and gamma change with equal probability.

This may be due to the small sample size, but may also have alternative explanations. On the one hand, it may be that beta and gamma changes are more cognitive in nature than substantive and visible alpha change. They do not entail behavioral change, but recalibration of assessment or reconceptualization of the construct, respectively. As such, they may depend less on IPT and an individual's inclination to take risks (Sue-Chan et al., 2012); in other words, IPT could not predict "qualitative" changes in reflection induced by the coaching process. On the other hand, we exclusively focused on functional reflection and did not investigate dysfunctional types (Trapnell & Campbell, 1999). It may be that additional differences between entitists and incrementalists emerge with respect to rumination, which would be especially worth considering since part of the coach's responsibility is to "help clients learn how to stop negative self-reflection and to switch to reflection with concrete positive results." (Greif et al., 2010, p. 6).

This study's third goal was to investigate whether the different types of change in reflection were associated with individual reactions to the program, namely perceived utility for work and personal development. Analyzing reactions to coaching is a way of looking at the success of coaching from the coachees' perspective (De Haan, 2021). Significant correlations with types of change were observed only for perceived utility for work. No significant correlations were found for perceived utility for personal development.

We offer two explanations for these non-significant correlations. First, the restriction imposed at the beginning of the program regarding the scope of the objectives to set (which needed to be work related), might have limited coachees to set goals *exclusively* relevant for work; consequently, they may have perceived the program as less broadly useful for personal development. This may also depend on how central certain skills are for several spheres of life. If, for example, improving communication skills is considered necessary only for work, due to the specific nature of one's job, a coachee may not regard the intervention to develop

that skill as useful for overall development. Second, regardless of the specific type of goals set in the program, reflection is an instrumental competence to progress in one's goals. However, coachees may fail to see how to apply reflection to other spheres of life and transpose the changes in reflection in the work context to other domains (Gray, 2006).

On the perceived utility for work, we find it did not correlate with alpha change in reflection. There are two possible justifications for this result. One, a change in the amount of reflection might not directly impact work in a practical sense, since the context in which the coachee works might inhibit reflection. For example, Reams (2005) underlines that some coachees, being expected to act and react quickly, might perceive that as incompatible with deep reflection processes. Another reason for this result could be the lack of novelty. Those experiencing alpha change may not perceive it as very novel since what they changed is the "amount" of reflection, not the quality of what they do. We can also link this interpretation to the finding that those coachees presenting beta change tended to report greater utility for work. Thus, since beta change involves recalibrating their own reflection scores, it represented greater novelty. Their self-awareness and insight into how much they reflected about work-related events may have been a revelation of sorts (Grant et al., 2002). Conversely, those coachees experiencing gamma change tended to report lower utility for work because for them, gamma change represents a complete redefinition of "reflection" since it comprises several different dimensions (self, goals, methods, relations; Ong et al. 2015). Such a redefinition process may be too unsettling to be considered "useful". As Gray (2006) puts it: "change must be at a level appropriate to the client's developmental level, creating some disequilibrium in the client's thinking, but not so much that confidence and motivation are threatened" (Gray, 2006, p.489). We propose that individuals who presented gamma change may have experienced extreme disequilibrium, which completely changed their understanding of reflection making it understandable they perceived no utility for direct

application at work. Following Harakas (2013), who studied resistance to change in coaching based on the classic three-stages of change process by Lewin (1951), we suggest that those coachees might need longer to “refreeze” their new conceptualization of reflection and perceive its utility.

Limitations and Future Research

The first limitation to acknowledge in our study is the small sample size. However, being mindful of that, we chose an adequate type of analysis (Terborg et al., 1980). Moreover, because of the sample size we accepted lower levels of statistical significance, and acknowledge we are still at a very exploratory stage with this research topic, being this the first empirical study of alpha, beta and gamma changes in coaching. A second limitation is that lacking a control group, the research design is pre-experimental (Campbell & Stanley, 1963). This was partially offset in that our analyses were conducted within person: our focus was not on the “effectiveness” of coaching for one group of coachees vs. another (e.g., Jones et al., 2016), but rather involved single individuals who all underwent a coaching program and may have reported different types of change.

Future studies should employ larger sample sizes and attempt to replicate the three types of change using different statistical methods recommended for larger samples (Terborg et al., 1980). We also encourage scholars to extend our very exploratory research by investigating both functional and dysfunctional types of reflection² (Trapnell & Campbell, 1999). In this way, and by employing well-established scales, the assessment of alpha, beta and gamma change can be more confidently recommended for coaching practice.

Furthermore, we envision studies that will apply the tripartite taxonomy of change (Golembiewski et al., 1976) to other competencies such as mindfulness (Theeboom et al., 2017), or other psychological mechanisms activated by coaching, such as self-awareness

² We thank an anonymous reviewer for this valuable insight.

(Grant, 2002) or psychological capital (Fontes & Dello Russo, 2020). We also suggest that other types of coaching (besides workplace coaching) explore different types of change in reflection and their relationship with perceived utility for personal development. The goal being to investigate whether other types of coaching may clarify the application of the reflection competency in other domains.

Based on our findings we also call for further research on the predictors of different types of change. It is evident that most extant research on the predictors of coaching effectiveness is, in fact, research on the traditional alpha change. Our results contributed to that, by showing that incremental IPT is another predictor of alpha change. However, we do not know what the predictors of beta and gamma change could be. Therefore, we invite research to explore not only personality or individual predictors but also characteristics of the coaching relationship and coaching procedures. Lastly, a very promising research direction would be to employ longitudinal research designs and explore whether people progress through different types of change, i.e., from gamma, to beta to alpha change over time.

Practical Implications and Conclusions

We believe our study contributes to coaching practice in innovative ways, as well as to the broader HRD field. Understanding the intra-individual processes of change, besides theoretical value, also informs the practice of coaching. With coaches and HRD professionals better informed about the different change processes that might occur, coaching practice and other developmental interventions at work will improve. In particular, we suggest that coaches and HRD specialists assess multiple types of change in their end of intervention evaluations.

Our study also enlarged knowledge about the characteristics and traits of the coachee, specifically IPT, and how they can influence change in reflection. IPT plays an important role in motivating change, which is a key ingredient of successful coaching programs. If coaches

diagnose their coachees' IPT, we believe they can better define their methods and expectations of success for their clients when planning a coaching intervention.

Finally, we also provide relevant information about the relation between each type of change in reflection and the perceived utility for work and personal development of a coaching intervention. These results can make coaches and HRD professionals aware of what coachees might value, and shed some light on what the "user" will perceive as useful, which ultimately influences the learning and transfer of learning (Alliger et al., 1997). Such knowledge will make coaches better able to design effective interventions.

In conclusion, our study is still a very exploratory study of the different types of change that can occur with coaching. Despite this study's small sample size and other limitations, its value resides in providing the first empirical test of alpha, beta and gamma change in reflection - a key competency in coaching. The investigation of IPT as a predictor of the three types of change, and the perceived utility as correlate, add to the value of this study and show that more research is warranted to understand the predictors and consequences of beta and gamma changes in particular. All three types of change are likely to follow from coaching intervention, and we need to better understand why and how they may occur, together with their nomological network.

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RUNNING HEAD: CHANGES IN COACHING

Table 1. Test of Gamma Change

	CORRELATIONS					STD DEVIATIONS			GAMMA
	(1) POST/THEN	(2) PRE/THEN	(3) PRE/POST	t (1,2)	t (1,3)	PRE	POST	THEN	CHANGE
P1	0.64**	-0.13	0.09	5.84**	3.72**	1.05	0.73	0.86	X
P2	0.88**	0.78**	0.75**	2.45*	3.22**	0.89	0.85	0.95	
P3	0.64**	0.25	0.51*	3.93**	1.19	1.46	0.72	0.93	
P4	0.52*	0.61*	0.21	-0.8	3.17**	0.85	0.87	1.26	
P5	0.39	0.59*	0.27	-1.63	1.1	0.81	0.4	1.18	
P6	0.12	0.60*	0.23	-3.68**	-0.96	1.09	0.48	0.77	
P7	0.5*	0.29	0.34	1.63	1.21	0.72	0.62	0.51	
P8	0.29	-0.07	0.05	2.09*	1.31	0.72	0.5	0.34	
P9	-0.46	-0.36	0.24	-0.73	3.66**	0.96	0.63	0.72	
P10	0.39	0.39	0.45	0	-0.48	0.77	0.58	0.89	
P11	0.50*	0.14	0.18	2.48*	2.16*	0.63	0.4	0.58	X
P12	0.2	-0.21	-0.61*	1.79	5.03**	0.79	0.4	0.68	
P13	0.81**	0.76**	0.76**	1.01	1.01	0.66	0.77	1.03	
P14	0.70**	0.44	0.70**	3.6**	0	1.06	0.62	0.81	
P15	0.23	0.39	0.2	-1.06	0.21	0.93	0.5	0.81	
P16	0.17	-0.05	0.04	1.23	0.69	0.5	0.4	0.62	
P17	0.61*	0.34	0.31	2.25*	2.53*	0.83	0.4	0.63	X
P18	0.35	0.33	0.13	0.13	1.55	0.85	0.45	0.75	
P19	0.29	0.43	-0.1	-0.86	3.01**	0.68	0.5	0.34	
P20	0.51*	-0.37	-0.10	5.66**	3.28**	0.7	0.34	0.58	X
P21	0.83**	0.60*	0.52*	3.43**	4.74**	0.5	0.52	0.77	X
P22	0.77**	-0.06	-0.03	6.91**	6.56**	0.85	0.54	0.95	X
P23	-0.45	0	0.58*	-4.49**	8.17**	0.58	0.25	0.45	
P24	0.35	0	0.22	2.29*	0.77	0.52	0.58	0.5	
P25	0.58*	-0.08	0.18	4.95**	2.65**	0.4	0.68	0.63	X
P26	-0.01	-0.06	0.23	0.31	-1.29	0.66	0.48	0.75	
P27	0.26	0.38	0.09	-0.76	1.2	1	0.77	0.58	
P28	-0.59*	0.1	-0.33	-4.02**	-1.94	1.03	0.51	0.7	X
P29	0.70**	0.02	-0.02	5.08**	5.49**	0.75	0.5	0.62	X
P30	0.47	0.56*	0.49	-0.85	-0.19	0.89	0.58	0.62	
P31	0.26	0.11	0.16	0.92	0.6	0.52	0.4	0.6	
P32	0.82**	0.17	0.51*	10.12**	4.25**	0.82	1.13	1.44	X
P33	-0.23	0.4	-0.12	-3.57**	-0.79	0.4	0.25	0.79	
P34	0.11	0.15	0.43	-0.29	-2.07*	0.96	0.45	1.69	
P35	0.26	-0.1	0.19	2.26*	0.38	0.68	0.52	0.5	

Note: NA- Individual was omitted from analysis due to zero variance on the Pre, Post, and/or Then measures; * $p < .05$; ** $p < .01$.

RUNNING HEAD: CHANGES IN COACHING

Table 1. Test of Gamma Change (cont.)

	CORRELATIONS					STD DEVIATIONS			GAMMA
	(1) POST/THEN	(2) PRE/THEN	CHANGE	t (1,2)	t (1,3)	PRE	POST	THEN	CHANGE
P36	0.75**	0.1	0.32	6.58**	3.98**	0.81	0.45	0.5	X
P37	0.29	0.5	0.54*	-1.93	-2.26*	0.57	0.62	1.02	
P38	-0.18	0.1	-0.05	-1.5	-0.75	0.51	0.34	0.4	
P39	0.63**	0.66**	0.52*	-0.35	1.33	0.72	0.51	0.79	
P40	NA	0.29	NA	-	-	0.34	0	0.5	
P41	0.48	-0.52*	-0.31	5.99**	3.95**	0.63	0.51	0.82	
P42	0.83**	0.21	0.25	6.91**	6.36**	0.77	0.52	0.93	X
P43	0.45	-0.36	0.16	6.11**	1.63	0.62	0.25	0.45	
P44	0.49	0.62*	0.21	-1.14	2.83**	0.63	0.5	0.68	
P45	0.07	-0.35	0.52*	3.67**	-2.57*	0.93	0.63	0.96	
P46	0.21	-0.02	-0.01	1.26	1.2	0.79	0.54	0.5	
P47	0.3	0.29	0.51*	0.08	-1.59	0.7	0.48	0.58	
P48	0.63**	0.26	0.55*	3.86**	0.75	0.63	0.48	0.81	
P49	0.57*	0.24	0.1	2.34*	3.54**	0.73	0.89	0.57	X
P50	-0.26	0.19	-0.42	-2.12*	1.08	0.44	0.51	0.66	
P51	0.42	0.42	1**	0	-	0.7	0.7	0.73	-
P52	0.08	-0.08	-0.27	0.77	1.89	1.06	0.75	1.02	
P53	0.59*	0.33	0.33	2.15*	2.15*	0.97	0.63	1.26	X
P54	0.18	0.85**	0.52*	-12.16**	6.81**	0.52	0.5	0.83	
P55	NA	0.49	NA	-	-	0.5	0	0.68	
P56	-0.2	0.1	0.15	-1.8	-2.06*	0.79	0.34	0.72	
P57	0.18	0.07	0.27	0.71	-0.53	0.68	0.48	0.63	
P58	0.1	0.32	0.08	-1.31	0.13	0.5	0.6	0.77	
P59	0.11	0.38	-0.05	-1.55	1.11	0.83	0.75	0.68	
P60	0.19	0.28	0.05	-0.53	0.9	0.73	0.45	0.6	
P61	0.27	0.09	-0.19	0.93	2.77**	0.85	0.63	0.68	

Note: NA- Individual was omitted from analysis due to zero variance on the Pre, Post, and/or Then measures; * $p < .05$; ** $p < .01$.

RUNNING HEAD: CHANGES IN COACHING

Table 2. Test of Beta and Alpha change

	MEAN			PAIRWISE COMPARISON		BETA/ALPHA CHANGE
	PRE	POST	THEN	t (pre, then)	t (post, then)	
P2	3.56	3.94	3.69	-0.81	2.24*	A
P3	4	4.38	3.94	0.16	2.41*	A
P4	3.06	3.69	2.13	3.76**	-	B
P5	4.44	4.81	1.94	10.35**	-	B
P6	3.56	4.69	2.94	2.83*	-	B
P8	4.13	4.63	4.13	0	3.88**	A
P9	4.13	4.44	3.88	0.72	1.95	A
P10	3.75	4.25	3	3.22**	-	B
P12	3.31	4.19	2.94	1.31	5.84**	A
P13	3.19	3.75	2.44	4.39**	-	B
P14	3.06	4.13	3.38	-1.23	5.20**	A
P15	3.06	4.63	3.56	-2.07	4.98**	A
P16	3.63	4.19	3.13	2.45*	-	B
P18	3.94	4.75	3.19	3.22**	-	B
P19	3.75	3.63	3.13	4.04**	-	B
P23	4.25	3.94	3.25	5.48**	-	B
P24	3.5	4.25	3.63	-0.70	4.04**	A
P26	3.81	4.69	3.19	2.44*	-	B
P27	3.94	4.06	3.25	2.91*	-	B
P30	3.56	4.25	3.38	1	5.65**	A
P31	4.5	4.81	4.31	1	3.16**	A
P33	4.81	4.94	4.31	2.74*	-	B
P34	3.44	4.75	3.06	0.82	3.97**	A
P35	3.25	4	3.38	-0.57	4.04**	A
P37	4.06	4.13	3.63	1.96	1.94	-
P38	4.56	4.13	3.19	8.89**	-	B
P39	3.88	4.44	3.31	3.58**	-	B
P40	3.89	4	3.38	3.87**	-	B
P41	3.5	4.44	4	-1.58	2.41*	A
P43	4.38	4.94	4.75	-1.70	1.86	-
P44	4	4.38	3.75	1.7	4.04**	A
P45	3.94	3.56	3.38	1.45	0.68	-
P46	3.31	3.81	2.63	2.91*	-	B
P47	3.69	4.31	3.75	-0.32	3.58**	A
P48	4.5	4.69	4.13	1.7	3.58**	A
P50	3.94	4.56	2.81	6.26**	-	B
P51	4.31	4.31	4.56	-1.29	-1.29	-
P52	2.94	3.81	2.63	0.81	3.88**	A
P54	4.5	4.63	4.19	2.61*	-	B
P55	4.63	5	4.25	2.42*	-	B
P56	3.69	4.13	3.38	1.23	3.5**	A
P57	4.06	4.69	3.56	2.24*	-	B
P58	4.13	4.31	3.06	5.51**	-	B
P59	3.81	4.19	3.06	3.5**	-	B
P60	4.44	4.25	3.31	5.58**	-	B
P61	4.06	4.56	3.25	3.11**	-	B

Note: B- beta change; A- alpha change. * p<.05; ** p<.01; participants with NA and Gamma change (Table 1) were not included in these tests

Table 3. Means. Standard Deviations and Correlations

	N	M	SD	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Gender	61	1.43	.50	1	2								
(2) Age	61	31.8	6.38	21	46	.13							
(3) IPT	61	4.20	1.25	2	7	-.12	.07						
(4) Alpha	18	.28	.45	0	1	-.12	-.15	.23	1				
(5) Beta	24	.39	.49	0	1	.05	.08	-.15	-.52**	1			
(6) Gamma	14	.25	.43	0	1	.16	.05	-.07	-.35**	-.44**	1		
(7) Utility for work	60	4.75	.54	3	5	.16	.02	-.04	-.10	.25*	-.26*	1	
(8) Utility for personal development	60	4.73	.48	3	5	-.08	-.01	-.08	-.09	.03	.02	.195	1

Gender: 1 (male) ; 2 (female); * p<=.05; **p<=.001

Table 4. Logistic Regression on the Binary Outcome Change (alpha. beta. gamma)

Variable	Unstand. beta-weights	Odds ratio (Est β)	χ^2 (Wald)	p	R2 (Nagelkerke)
IPT- Alpha	.390	1.477	2.831	.09	.072
IPT- Beta	-.253	.777	1.333	.24	.033
IPT- Gamma	-.128	.880	.272	.60	.007